International Labour Organization

Global Employment Trends for Youth 2022

Investing in transforming futures for young people

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Preface

The Global Call to Action for a Human-Centred Recovery from the COVID-19 Crisis That Is Inclusive, Sustainable and Resilient, adopted by the International Labour Conference in June 2021, affirmed that "[t]he crisis has profoundly disrupted the education, training and employment of young people, making it even harder for them to find a job, successfully transition from education and training to work, continue education or start a business and posing the risk of a reduced trajectory of earnings and advancement over the course of their working lives." Corroborating these findings, the 2022 edition of the *Global Employment Trends for Youth* report takes a deep dive into the issues involved, exploring both the challenges and opportunities facing young people in the world of work.

Young people have been disproportionately affected by the economic and employment consequences of the pandemic and, as highlighted in this report, the pace of recovery of youth labour markets in many countries and regions is falling behind that of the labour market for older workers. The difficulties faced by young people have recently been compounded by conflicts in Ukraine and elsewhere contributing to the emergence of additional challenges such as surging food and energy prices and less favourable financing conditions, particularly in developing countries. As we stand at the midpoint between 2015, when the Sustainable Development Goals (SDGs) were established, and 2030, the year by which they were originally meant to be achieved, these recent negative developments are jeopardizing progress – in particular, towards SDG target 8.6: to substantially reduce the proportion of young people not in employment, education or training.

As the world seeks to address these challenges, we must also focus on longer-term priorities, such as environmental and digital transformations, and investment in the care economy, which were already clearly needed before the pandemic. This report explores the implications for young workers of these transformations, which are also central to the Global Accelerator on Jobs and Social Protection for Just Transitions launched by the United Nations Secretary-General in September 2021. The latter initiative seeks to support the creation of millions of decent jobs, primarily in the green and care economies, and to extend social protection floors to people currently not covered by any social protection.

The scale and scope of the socio-economic policy response to the COVID-19 crisis were unprecedented. However, all too often the assistance provided to young people lagged behind the substantial support offered to more established workers. As governments, employers and workers take stock of the lessons learned from the crisis and the response measures adopted to address its enduring impacts, the 2022 edition of *Global Employment Trends for Youth* provides a valuable tool for the design of employment and labour market policies directed at young people that can prevent deeper economic and social scarring and promote a better future of work for all.

Martha Newton
Deputy Director-General for Policy

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▶ Abbreviations

CGE	computable general equilibrium
EPR	employment-to-population ratio
EU	European Union
GDP	gross domestic product
GHG	greenhouse gas
HDI	high digital intensity
ICT	information and communications technology
IEA	International Energy Agency
IMF	International Monetary Fund
ISCED	International Standard Classification of Education
ISCO	International Standard Classification of Occupations
ISIC	International Standard Industrial Classification of All Economic Activities
LDI	low digital intensity
LFPR	labour force participation rate
MDI	medium digital intensity
NDC	nationally determined contribution
NEET	not in employment, education or training
OECD	Organisation for Economic Co-operation and Development
PPP	purchasing power parity
R&D	research and development
SDG	Sustainable Development Goal
STEM	science, technology, engineering and mathematics
VAT	value-added tax

Executive summary

Overview

The COVID-19 crisis exacerbated the numerous labour market challenges generally faced by young people. Between 2019 and 2020, those aged between 15 and 24 years experienced a much higher percentage loss in employment than adults (defined as those aged 25 years and above). Many of them dropped out of the labour force, or failed to enter it altogether, owing to the enormous difficulty of searching for and securing a job at a time when lockdowns and confinement measures were being imposed by many governments and employers suffered massive losses in revenue as a result of business closures. Moreover, steep drops in family income and the switch to distance learning by educational institutions rendered the pursuit of education and training more arduous for many. Consequently, the already high number of young people not in employment, education or training (NEET) rose even further in 2020.

The rise in youth unemployment by around 4 million in 2020 grossly underestimates the labour market impact of the crisis. Global youth employment declined by 34 million between 2019 and 2020. Most of the employment loss translated into labour force exit owing to the extraordinary circumstances of the crisis. The potential labour force, which comprises young people who are not part of the labour force but are marginally attached to the labour market,[1] rose by 7 million. The number of those outside the extended labour force rose by 27 million. Around half of the employment losses incurred by young people in 2020 increased the number of those with NEET status, while the other half increased the number of those in education but not employed. Alarmingly, the global youth NEET rate rose by 1.5 percentage points in 2020, jumping to its highest level in at least 15 years. The 282 million young people who were in this situation in 2020 missed out on a crucial early stage of their personal development and risk facing severe disadvantages in the labour market in the future.

The global employment deficit of young people relative to 2019 amounted to 8.2 per cent in 2020, whereas the corresponding deficit for adults was less than half of that. Young people were especially affected because firms that survived the crisis sought first and foremost to retain workers, while new recruitment collapsed. In addition, young workers were less likely to have the seniority and types of contracts marking them out for retention by employers, and hence were more likely to lose their job. Moreover, government-sponsored job retention schemes, where they existed, were less effective in protecting young workers.

Less than half of the global youth employment deficit in 2020 is projected to be recovered by 2022. The global deficit fell to 5.9 per cent in 2021 and is projected to decrease further to 4.5 per cent in 2022. This implies a projected youth employment deficit of 19 million jobs in 2022. At the global level, the recovery of youth employment lags behind that of adults, who by 2022 are projected to recover more than half of their employment deficit in 2020. The youth labour force participation rate is projected to increase worldwide in 2022, but is nevertheless expected to remain more than 1 percentage point below the 2019 level. Global youth unemployment is projected to decline to 73 million in 2022, which would still be 6 million above the 2019 level.

The recovery in terms of youth unemployment rates is projected to diverge between low- and middle-income countries on the one hand, and high-income countries on the other. Indeed, high-income countries are the only ones expected to return by 2022 to youth unemployment rates close to what they were in 2019, while the rates are projected to remain well over 1 percentage point above their pre-crisis values in the other country income groups.

[1] Young people marginally attached to the labour market are not classified as unemployed but they could potentially enter employment in the near future. They comprise those not looking for a job while being available for work and those seeking employment who are currently unavailable to take up a job.

Young people who lose their job or fail to obtain one are particularly vulnerable to "scarring", the phenomenon whereby their future labour market outcomes are worse than those of their peers even when macroeconomic conditions improve again. They may end up accepting a job for which they are overqualified, which risks trapping them in an employment trajectory that involves informality and low pay. As observed in previous crises, young people in high-income countries are equally affected by scarring.

The COVID-19 crisis not only affected the employment prospects of young people, but also disrupted the quality and quantity of education and training. Widespread school closures affected more than 1.6 billion learners. Disrupted education can cause significant learning losses, creating both intergenerational and intragenerational inequalities. School closures in 2020–21 had very different effects on young people both across and within countries, depending on countries' capacity to provide effective arrangements for distance learning, and on the socio-economic status of families, which determined the extent to which students could benefit from distance learning. Young women and girls were often the first to be pulled out of education, and the last to return, which is likely to aggravate gender inequalities in the labour market.

The loss of basic literacy and numeracy skills, and of skills in other subjects, has a direct impact on all future learning of pupils, and thus on their preparedness for life and work. In addition to learning losses that disrupt the entire trajectory of learning, school closures around the world in 2020–21 had significant detrimental effects on nutrition and health. Lost educational attainment at the primary and secondary levels could jeopardize future enrolment in tertiary education. In that sense, the COVID-19 crisis may be said to have lowered educational attainment not only through its direct impact on schools, but also in terms of forgone future education, especially in poorer countries.

More generally, the crisis has made the prospect of achieving many targets of the Sustainable Development Goals (SDGs) more elusive. Global inequalities, both within and across countries, may increase because of the heterogenous direct and long-term effects of the crisis on young people in different countries and with different socio-economic backgrounds. Decisive policy action is required to counter these negative effects, to enable young people to obtain the education that they need, and to support their entry into the labour market in these difficult conditions. The "green", "blue", digital, creative and care economies, in particular, have great potential to provide decent jobs for young people while contributing to key SDGs, notably Goal 5 ("Gender equality"), Goal 8 ("Decent work and economic growth"), Goal 9 ("Industry, innovation and infrastructure"), Goal 13 ("Climate action") and Goal 14 ("Life below water").

As countries reassess their policy stance in the recovery phase, they need to invest in longer-term transformative approaches and overhaul their economic structures to make them more inclusive, sustainable and resilient. Accordingly, this report draws on a global macroeconometric model to quantify the economic and employment impacts of policy measures aimed at facilitating such transitions. Designed to provide integrated treatment of the world's economic, energy and environmental systems, the model was used to simulate four policy-induced scenarios: a "green scenario", a "digital scenario", a "care scenario" and a "combined scenario", which combines the first three. These scenarios were compared against a baseline, or "business-as-usual", scenario.

The modelling results suggest that if the combined scenario were to be put into practice as part of a big investment push by countries, global gross domestic product by 2030 would be 4.2 per cent higher and there would be an additional 139 million jobs for workers of all ages worldwide relative to the baseline. Global youth employment – defined for this exercise as comprising those aged 15–29 years – would rise from 697 million in 2022 to 751 million by 2030 in the baseline scenario, while the combined scenario is expected to raise youth employment by an additional 32 million jobs by 2030. Those additional jobs for young people would help to make up for the employment losses caused by the COVID-19 crisis while setting labour markets on a more robust path towards sustainability, inclusiveness and resilience. It is worth noting that the projections obtained from the model are conservative estimates of direct employment generation. The model does not capture the indirect benefits in terms of environmental safety and higher productivity triggered by investment in education, health and digitalization.

An increasing number of both developed and developing countries are reconsidering their previous growth models and turning to the green and blue economies as a means of achieving sustainable development, employment creation and poverty alleviation. Young women and men, with their more contemporary education and training as well as their creativity and ingenuity, are well placed to benefit from the expansion of the green and blue economies. Employment opportunities are expected to arise, in particular, from investments aimed at reaching net zero carbon emissions by 2050 so as to limit global warning to 1.5°C above pre-industrial levels (as called for by the Intergovernmental Panel on Climate Change), including investments in clean and renewable energy, construction, sustainable agriculture, recycling and waste management. Indeed, the modelling indicates that an additional 8.4 million jobs for young people could be created by 2030 through the implementation of green and blue policy measures.

This projected aggregate employment gain masks employment losses in some countries, sectors and groups of workers, which highlights the importance of adopting policies to ensure a just transition for all. In particular, it is worth noting that investments in renewable energy infrastructure and in the retrofitting of buildings tend to benefit traditionally male-dominated sectors. Policymakers would therefore need to continue addressing the labour market barriers faced by young women. When designing youth employment policies in this context, it is also important to consider the low-carbon and climate-resilient technologies that are available, and to scale up and diffuse those technologies that are best suited to the specific circumstances of each country. Innovative mechanisms for skills anticipation are furthermore required to enable young people to acquire, through technical and vocational education and training, the skills that they will need in emerging occupations. All in all, the transition towards green and blue economies opens up numerous opportunities for the engagement of young people, whose dynamism and innovative spirit can help to shape a better future of work and promote the sustainable use of terrestrial, coastal and marine ecosystems, taking into account the specificities of national and local contexts.

Like the green and blue economies, the digital economy has considerable potential to create jobs for young people. Increasing digitalization of the economy and society is profoundly affecting the world of work, and the trend is expected to continue and even accelerate in the years to come. Appropriate policies are required to address the challenges while transforming the potential into actual decent work opportunities. In this report the digital economy is considered together with the creative, or orange, economy, many sectors of which increasingly rely on digital technologies for the production and dissemination of creative content. A unique data set, the Digital and Creative micro-database, was constructed on the basis of labour force surveys from 28 countries at different stages of economic development across three years (2013, 2018 and 2020) to study the employment features of both economies. Rather than limiting digital jobs to those using digital platforms or those involved in the production and distribution of information and communications technology (ICT)-related products, all activities supported by ICTs in the workplace were considered as part of a continuum of digital employment. Sectors were categorized according to their intensity of digital employment.

Youth employment in the digital economy is characterized by the relatively large share of skilled workers with concomitant high levels of education. The COVID-19 crisis reinforced this trend, presumably because less-skilled (young) workers were more likely to lose their jobs. At the macro level, the digital economy provides a good return on investment and the quality of jobs there is relatively high. At the same time, there remain significant challenges, notably when it comes to ensuring that all young people have equal opportunities to access digital employment. In many low- and middle-income countries, internet connectivity is still a problem, especially in rural areas. The extension of broadband access to rural areas requires time and substantial investment. Nevertheless, where such efforts have been made, they have proved to be cost-effective. The modelling suggests that achieving universal broadband coverage by 2030 could lead to a net increase in employment of 24 million new jobs worldwide, of which 6.4 million would be taken by young people. The youth employment gains would at first be concentrated in construction and the ICT sector, but as the consumption effects spread, the largest employment impacts by 2030 would occur in the distribution and retail sectors.

On the other hand, many types of employment in the digital economy, such as platform-based work, entail a high degree of job instability and uncertainty as regards future earnings. Platform-based gig work can be particularly attractive for young people in low- and middle-income countries: it pays well and the lack of job security is perceived as less problematic by young people given the lack of alternatives. Nevertheless, job instability and the lack of social protection coverage for young digital gig workers are issues that need to be addressed by policymakers. The fact that access to digital employment requires education and skills remains a significant barrier in low- and middle-income countries, preventing many young people from seizing opportunities to work in higher-quality jobs in the digital economy. Strategies to support the development of digital employment for young people should therefore be based on a comprehensive and long-term approach. In particular, it is essential to balance the growing market share of digital platforms and the highly competitive supply side of platform-based work.

The orange economy is one of the fastest-growing sectors worldwide, generating employment opportunities for young people in such diverse areas as architecture, visual and performing arts, crafts and videogames. Beyond their contribution to employment, creative, cultural and artistic activities are vital to people's sense of well-being and heritage. Although the COVID-19-related lockdowns had a dramatic effect on employment in most sectors, they hit the cultural and creative industries particularly hard, since many of the activities in question rely on close physical proximity. Workers engaged in these activities experienced a steep decline in their earnings following the cancellation of live events and performances and the closure of museums and heritage sites. Cultural and creative workers were especially vulnerable, not only because of the restrictions imposed on their ability to work but also because a significant proportion are not covered by social protection. As in the digital economy, implementing adequate labour and social protection is essential to ensure decent work for young as well as older workers in the orange economy.

The care economy is a major employer of young people – in education, health and social work and in or for households – particularly young women. On average, 10.7 per cent of all young workers (aged 15–29 years), or 47.8 million, were working in health and social work, in education or as domestic workers just before the onset of the pandemic. As suggested by simulations using the macroeconometric model, investments in health and long-term care services and in education to achieve SDGs 3, 4, 5 and 8 could create 17.9 million additional new jobs for young people by 2030 relative to the baseline, including 9.3 million jobs in education, 5.1 million jobs in health and social work and, indirectly, 3.5 million in non-care sectors. The positive impacts on youth employment from such investments would be concentrated in low-income countries (4.2 million) and, above all, lower-middle-income countries (9.7 million).

Investments in care sectors must be accompanied by the promotion of decent working conditions for young as well as older workers. This includes ensuring that they enjoy labour and social protections; guaranteeing freedom of association, the right to collective bargaining and equal pay for work of equal value; and preventing and eliminating violence and harassment. There is still a long way to go before decent work becomes a reality for all young workers in the care economy. Young workers in education, for example, face very unequal working conditions depending on the characteristics of educational systems, the conditions being typically worse in the private sector than in public institutions. In particular, teachers at non-state schools in low- and middle-income countries are less frequently on permanent contracts and tend to receive lower wages than their counterparts in state schools. In health and social work, the working conditions of young workers also vary greatly – between those who are university-educated and those who do not have such credentials, between public and private sector workers, and between those employed in health and those who are part of the social care workforce. The COVID-19 crisis put great strain on young workers in health, as evidenced by their hours worked and their high levels of burnout as a result of dealing with the pandemic. Lastly, young domestic workers are very much alike across all countries in having the worst working conditions: almost all of them are informally employed and lack social protection and basic labour rights. During the pandemic, many lost their jobs and income or had to stay on isolated in their employer's household.

The crisis has highlighted the need to incorporate young professionals into the public health workforce in a sustainable manner, that is, avoiding a reliance on voluntary work or overwork. This requires robust mentorship structures, intentional recruitment and continuous support, including access to education and training. As a significant proportion of the social care workforce in many countries approaches retirement, the recruitment of younger workers is particularly important. Improvements in working conditions and pay are required to retain existing care workers and attract young workers to the sector. Formalization in the framework of the Domestic Workers Convention, 2011 (No. 189) – which means ensuring that such workers are protected by labour and social security laws and regulations and can access social protection to the same extent as other workers – is the foremost priority for improving the working conditions of young domestic workers.

The response to the crisis revealed various shortcomings in addressing the needs of young people, especially vulnerable ones: first-time jobseekers, school dropouts, fresh graduates with low skills and the many young people who remain inactive not by choice. What young people need the most, if they are in the labour force, is well-functioning labour markets with decent job opportunities, and if they are still outside the labour force it is essential to provide them with quality education and training. Moreover, targeted policy measures are needed to address inequalities and to bring everyone on board. Labour market programmes and policies and social protection systems should shift their focus to outreach beyond the labour market, and they need to be complemented by robust educational and care facilities. In many countries, it is necessary to strengthen social protection systems and tackle the problem of fragmented coverage in order to enhance young people's resilience at a time of wide-ranging economic and labour market transformations.

As the policy response shifts from immediate relief to supporting the recovery while laying the groundwork for more sustainable, inclusive and resilient economies, deficiencies in reaching young people need to be rectified. This is critical to prevent deeper economic and social scars and to promote a better future of work for all. The problems of youth unemployment, inactivity and precarious work should be at the centre of economic recovery policies to prevent a jobs crisis from becoming a social one. Enhanced international cooperation is equally important to address the fiscal and financial constraints faced by developing countries, in which the majority of young people live. Developing countries will have to spend wisely, mobilize domestic resources to strengthen their social protection systems, and carry out reforms to improve financial intermediation and the business environment so that their small enterprises are able to grow. Considerable investments have to be made in the green transition and in climate change adaptation through efforts to deploy, adapt and scale up the relevant technologies.

When designing and implementing active labour market policies and skills development policies to help workers move on to new occupations and jobs, it is important to ensure that young people are actively engaged and their needs addressed. The transition to greener and more digital economies calls for a broad-based approach to digital literacy coupled with promotion of the acquisition of appropriate technical and digital skills by young people so that they can take full advantage of the new opportunities created. Efforts to shape a more sustainable future require the active involvement and meaningful contribution of young people.

Organization of the report

Global Employment Trends for Youth 2022: Investing in transforming futures for young people provides an update on key youth labour market indicators and trends, focusing on the impact of the COVID-19 crisis and on how targeted and sustained investments in the green, blue, digital, creative and care economies can support a human-centred recovery and help to improve the labour market for young people.

The first part of the report, Chapter 1, reviews youth labour markets at the global and regional levels; it contains detailed analyses of youth employment, labour force participation rates and employment-to-population ratios, NEET rates and unemployment. The chapter also examines the

disruption to education and training caused by the COVID-19 crisis, and ongoing changes in the sectoral distribution of employment. The second part of the report examines the potential of the green, blue, digital, creative and care economies to provide decent jobs for young people. Chapter 2 considers how a transition to green and blue economies can help to create decent and productive jobs for young people while contributing to environmental sustainability. Chapter 3 explores the potential of digital and creative sectors to provide high-quality employment for young people amid increasing digitalization of the economy and society, noting various challenges that need to be addressed by policymakers to ensure that such jobs meet the criteria of decent work and that existing inequalities are not widened. Chapter 4 looks at how the care economy as a major employer of young people has been affected by the crisis and how it could be made the centrepiece of a job-rich and youth-responsive recovery, focusing on education, health and social work, and domestic work. Finally, Chapter 5 reviews policy responses to the crisis, in particular the extent to which they have benefited young people, and offers a number of recommendations to policymakers with a view to bringing about a youth-friendly recovery and a better future of work.

Part I

Trends

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Youth employment trends

▶ Chapter 1. Youth employment trends

1.1 Introduction

The COVID-19 crisis has aggravated the already numerous labour market challenges faced by young people. Between 2019 and 2020, those aged between 15 and 24 years experienced a much higher percentage loss in employment than adults (defined as those aged 25 years and above). Many young people dropped out of the labour force, or failed to enter it altogether, owing to the enormous difficulty of searching for and securing a job at a time when employers suffered massive losses in revenue as a result of business closures. Drops in family income and the use of distance learning by educational institutions were other factors that rendered the pursuit of education and training more difficult for many. Consequently, the worryingly high number of young people not in employment, education or training (NEET) rose even further in 2020, exacerbating the dangerous disconnect between young people and education or early work experience that jeopardizes their future chances of success in the labour market. As today's young generation are the prime-age workers of tomorrow, the severe and heterogeneous impact of the COVID-19 crisis could well leave a long-lasting mark on labour markets, and in particular on global inequality.

The uncertainty surrounding labour market prospects for young people is significant. The principal risk factors affecting labour market projections in general are the future path of the COVID-19 crisis, geopolitical risks, macroeconomic risks such as the impact of supply chain disruptions and rising inflation, and the potential permanent damage wreaked by the crisis on the fabric of labour markets (ILO 2022). As far as young people are concerned, there are additional uncertainties regarding the extent to which employers will rely on them during the recovery, or the speed with which they can transition into the labour market. At the same time, the crisis may have accelerated structural change in the labour market (ILO 2022), where growing sectors present an opportunity for young people at the start of their careers. The estimates and projections presented in this report are based on available data and assessments by ILO experts.[1] Although they are subject to considerable uncertainty, these projections suggest that youth employment rates will on the whole pick up more slowly than adult employment rates.

Section 1.2 presents global key indicators for the latest year available, thereby providing an overview of the labour market or education status of young people. This is followed, in section 1.3, by a detailed analysis of trends in those key labour market indicators for young people, in particular employment, NEET rate, labour force and unemployment. Section 1.4 looks at the impact of the COVID-19 crisis on education and training and its implications for youth labour market status and prospects. The dynamics in the employment distribution of young people across economic sectors are analysed in section 1.5. Finally, some conclusions are offered in section 1.6.

1.2 Global overview of key indicators for young people

The global youth unemployment rate is estimated at 15.6 per cent in 2021, more than three times the adult rate. Globally, in 2021 some 75 million young people were unemployed, 408 million were in employment, and 732 million were out of the labour force. (figure 1.1).[2]

The relatively low labour force participation rate of young people is primarily driven by their pursuit of an education. This can improve their chances of achieving higher labour market returns later on.[3] In 2020, around 531 million, or 44 per cent of young people worldwide, were enrolled in education

[1] See Appendix B for a description of the scenario and the methodology underlying these projections. Estimates and projections are available on ILOSTAT and on the WESO DataFinder (ilo.org/wesodata).

[2] For an overview of the key indicators for young people, globally and by region, see Appendix C.

[3] Education was severely disrupted during the COVID-19 crisis. This is discussed in detail in section 1.4.

> Globally, in 2021 some 75 million young people were unemployed, 408 million were in employment, and 732 million were out of the labour force.

while not having paid work (figure 1.1). Young people in employment gain valuable work experience, and a significant proportion of them are simultaneously enrolled in education.[4]

More than one in five young people are not in education, employment or training (NEET). Alarmingly, the youth NEET rate rose by 1.5 percentage points in 2020, the latest year for which global estimates are available. The 282 million young people who were in this situation in 2020 missed out on a crucial early stage of their personal development and risk facing severe disadvantages in the labour market in the future. In 2020, the youth NEET rate jumped to its highest level in at least 15 years.[5]

Young workers are twice as likely as adult workers to live in extreme poverty – that is, on less than US$1.90 per day in purchasing power parity (PPP) terms – and are also far more likely to be informally employed. One in eight young workers (12 per cent) lives in a household that has an income of less than US$1.90 per day in PPP terms, compared with 6 per cent of adult workers. The youth informality rate, at 78 per cent, also stands far above that of adults (58 per cent). Both phenomena can be partly ascribed to a composition effect, with the average gap between young and adult workers within countries being smaller.[6]

Over the past two decades, young people have caught up to some extent with adults in terms of the quality of their employment relationship. Since 1999, the incidence of wage and salaried work has risen much more markedly for young people (by 15 percentage points) than for adults (by 8 percentage points), while the incidence of contributing family work – which is informal by definition – declined much faster for young people than for adults.[7] In 2019, 55 per cent of young workers were in wage and salaried employment, which is slightly higher than the rate for adult workers. Young people are far less likely than adults to be employers or own-account workers, while they are around three times as likely as adults to be contributing family workers.

On average, almost half of all young people aged 15–24 years not in education or training were not employed in the 86 countries with available data for 2019 (figure 1.2). Around a quarter of those with NEET status were unemployed (5.0 per cent of all young people), while three quarters were outside the labour force (15.6 per cent of all young people). A large majority of those in education or training were not part of the labour force (46.9 per cent of all young people), while a smaller share were employed (6.7 per cent of all young people) or unemployed (around 1 per cent). Interestingly, the unemployment rate of young people in education or training was very similar to that of those not in education or

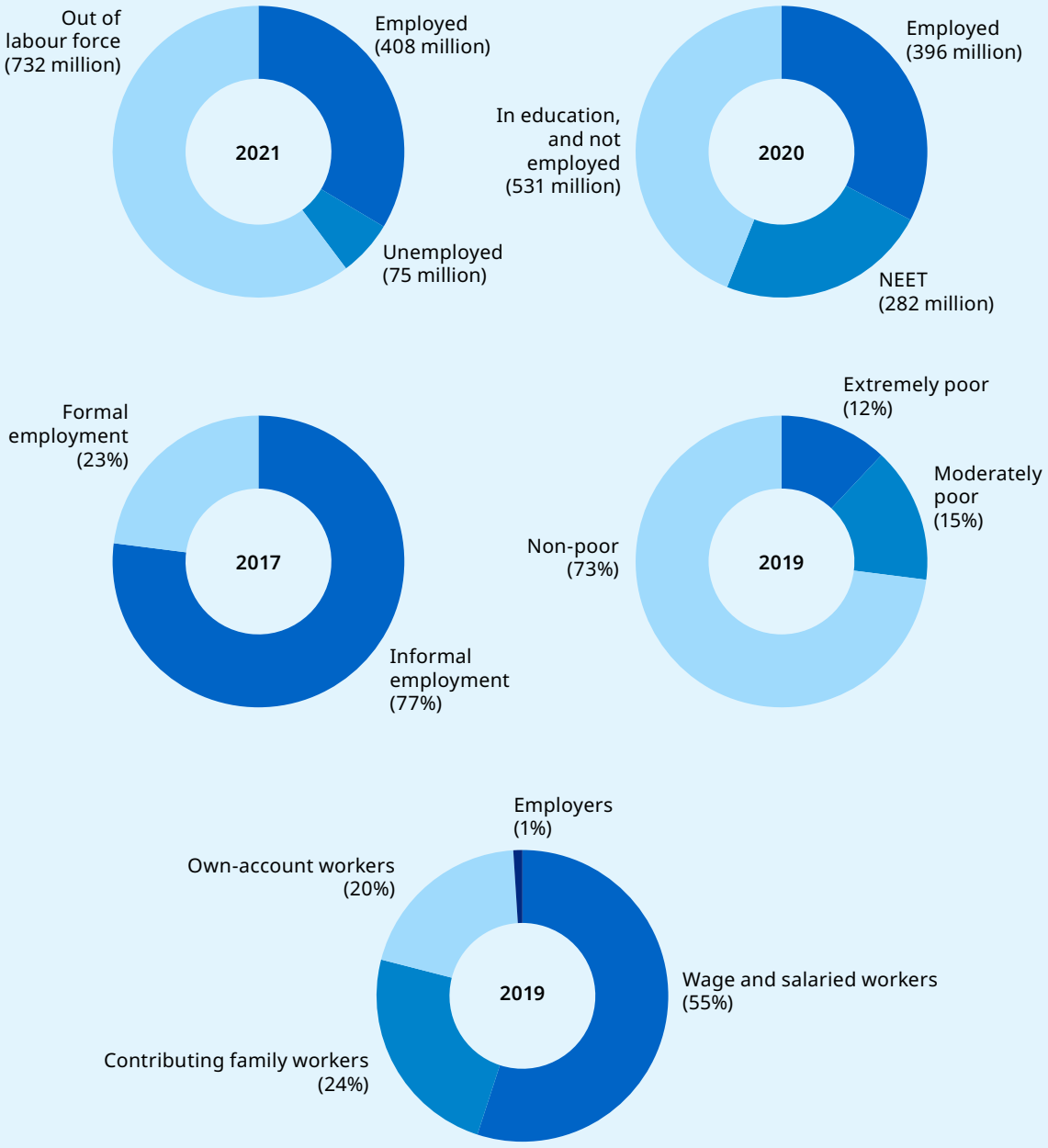
[4] No global estimates exist for this proportion. In 2019, in 86 countries with available data, 22 per cent of young people employed were also enrolled in education.

[5] Global ILO modelled estimates for the NEET rate are only available from 2004 onwards.

[6] Young people in poorer countries are more likely than their peers in richer countries to be in employment as opposed to education. Young people in these countries, which in general tend to have higher rates of informality and working poverty, are hence over-represented in the globally employed youth population compared with the adult employed population. As a counterfactual, the weighted global average rate of youth working poverty can be computed using adult employment as weights. This counterfactually weighted working poverty rate would stand at 7 per cent, which is still significantly higher than the adult rate, but nevertheless indicates a much smaller youth–adult gap.

[7] Within wage and salaried employment, young people also tend to be in different forms of work arrangements. For instance, there is a higher incidence of temporary employment among young workers (ILO 2016, 135).

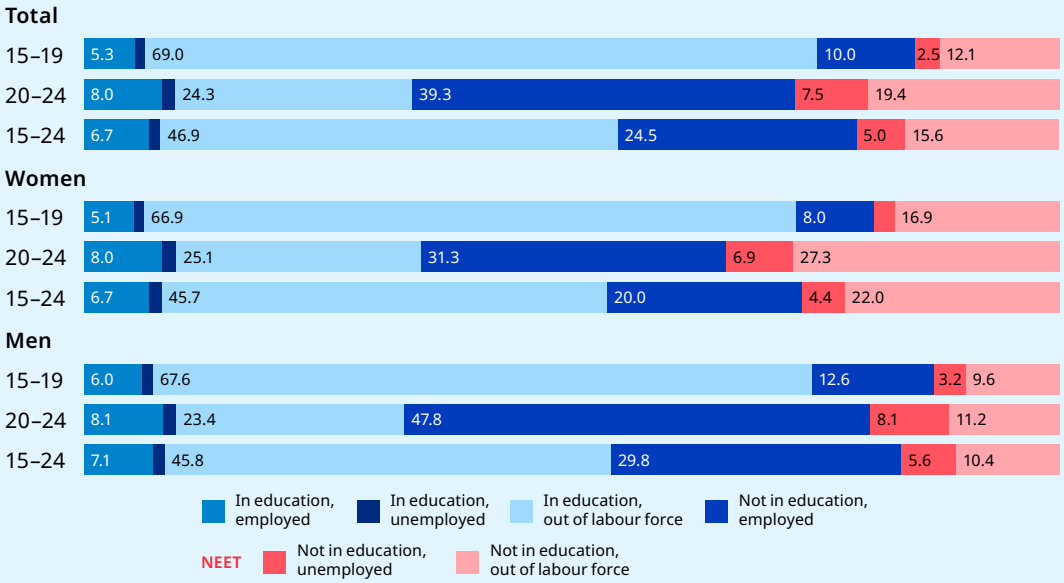
▶ Figure 1.1 Global overview of the labour market for young people, latest available year



Note: The latest available year of global estimates differs for each indicator and is shown within the doughnut. Informal employment takes into account the latest available year up to and including 2017. Young people are defined as those aged 15–24 years.

Source: ILOSTAT, ILO modelled estimates, November 2021; ILO (2018).

▶ Figure 1.2 Decomposition of young people by status in education and in the labour market, outlier-adjusted unweighted average of available countries, by age and sex, 2019 (percentage)



Note: Age ranges appear to the left of each bar. The figure presents the shares of young people who are employed, unemployed or outside the labour force, disaggregated by their status in education. The shares are an unweighted average of data for 86 countries from the latest year available between 2016 and 2019, where the largest and smallest 10 per cent of observations have been omitted to control for extreme values. For an analysis of this decomposition in 2020 applied to a more limited set of countries, see figure 1.11. Unemployment shares relate to the whole youth population and are therefore not unemployment rates, which relate only to the youth labour force.

Source: ILO calculations based on ILO harmonized microdata.

training, which goes to show that all young people face difficulties in finding a job.[8] Three quarters of young people outside the labour force were in education or training. Even though the COVID-19 crisis caused some shifts in the distribution of young people across the various education and labour market categories (see figure 1.11 further down), the broad picture remained unchanged.

NEET status is much more prevalent among young people aged 20–24 years than among those aged 15–19 years. This has to do with the fact that three quarters of those aged 15–19 years are in education or training (figure 1.2). Among those who are not, three in five are not employed, meaning that those aged 15–19 years face a higher incidence of joblessness than those aged 20–24 years when they are not in education or training. Young women are also more likely to be in a NEET situation than young men (see table 1.2 further down). Differences in labour market participation are behind the different NEET rates between women and men, as their participation in education or training is fairly similar. Furthermore, employment rates are only slightly higher for men than for women among those in education or training, underlining the fact that the fundamental driver of gender disparities in NEET rates is labour market participation.[9]

[8] The unemployment rate disaggregated by education status is computed with respect to the labour force disaggregated by education status, which equals the employed plus the unemployed.

[9] Such gender disparities are investigated, together with the underlying reasons, in subsection 1.3.2.

Global youth employment declined by 34 million between 2019 and 2020. Most of the employment loss translated into labour force exit owing to the extraordinary circumstances of the crisis. The youth labour force participation rate is projected to increase worldwide in 2022, but it is nevertheless expected to remain more than 1 percentage point below the 2019 level.

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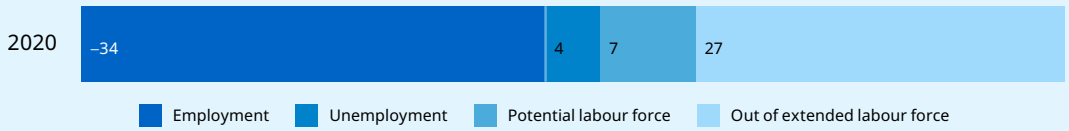
▶ Figure 1.3 Change in youth employment, unemployment and potential labour force and in young people outside the extended labour force, world, 2019–20 (millions)



Note: Employment and unemployment constitute the labour force. The individual figures do not add up to zero because of population growth. "Youth" refers to ages 15–24.

Source: ILOSTAT, ILO modelled estimates, November 2021.

The rise in youth unemployment by around 4 million in 2020 grossly underestimates the labour market impact of the COVID-19 crisis. Global youth employment declined by 34 million between 2019 and 2020 (figure 1.3). Most of the employment loss translated into labour force exit owing to the extraordinary circumstances of the crisis (ILO 2021a). The potential labour force, which comprises young people who are not part of the labour force but are marginally attached to the labour market,[10] rose by 7 million. The number of those outside the extended labour force rose by 27 million. Around half of the employment losses incurred by young people during the COVID-19 crisis in 2020 increased the number of those with NEET status, while the other half increased the number of those in education but not employed.[11]

1.3 Trends in employment, unemployment and NEET rate

1.3.1 Employment

The strong downward trend in the employment-to-population ratio (EPR) of young people observed in preceding decades slowed down in the years before the COVID-19 pandemic. Between 1995 and 2015 the global EPR among young people fell from 48.8 to 36.9 per cent, which translates into an annual average decrease of almost half a percentage point (table 1.1). The decline was strongest in upper-middle-income countries, and relatively weak in low- and high-income countries. Across regions, the decline was strongest in Eastern and Southern Asia, relatively weak in sub-Saharan Africa and non-existent in Northern, Southern and Western Europe. The youth EPR recovered during the employment boom in high-income countries between 2015 and 2019, while its decline slowed down markedly in middle-income countries. Increasing educational enrolment is the principal driver of declining youth EPR in countries experiencing rising standards of living.[12] As countries and households become more affluent, young people have greater opportunities to advance their education. Declining EPRs are problematic when they lead to an increase in NEET rates, as was the case in 2020 (figure 1.7).

[10] To be considered unemployed, and therefore part of the labour force, a person needs to be not employed, available to take up a job and searching for a job. Those not in employment who only fulfil one of the last two conditions are in the potential labour force, while those who fulfil neither are outside the extended labour force.

[11] This does not necessarily mean that educational enrolment increased, since those in employment can also be in education at the same time.

[12] Total net enrolment rate in upper secondary education increased from 48 per cent in 2000 to 66 per cent in 2020 in middle-income countries (UNESCO Institute for Statistics, n.d.).

▶ Table 1.1 Youth employment-to-population ratio, by sex, world and by country income group, 1995–22 (percentage)

Country group	Sex	1995	2005	2015	2019	2020	2021	2022p
World	Total	48.8	43.5	36.9	35.7	32.7	33.6	34.1
	Women	41.3	35.8	29.7	28.7	26.2	27.1	27.4
	Men	56.0	50.9	43.6	42.2	38.8	39.6	40.3
Low income	Total	52.2	51.1	47.8	46.6	43.7	44.5	44.9
	Women	48.7	47.1	43.6	43.0	39.9	40.8	41.2
	Men	55.7	55.0	51.9	50.2	47.4	48.1	48.5
Lower-middle income	Total	41.7	38.7	31.3	29.9	27.2	27.5	28.1
	Women	28.7	25.8	21.0	20.1	18.4	18.8	19.2
	Men	54.2	50.8	40.9	39.0	35.4	35.6	36.5
Upper-middle income	Total	58.5	49.1	41.8	39.4	36.0	37.2	37.5
	Women	54.7	44.8	36.1	33.4	30.2	31.2	31.4
	Men	62.3	53.1	47.2	44.9	41.5	42.8	43.1
High income	Total	42.4	40.7	38.1	40.7	37.7	39.9	40.6
	Women	39.7	38.9	36.8	39.5	36.3	38.6	39.4
	Men	45.0	42.4	39.2	41.9	39.0	41.1	41.7

Note: Country groupings are shown in Appendix A. "Youth" refers to ages 15–24. "p" indicates that the values in the column for the year 2022 are projections.

Source: ILOSTAT, ILO modelled estimates, November 2021.

Young women exhibit a much lower EPR than men, and the gender gap has shown no sign of closing over the past two decades. In 2021, 27.1 per cent of young women globally were estimated to be in employment, versus 39.6 per cent of young men. This means that young men are almost 1.5 times more likely than young women to be employed. The gender gap is largest in lower-middle-income countries, standing at 16.8 percentage points, and smallest in high-income countries, at 2.5 percentage points.

The gender gap in EPR varies enormously across the regions, ranging from essentially zero in Northern America to around 30 percentage points in the Arab States (figure 1.4). In the latter region, men are estimated to be seven times more likely than women to be in employment. Young women in Northern Africa and Southern Asia likewise face significant barriers to employment, compared with their male counterparts. Restrictive social norms, gender discrimination and unequal care responsibilities (see Chapter 4 for a discussion of the care economy) are but some of the reasons for the large gender gaps (ILO 2019; ILO 2017).

Four distinct patterns highlighting the difficulties in obtaining employment faced by young women in particular, and young people in general, emerge from a comparison of the world regions. First, very large gender gaps and low EPRs among young men are found in Northern Africa, the Arab States and Southern Asia (figure 1.4), highlighting a dual challenge of extreme gender discrimination and insufficient youth employment opportunities. Second, a small gender gap but an equally low male EPR can be observed in Eastern Europe. Third, young men find employment relatively easily in Latin America and the Caribbean, and to some degree also in Central and Western Asia, but the large gender gap points to major challenges in terms of gender equality. Fourth, gender gaps are below the global average in the remaining regions, while the EPR of young men stands at the average or is higher in those regions.

> Young women exhibit a much lower employment-to-population ratio than men, and the gender gap has shown no sign of closing over the past two decades. Young men are almost 1.5 times more likely to be employed than young women.

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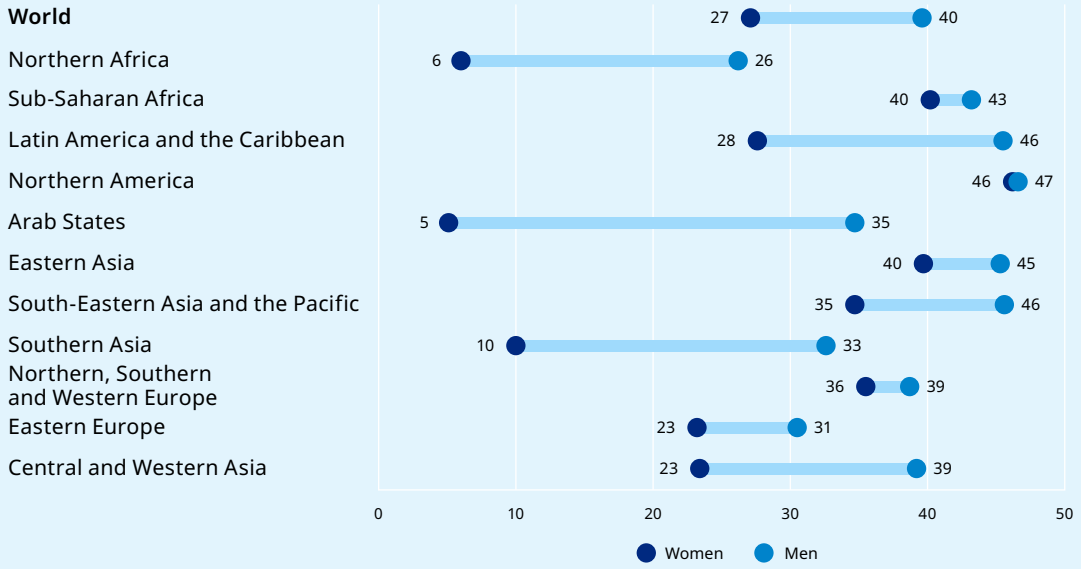
▶ Figure 1.4 Youth employment-to-population ratio, by sex, world and by subregion, 2021 (percentage)



Note: "Youth" refers to ages 15–24.

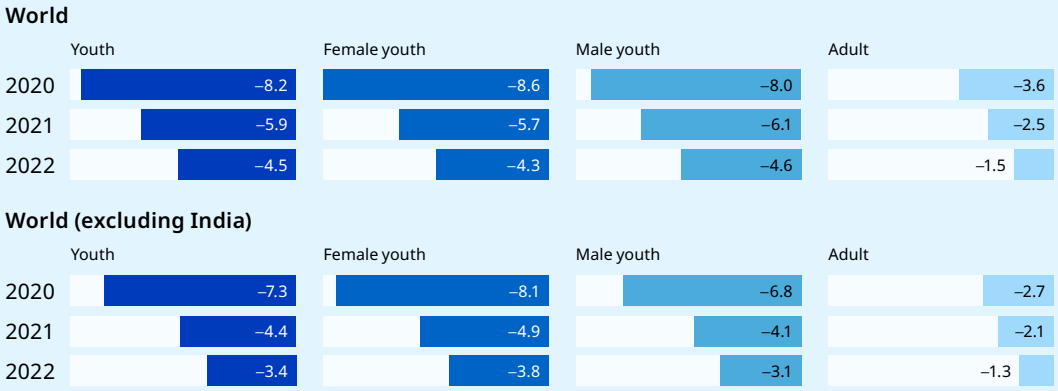
Source: ILOSTAT, ILO modelled estimates, November 2021.

The employment impact of the COVID-19 crisis has been especially devastating among young people. The global employment deficit of young people relative to 2019 amounted to 8.2 per cent in 2020 (figure 1.5).[13] For adults, the deficit amounted to less than half of that (3.6 per cent relative to 2019 employment levels). The youth EPR fell by 3.0 percentage points between 2019 and 2020, versus 2.5 percentage points for the adult ratio over the same period. Young people were especially affected, as companies that survived the crisis sought first and foremost to retain workers (with the help of government assistance, where available), while new recruitment collapsed. In addition, young workers were less likely to have the seniority and types of contracts marking them out for retention by companies, and hence were more likely to lose their job. Moreover, job retention schemes, where they existed, were less effective in protecting young workers, as evidenced by much larger decreases in post-support labour income for young people (ILO 2021b).

Less than half of the global youth employment deficit in 2020 is projected to be recovered by 2022. The global deficit fell to 5.9 per cent in 2021 and is projected to decrease further to 4.5 per cent in 2022. This implies a projected youth employment deficit of 19 million jobs in 2022. At the global level, the recovery of youth employment lags behind that of adults, who by 2022 are projected to recover more than half of their employment deficit in 2020. The extraordinary dynamics of youth employment in India (box 1.1) distort the global picture. Excluding India, there was some moderate recovery in global youth employment, albeit not comparable to the recovery observed in adult labour markets. The youth employment deficit is projected to stand at 3.4 per cent in 2022, less than half of its 2020 level, which is nevertheless more than twice the relative deficit of adults (at 1.3 per cent).

[13] The employment deficit represents the difference in employment with respect to 2019 adjusted for growth of the population. It is given by the difference in the EPR between 2019 and 2020 multiplied by the population in 2020. For adults, the population aged 25–64 years has been used to derive the employment deficit. The youth employment deficit is slightly larger than the change in employment because of population growth.

▶ Figure 1.5 Employment deficit relative to 2019, by sex and age, world and world excluding India, 2020–22 (percentage)



Note: The employment deficit shows the (cumulative) difference between employment growth and population growth. It represents the extent to which employment is lower, relative to employment in 2019, as a result of the EPR being below its 2019 level. "Youth" refers to ages 15–24, "adult" to ages 25+. Data are estimates up to 2021, and projections for 2022.

Source: ILO calculations based on ILOSTAT, ILO modelled estimates, November 2021.

▶ Box 1.1 The deterioration of youth employment in India in 2021

Like many countries in the world, India experienced severe working-hour and employment losses in 2020, and once again during another, shorter, period in 2021. However, in contrast to most other countries, Indian youth employment in 2021 deteriorated with respect to 2020, despite an overall average improvement in the labour market. Data based on the household surveys conducted by the Centre for Monitoring the Indian Economy show that the youth EPR declined by 0.9 percentage points over the first nine months of 2021 relative to its value in 2020, while it increased by 2 percentage points for adults over the same time period. The situation is particularly severe for very young people aged 15–20 years (Abraham 2021).

Young women have suffered a greater employment impact as a result of the COVID-19 crisis than young men. Between 2019 and 2020 the global EPR of young women fell from 28.7 to 26.2 per cent, while the ratio for young men fell from 42.2 to 38.8 per cent (table 1.1). The employment deficit in 2020 relative to 2019 amounted to 8.6 per cent for young women, versus 8.0 per cent for young men (figure 1.5), showing that the proportional employment losses were larger for the former. The reasons for this include the unequal distribution of care responsibilities, which increased during the crisis, but also the strong presence of women in some hard-hit sectors (ILO 2020a). The gap in the employment deficit is projected to persist in 2022 if one excludes India from the global aggregate. The very low youth female labour market participation in India gives rise to a composition effect that makes the relative employment deficit for young women appear smaller than that of young men in 2021 and 2022 for the world as a whole.[14]

[14] Indian young women experienced larger relative employment losses than young men in 2021 and 2022. In general, the high youth employment losses in India drive up the global average employment losses. Young Indian men account for 16 per cent of young men in the global labour market, while the corresponding share for young Indian women is just 5 per cent. Consequently, the weighted global average employment deficit is pushed up much more by young Indian men than by young Indian women. The global average employment deficit thus appears larger for young men than for young women in 2021 and 2022.

> The employment impact of the COVID-19 crisis has been especially devastating among young people. In 2020 their global employment deficit relative to 2019 amounted to 8.2 per cent, or less than half of that for adults. Young women have suffered a greater employment impact as a result of the crisis than young men.

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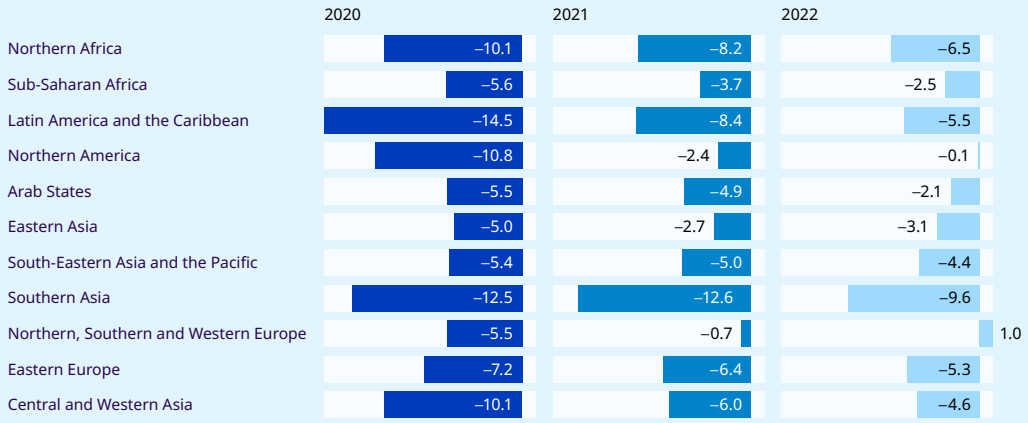
▶ **Figure 1.6 Youth employment deficit relative to 2019, 2020–22, by subregion** (percentage)



Note: The employment deficit shows the difference in employment in each year due to the EPR being below the 2019 level. Data are estimates up to 2021, and projections for 2022. "Youth" refers to ages 15–24.

Source: ILO calculations based on ILOSTAT, ILO modelled estimates, November 2021.

The prospects of young people in the labour market vary greatly across the regions. In Northern America and in Northern, Southern and Western Europe the youth EPR is projected to come close to or even surpass its 2019 level by 2022 (figure 1.6). At the other end of the spectrum, the youth EPR in 2022 is projected to remain around 2 percentage points or more below its 2019 level in Latin America and the Caribbean, in South-Eastern Asia and the Pacific, and in Southern Asia. The youth employment deficit in 2022 relative to 2019 is projected to remain largest in Southern Asia, at 9.6 per cent, followed by Northern Africa, at 6.5 per cent (figure 1.6). Differences in macroeconomic policies and access to vaccines can account to some extent for the great divergence in employment recovery in 2021, the effects of which are likely to persist into 2022 (ILO 2022). However, it is important to note that some regions and subregions were experiencing significant downward trends in the youth EPR before the crisis. If the underlying drivers of those trends were to continue in the future, one should not expect a return to the EPR of 2019 in those regions.

1.3.2 NEET rate and labour force

The COVID-19 crisis has reversed 15 years of progress in reducing youth NEET rates. The global share of young people neither in employment nor in education or training decreased by 1.3 percentage points between 2005 and 2019 (figure 1.7), which meant that fewer young people were deprived of the opportunity to accumulate knowledge and skills relevant for the labour market either through education, training or early work experience. The crisis wiped out all that progress within one year. On average in 2020, almost one in four (23.3 per cent) of all young people had NEET status. As a consequence, young people may also see their labour market opportunities and outcomes deteriorate in the longer term – an effect referred to as "scarring" (see section 1.6 for more details).

Women have much higher NEET rates than men, but the gap has closed over the past 15 years. While the female NEET rate declined by 2.7 percentage points between 2005 and 2019, the male rate remained essentially stable. Between 2005 and 2020, the gender gap in NEET rates declined from 19.8 percentage points to 15.7 percentage points. Indeed, in terms of NEET rates, men were much more affected (+2.2 percentage points) by the COVID-19 crisis than women (+0.9 percentage points). Nevertheless, young women were twice as likely as young men to have NEET status in 2020.

> On average in 2020, almost one in four of all young people had NEET status, and the youth NEET rate jumped to its highest level in at least 15 years. As a consequence, young people may also see their labour market opportunities and outcomes deteriorate in the longer term – an effect referred to as “scarring”.

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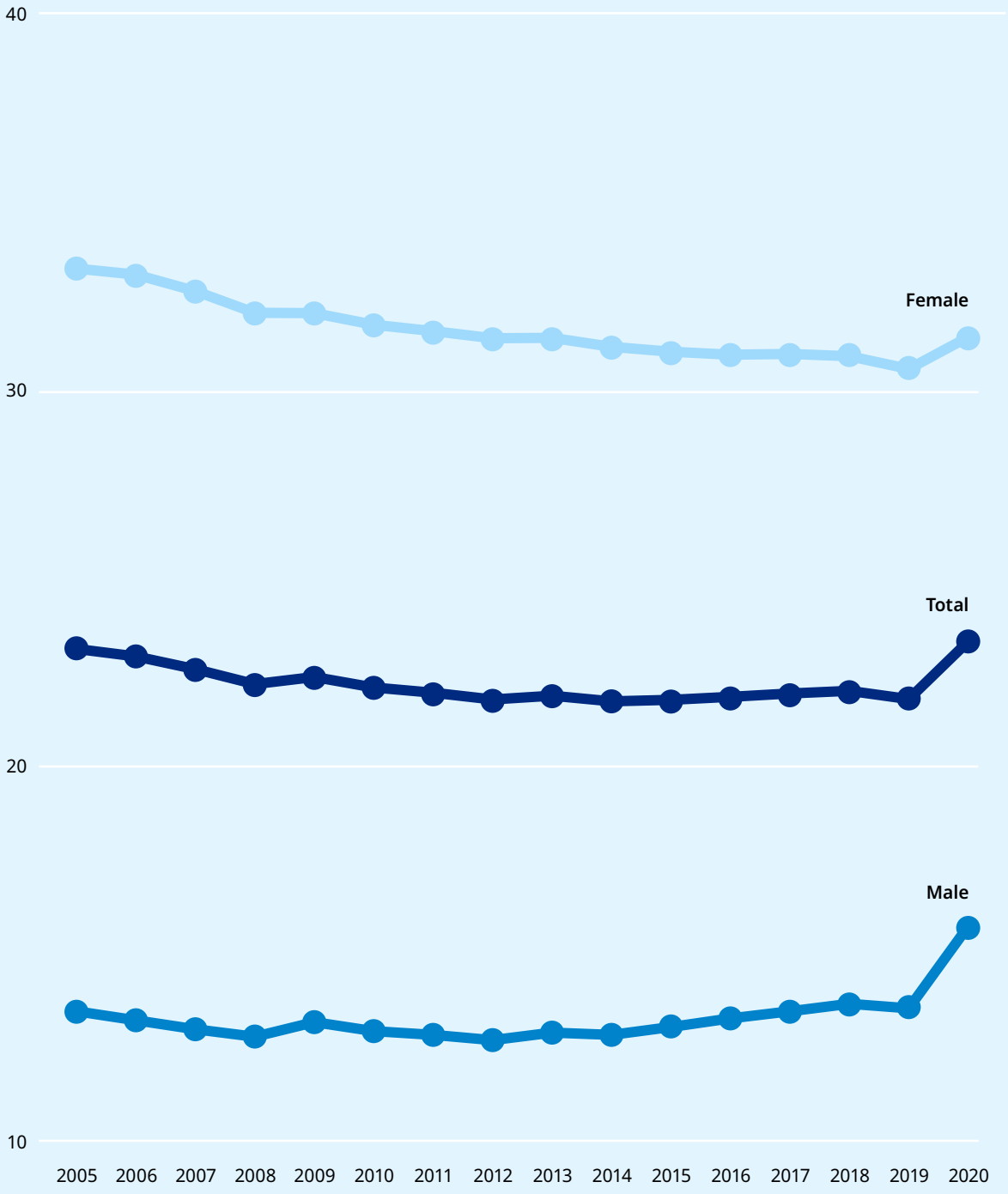
▶ **Figure 1.7 Share of young people not in employment, education or training, by sex, world, 2005–20** (percentage)



Note: Young people are defined as those aged 15–24 years.

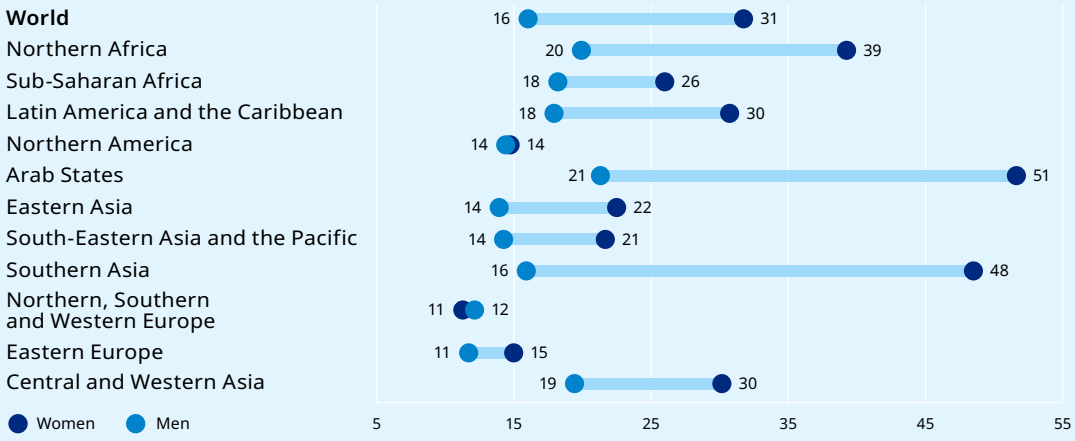
Source: ILOSTAT, ILO modelled estimates, November 2021.

High-income countries have significantly lower NEET rates and a much smaller gender gap for this indicator than low- and middle-income countries. While young men in low-and middle-income countries are around 1.4 times more likely to have NEET status than their peers in high-income countries, young women in upper-middle-income countries are more than twice as likely to be in that situation than their peers in high-income countries; the ratio is even higher, at 3:1, for young women in lower-middle-income countries. The crisis has heavily affected young people around the world – with NEET rates rising by around 2 percentage points in all country income groups, irrespective of pre-existing differences.

The large regional variation in NEET rates is primarily driven by differences in female NEET rates. In 2020, male NEET rates ranged from 11.4 per cent in Eastern Europe to 21.0 per cent in the Arab States (figure 1.8). Female NEET rates, in contrast, ranged from 11.0 per cent in Northern, Southern and Western Europe to 51.4 per cent in the Arab States, reflecting a much wider spread. While differences in male NEET rates are generally driven by the (un)availability of job opportunities for young men, young women face substantial structural barriers to their engagement in advanced education or in the labour market in many countries (ILO 2019; ILO 2017). The fact that every second young woman in the Arab States and in Southern Asia has NEET status does not bode well for the task of reducing gender gaps in the labour market in those regions in the near future. The gender gaps in NEET rates correlate strongly with gender gaps in the EPR and the labour force participation rate (see figure 1.4).

The youth labour force participation rate is projected to increase worldwide in 2022, but it is nevertheless expected to remain more than 1 percentage point below the 2019 level. The projected global increase is essentially driven by low- and lower-middle income countries. Upper-middle- and high-income countries already experienced a stronger recovery in the youth labour force participation rate (LFPR) in 2021, when it rose by around 1.5 percentage points, whereas in low- and lower-middle-income countries it rose by only around 1 percentage point in 2021 (table 1.2). This means that, between 2020 and 2022, all country income groups are expected to experience roughly similar increases in the youth LFPR, but with different timing. Importantly, though, the decrease of youth LFPR between 2019 and 2020 differed widely across those groups. Lower labour force participation among young people is not necessarily problematic if it is driven by greater educational enrolment. However, should NEET rates also turn out to be persistently higher in low- and middle-income countries, this crisis will have rendered labour market prospects for young people even bleaker.

▶ **Figure 1.8 Share of young people not in employment, education or training, by sex, world and by subregion, 2020** (percentage)



Note: Young people are defined as those aged 15–24 years.

Source: ILOSTAT, ILO modelled estimates, November 2021.

▶ **Table 1.2 Young people not in employment, education or training, and youth labour force participation rate, by sex, world and by country income group, 2019–22**

Country income group	Sex	Not in employment, education or training				Labour force participation rate			
		percentages		millions		percentages			
		2019	2020	2019	2020	2019	2020	2021	2022p
World	Total	21.8	23.3	262.7	282.2	41.2	38.6	39.7	40.1
	Female	30.6	31.5	178.4	183.9	33.0	30.7	31.8	32.1
	Male	13.5	15.7	84.3	98.3	49.0	46.0	47.1	47.5
Low income	Total	21.3	23.3	28.0	31.4	50.8	48.1	49.2	49.8
	Female	28.6	30.0	18.6	20.0	46.7	43.8	45.1	45.6
	Male	14.2	16.7	9.3	11.3	54.8	52.2	53.2	53.8
Lower-middle income	Total	25.7	27.0	151.5	160.3	35.2	32.6	33.5	33.9
	Female	38.3	38.7	108.9	110.7	23.5	21.7	22.5	22.8
	Male	14.0	16.1	42.6	49.6	46.1	42.8	43.8	44.3
Upper-middle income	Total	19.9	21.5	68.6	73.5	46.2	43.1	44.6	44.7
	Female	26.1	27.1	43.0	44.4	39.5	36.4	37.9	38.0
	Male	14.3	16.4	25.6	29.1	52.3	49.2	50.7	50.8
High income	Total	10.4	12.3	14.6	17.1	45.6	44.1	45.5	45.6
	Female	11.5	13.0	7.8	8.8	44.0	42.4	43.8	43.9
	Male	9.4	11.6	6.7	8.3	47.2	45.7	47.1	47.2

Note: Data are estimates up to 2021. "p" indicates that the values in the column for the year 2022 are projections. Young people are defined as those aged 15–24 years.

Source: ILOSTAT, ILO modelled estimates, November 2021.

1.3.3 Unemployment

Global youth unemployment is projected to decline to 73 million in 2022, which would still be 6 million above the 2019 level (table 1.3). The decline follows an increase in youth unemployment by 4.1 million between 2020 and 2021 as young people re-entered the labour market. The unemployment rate rose strongly in 2020, by 1.7 percentage points, both because of an increase in the number of unemployed (the nominator) and because of a contraction in the labour force (the denominator). In 2021, the youth unemployment rate rose by only 0.4 percentage points, despite the number of unemployed increasing to a greater extent than in 2020. This is due to the simultaneous large increase in the labour force – the denominator of the ratio. In general, NEET rates are a better indicator of deficits in young people's access to the labour market than unemployment rates, because one needs to be in the labour force to be unemployed, whereas the NEET rate considers the entire population.

The recovery of youth unemployment rates is projected to diverge between low- and middle-income countries on the one hand and high-income countries on the other. Indeed, high-income countries are the only ones where youth unemployment rates are expected to return to their 2019 levels by the end of 2022, while in the other country income groups they are projected to remain more than 1 percentage point above their pre-crisis values.

▶ Table 1.3 Youth unemployment and unemployment rate, by sex, world and by country income group, 2019–22

Country group	Sex	Unemployment rate (percentages)				Unemployment (millions)			
		2019	2020	2021	2022	2019	2020	2021	2022
World	Total	13.5	15.2	15.6	14.9	67.2	71.0	75.1	73.0
	Female	13.1	14.7	15.0	14.5	25.2	26.4	28.1	27.4
	Male	13.8	15.5	15.9	15.2	42.0	44.6	47.1	45.6
Low income	Total	8.2	9.1	9.6	9.8	5.5	5.9	6.5	6.9
	Female	8.0	9.0	9.6	9.6	2.4	2.6	3.0	3.1
	Male	8.4	9.2	9.6	10.0	3.0	3.3	3.6	3.8
Lower-middle income	Total	15.2	16.6	17.9	17.0	31.5	32.1	36.0	34.8
	Female	14.4	15.3	16.4	15.9	9.6	9.5	10.6	10.6
	Male	15.5	17.2	18.7	17.5	21.9	22.6	25.4	24.3
Upper-middle income	Total	14.7	16.3	16.4	16.1	23.4	24.0	24.9	24.3
	Female	15.5	17.1	17.8	17.4	10.1	10.2	11.0	10.7
	Male	14.2	15.8	15.5	15.2	13.3	13.8	13.9	13.6
High income	Total	10.8	14.5	12.3	11.0	6.9	8.9	7.7	6.9
	Female	10.2	14.3	11.8	10.3	3.0	4.1	3.5	3.0
	Male	11.3	14.7	12.7	11.6	3.8	4.8	4.3	3.9

Note: Data are estimates up to 2021, and projections for 2022. "Youth" refers to ages 15–24.

Source: ILOSTAT, ILO modelled estimates, November 2021.

Globally, young women's unemployment rate was below the male rate both before and throughout the crisis. At 13.1 per cent in 2019, the unemployment rate among young women stood 0.7 percentage points below that of young men – a gap that persisted throughout the crisis. However, there is significant regional variation in the gender gap in youth unemployment rates. Northern Africa, Latin America and the Caribbean, the Arab States, and Central and Western Asia all exhibit unemployment rates among young women that are much higher than those of young men. Women in those regions face barriers not only with regard to entering the labour market – as evidenced by large gender gaps in the NEET rate and the LFPR – but also with regard to obtaining a job once they are in the labour market. In contrast, the unemployment rates of young women are significantly lower than those of young men in Northern America and in Eastern Asia.

The crisis had a very heterogeneous impact on youth unemployment across regions (figure 1.9). While all regions experienced an increase in the youth unemployment rate in 2020, the rise was largest in Northern America, at 6.8 percentage points. At the other end of the spectrum lies Central and Western Asia, where the rate increased by only 0.7 percentage points, and the number of unemployed young people actually declined. Southern Asia is the only region where the rise in the youth unemployment rate was smaller than that of the adult rate, and in which the number of unemployed young people also declined. The labour force exit of young people lies behind this phenomenon, but also behind the observation that the youth–adult ratio of unemployment rates declined in all but one region in 2020 (figure 1.10). Despite this decline, young people in the labour force are still at least twice as likely as adults to be unemployed.

> Global youth unemployment is projected to decline to 73 million in 2022, which would still be 6 million above the 2019 level. The recovery of youth unemployment rates is projected to diverge between low- and middle-income countries on the one hand and high-income countries on the other.

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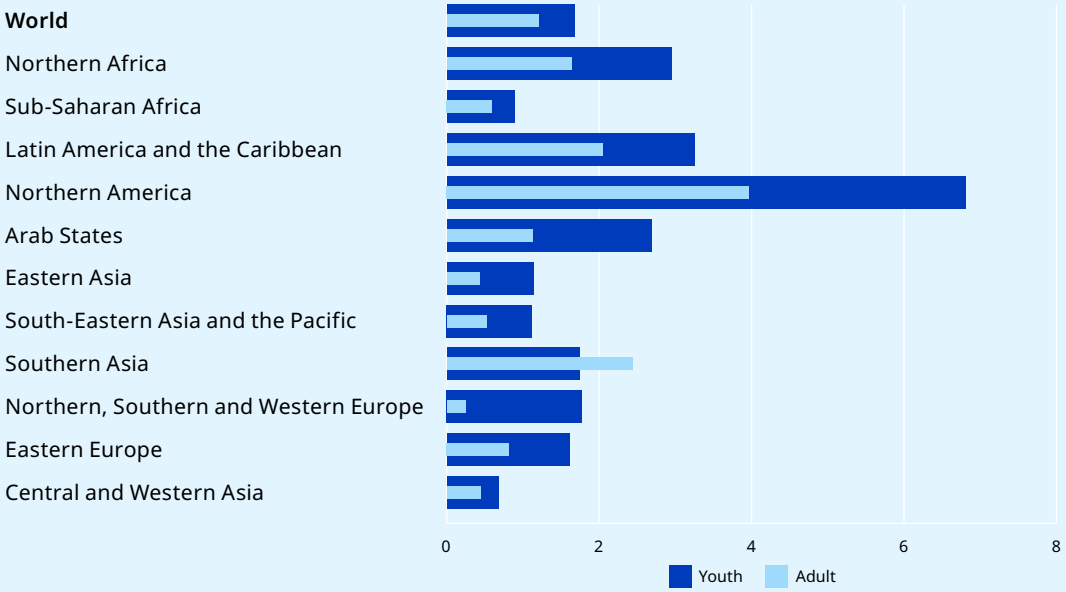
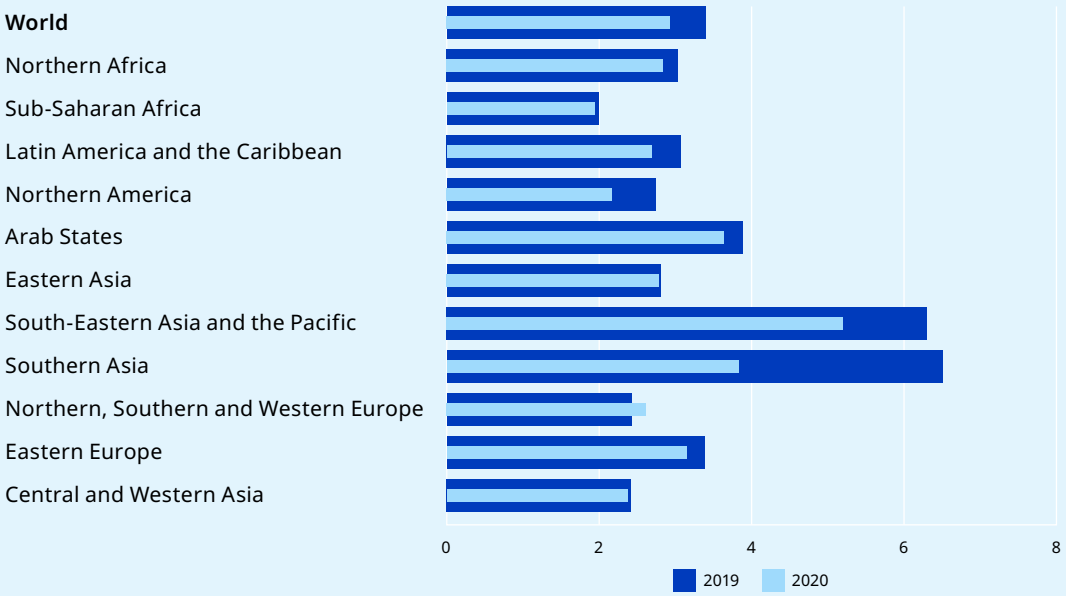
▶ Figure 1.9 Change in unemployment rate, by age, world and by region, 2019–20
(percentage points)



Note: "Youth" refers to ages 15–24.

Source: ILOSTAT, ILO modelled estimates, November 2021.

▶ Figure 1.10 Youth–adult ratio of unemployment rate, world and by region, 2019–20



Note: "Youth" refers to ages 15–24.

Source: ILOSTAT, ILO modelled estimates, November 2021.

1.4 Education and training

An economic crisis can affect educational outcomes negatively or positively, depending on the socio-economic status of the family. Negative effects include the reduction of a family's income, which may make it impossible to bear the costs of education, and may also make it necessary for the offspring to contribute to family income, potentially in the form of child labour.[15] Young women and girls are often the first to be pulled out of education, and the last to return, which can clearly aggravate gender inequalities in the labour market. Positive effects include the greater attractiveness of continued education or training when the earning potential of children or young people is lower (Shafiq 2010). The balance between these effects is primarily determined by the presence and coverage of social protection systems (ILO 2021c; ILO and UNICEF 2021), and also by the cost of primary, secondary and tertiary education.

The COVID-19 crisis not only affected the employment prospects and household incomes of young people, but also disrupted the quality and quantity of education and training. Widespread school closures affected more than 1.6 billion learners (World Bank, UNESCO and UNICEF 2021). The quality and reach of remote learning opportunities varied widely, and this modality could not, in most cases, adequately replace in-person learning, especially for the already economically vulnerable. Millions of children are at risk of never returning to school (World Bank, UNESCO and UNICEF 2021). It is clear that children and young people will suffer a long-term impact from these learning losses, though it is not yet possible to tell how great that impact will be.

1.4.1 Shifts between employment and education during the crisis

Not all of the job losses among those not in education translated into an increase in the NEET rate, since job losses in some cases resulted in increased educational attendance.[16] The share of young people aged 15–24 years pursuing an education in the second to fourth quarters of 2020 – relative to the same quarters of 2019 – increased, on average, by 1.1 percentage points across upper-middle-income countries with available data, and by 0.8 percentage points across high-income countries with available data (figure 1.11). This explains part of the increase in economic inactivity among young people (see also table 1.2). The employment of young people while in education was affected severely by the crisis, with one in four such jobs disappearing in middle-income countries, and one in seven in high-income countries. These employment losses threaten to deprive some young people of the financial basis that they need to be able to pursue an education, increasing the likelihood of their dropping out in the future.

Young people aged 20–24 years were particularly affected by rising NEET rates throughout the COVID-19 crisis. Indeed, NEET rates hardly changed for those aged 15–19 years. Employment losses as a percentage of the population were also smaller, but it has to be kept in mind that the pre-crisis employment rate of those aged 15–19 years was smaller owing to the younger group's much higher levels of educational attendance compared with those aged 20–24 years.

Educational attendance increased among young women in particular. Even though the employment losses of young women were larger than those of young men for all age groups, the NEET rates increased more strongly for young men (figure 1.11). This effect is particularly striking for young people aged 20–24 years, among whom educational attendance increased by 3.5 percentage points for women, versus 1.5 percentage points for men, while NEET rates increased by 2.1 percentage points for women, versus 3.4 percentage points for men.

[15] This report is concerned with young people who are at least 15 years of age, whereas analysis of child labour would mean including those below the age of 15.

[16] The available data do not allow one to establish whether young people who lost their job took up education. It is possible that the observed changes are driven by potential new labour market entrants prolonging their education, at least up to a certain point.

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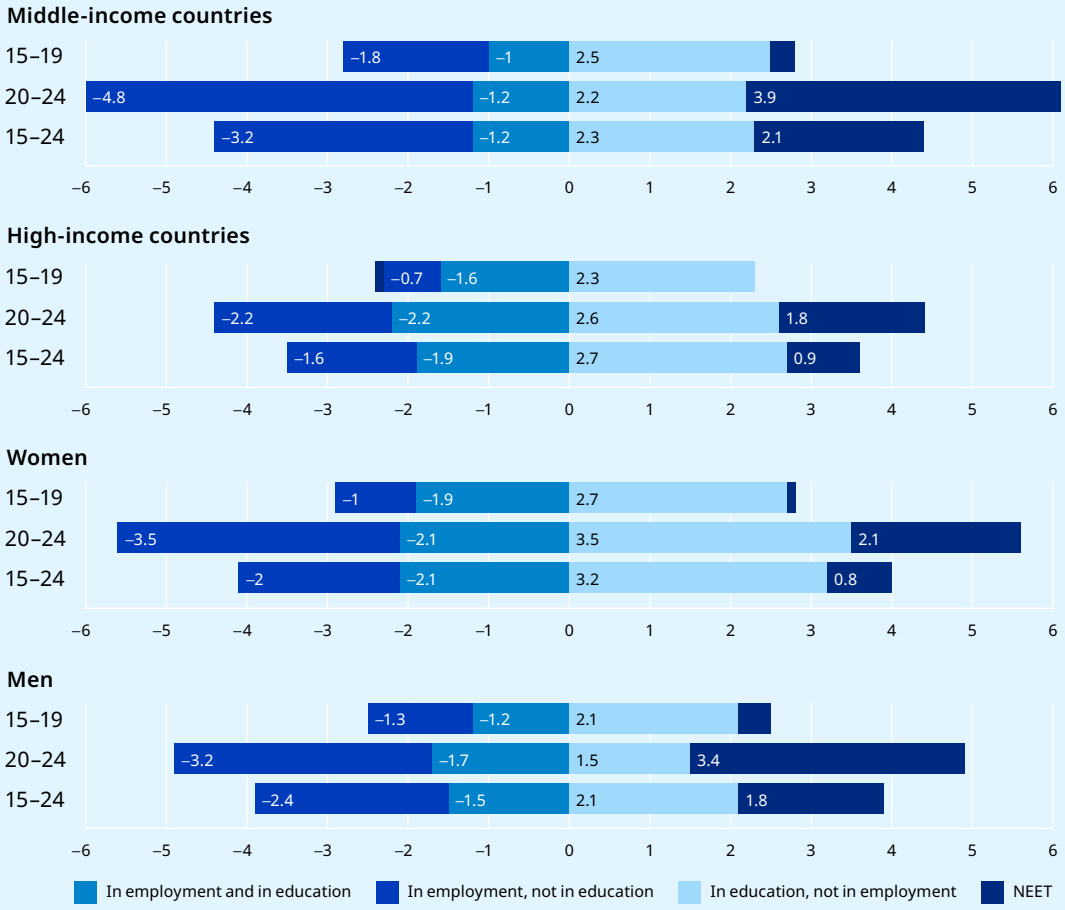
▶ Figure 1.11 Average change in young people's employment and educational attendance, by age, sex and country income group, second to fourth quarters of 2020 relative to same quarters of 2019 (percentage points)



Note: The figure shows the unweighted mean of 18 middle-income countries and 28 high-income countries with available data (the smallest and largest values were excluded to control for outliers). The unweighted average changes in employment and NEET rates shown here can differ from those in tables 1.1 and 1.2 owing to limited country coverage and the lack of country weights. The United States of America, for instance, has experienced a large increase in the NEET rate, which has in turn driven up the weighted average of high-income countries owing to the large US population. "In education" also comprises "in training". The values for the age group 15–24 are not necessarily equal to the mean of the values for the age groups 15–19 and 20–24 because the unweighted average change of each indicator is computed separately for each age group.

Source: ILO calculations based on ILO harmonized microdata.

Preliminary global estimates of gross rates of enrolment in tertiary education support the hypothesis that young people who could afford it tended to expand and deepen their education or training during the crisis. The increase in the global gross rate of enrolment in tertiary education accelerated in 2020, namely to 0.8 percentage points, compared with an annual average increase of 0.6 percentage points over the period 2015–19 (UNESCO Institute for Statistics, n.d.). This rise was principally driven by upper-middle-income countries, with China reporting a 3.6 percentage point increase in the rate in 2020. By contrast, the increase in the enrolment rate declined in high-income countries from an annual average of 0.9 percentage points over the period 2015–19 to 0.1 percentage points in 2020.

Alternative survey data show that most countries did not report any change in the rates of enrolment in tertiary education; a few countries reported an increase, others a decrease (UNESCO 2021).

Increased educational attainment benefits individuals and society as a whole. Graduates of tertiary education can expect to earn around 17 per cent more than those with secondary education only (Montenegro and Patrinos 2014). Furthermore, they are less likely to lose their job during a crisis, thereby contributing to overall economic stability. During the COVID-19 crisis, in particular, many higher-skilled workers were able to continue working because of their greater potential for remote work (ILO 2020b). Finally, a more educated workforce raises overall productivity and standards of living. However, it is important to note that these positive effects of a small increase in tertiary education were overshadowed by the negative effects caused by the disruption to the delivery of education not only at the tertiary level, but for students at all ages.

1.4.2 The education crisis

The prolonged closure of schools and other institutions caused major disruption to the delivery of education that was at best mitigated only partially through distance learning, thereby negating any potentially positive impact of higher educational enrolment. In countries such as India, school closures lasted 18 months. A survey of 143 countries revealed that, in 2020, schools were fully closed across all educational levels for 79 days of instruction on average, ranging from 53 days in high-income countries to 115 days in lower-middle-income countries (UNESCO et al. 2021; Chen, Kaczmarek and Ohyama 2021). Given the deeply unequal access to online resources in developing countries, children from socio-economically disadvantaged families, which are the large majority, had almost no access to education. As the pandemic continued, it became clear that the August 2020 estimates (UNICEF 2020) of potentially reaching 69 per cent of all children through online and broadcast media were overly optimistic. For example, among the 240 million school-going children in India, only 8 per cent of such children in rural areas and 23 per cent in urban areas had adequate access to online education (Bakhla et al. 2021).

School closures not only prevented new learning, but also led to the phenomenon of "learning regression", that is, children forgetting what they had learned earlier. In India, 92 per cent of children on average lost at least one foundational ability in language and 82 per cent lost at least one foundational ability in mathematics (APU 2021). The loss of basic literacy and numeracy skills, and of skills in other subjects, has a direct impact on all future learning of pupils, and thus on their preparedness for life and work. In addition to learning losses, school closures around the world have also led to significant detrimental effects on nutrition and health (World Bank, UNESCO and UNICEF 2021; Dorn et al. 2021).

School closures caused many school dropouts, particularly among girls. In Bangladesh, 10 per cent of all girls aged 12–15 years did not want to return to their schools once these reopened (World Bank, UNESCO and UNICEF 2021). In Ghana, Kenya and Nigeria, school dropout rates were particularly elevated among those over the age of 15 (World Bank, UNESCO and UNICEF 2021). Furthermore, lost educational attainment in primary and secondary education risks lowering future enrolment in tertiary education (Meng and Gregory 2002). In that sense, the COVID-19 crisis has lowered educational attainment not only through its direct impact on schools, but also in terms of forgone future education, especially in poorer countries.

The education crisis also affects young people above the age of 18 who are in higher education. Over 73 per cent of young people in education or training reported being affected by closures of schools, universities or training centres (ILO 2020c), while 13 per cent saw their education come to a complete halt.[17] Moreover, 65 per cent of respondents reported having learned less as a result of the shift to distance learning.

[17] The ILO conducted an online survey from 21 April to 21 May 2020 with 12,600 respondents aged 18–35 years. See ILO (2020c, 9) for more details.

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The long-term effects of the education crisis are unclear but likely to be considerable. One study estimates that the current generation affected by educational disruptions could lose US$17 trillion in lifetime earnings at present value, or around US$25,000 per person (World Bank, UNESCO and UNICEF 2021). This study estimates the loss in learning-adjusted years of schooling and applies conventional estimates of wage returns to schooling in the labour market. The decline in potential labour productivity of this generation is likely to be smaller, since labour productivity is determined not only by what one has learned in formal education (as long as the minimum skills are present), but also by on-the-job training and the capital endowment of the firm. Since the whole generation is affected by losses in learning-adjusted years of schooling, the losses in labour income could be smaller – assuming that the labour share of income does not decline and that potential economic growth is not affected too much.[18] Nevertheless, the unequal impact of this crisis on educational outcomes – in terms of access to, and the quality of, distance learning or financial support to continue one's education – is likely to have strong distributional effects in the long run, increasing existing structural inequalities. This is true not only of developing economies but even of developed ones (see, for example, United States of America, Department of Education 2021).

1.5 Structural changes in economic activity

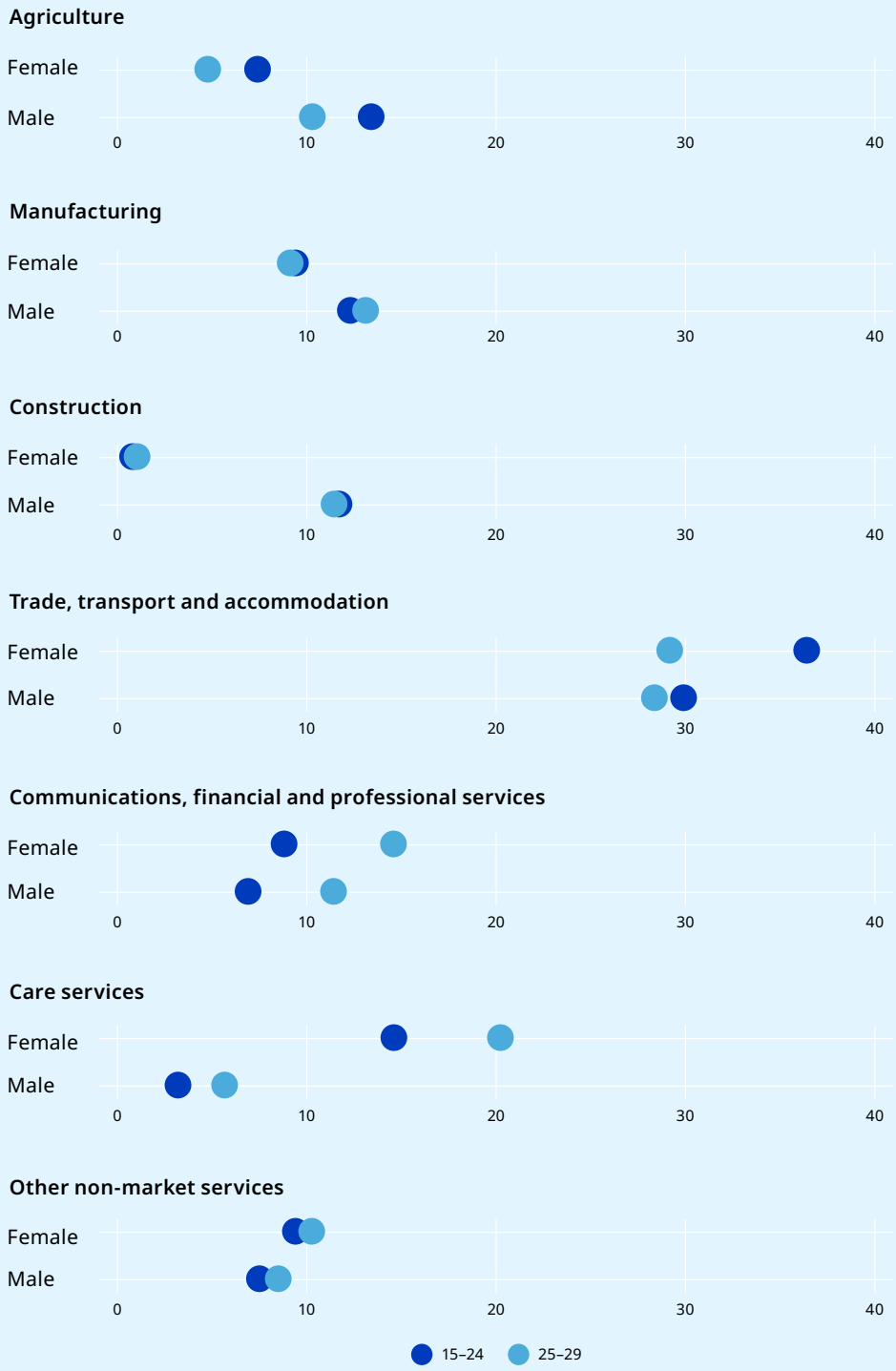
Around a third of all young people work in services related to wholesale and retail trade, accommodation and food, and transport and storage (figure 1.12). For the age group 25–29, these sectors are slightly less important, especially among women, but they nevertheless remain the dominant sources of employment. Care services and services related to communications, finance, business and professional activities attract a higher employment share among those aged 25–29 years. This does not necessarily mean that young people tend to switch their career – those occupations generally require a higher education, so young workers can often only enter them at a later stage of their lives. Agriculture, in contrast, does not require any higher education in most cases, which explains the fairly large decline in its prevalence among the age group 25–29.

Young women are five times more likely than men to work in care services, and the gender gap increases even further once workers are in the age group 25–29 (see also Chapter 4). At the other end of the spectrum, young men are much more likely to work in construction, while women are virtually absent from that sector. Overall, young women are over-represented in non-market service sectors compared with young men. Those sectors also tend to have a higher incidence of wage and salaried employment and a lower incidence of informality. However, one has to bear in mind the limited country coverage of the data: the median employment share of the sample of 90 countries studied for this report is determined by an upper-middle- or high-income country, depending on the sector.

Youth employment intensity as a share of total employment is highest in the trade, transport and accommodation sectors, and lowest in care services (figure 1.13). An above-average youth employment intensity in a given sector indicates that it is particularly important as a source of employment opportunities for young people, while a below-average intensity indicates that a sector becomes more important at higher ages. Even though care services already constitute a very important source of employment for young women (figure 1.12), young women account for only 7.7 per cent of all workers in that sector, compared with 11.3 per cent for the economy as a whole. The employment intensity of young men in care services is only at half the level of their employment intensity in the economy as a whole, underlining the fact that this sector does not gain in importance as a source of employment until higher ages.

[18] Estimates of the return to education are obtained by comparing two otherwise similar individuals with different levels of education. In a scenario where total gross domestic product and the labour share of income remain constant, any increases in the level of educational attainment of part of the population would shift the distribution of labour income towards those groups, in line with the "education premium".

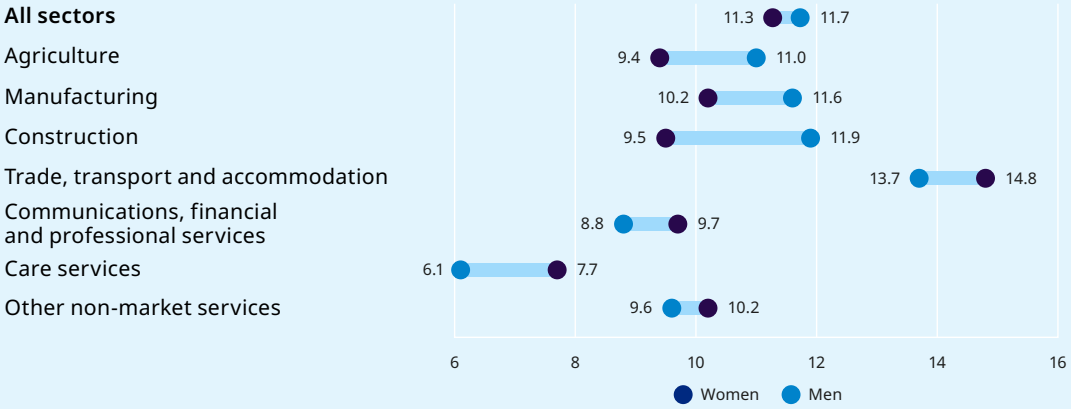
Figure 1.12 Distribution of youth employment across aggregate economic activities, by sex, latest year available up to 2019 (percentage)



Note: The chart shows the median of the distribution of youth employment across the aggregate economic sectors in 90 countries with available data for the age groups 15–24 and 25–29. The mining and utilities sectors are excluded because they have very low youth employment, which means that statistics on the latter are unreliable in many surveys. See Appendix F, table F.1, for a detailed description of the composition of aggregate sectors.

Source: ILO harmonized microdata.

▶ Figure 1.13 Median share of youth employment in total employment across aggregate sectors, by sex, latest year available up to 2019 (percentage)



Note: The chart shows the median of the share of youth employment (ages 15–24) in total employment within each aggregate economic sector in 90 countries with available data. The mining and utilities sectors are excluded because they have very low youth employment, which means that statistics on the latter are unreliable in many surveys. See Appendix F, table F.1, for a detailed description of the composition of aggregate sectors.

Source: ILO harmonized microdata.

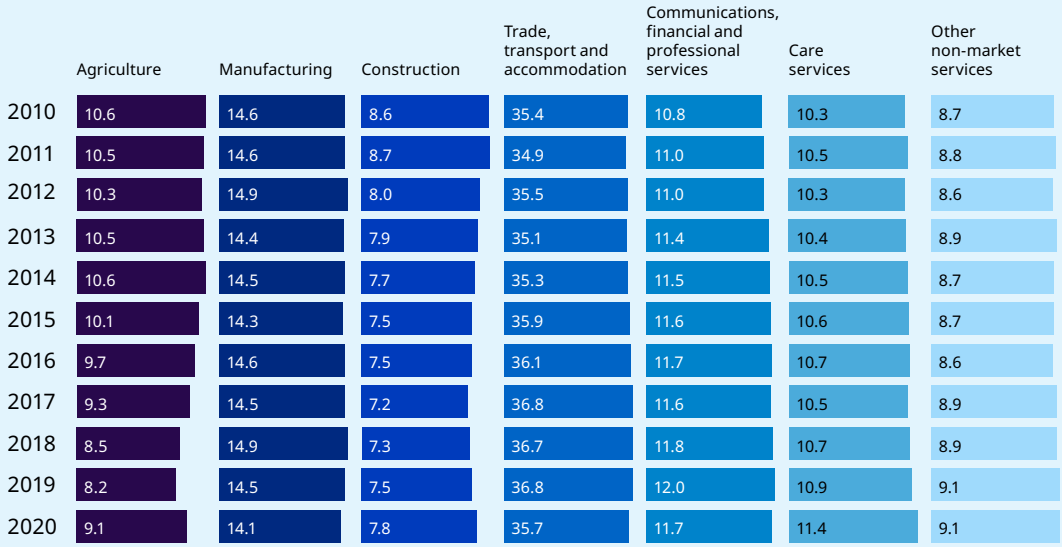
Between 2010 and 2019, youth employment shifted out of agriculture and construction into market and non-market services. On average, in the 34 countries with data available up to 2020, market services increased their youth employment share by 2.6 percentage points over that period, while non-market services increased their employment share by 1.0 percentage point (figure 1.14). Care services, in particular, experienced a 0.6 percentage point rise in the youth employment share, which had reached 10.9 per cent by 2019. The average employment contribution of manufacturing remained stable over this period.

The COVID-19 crisis reversed the long-term trend of expanding youth employment in market services. The trade, transport and accommodation sectors, which had hitherto been the principal entry point into the labour market for young people, experienced heavy employment losses in 2020. Indeed, their share in total employment declined by 1.1 percentage points over a period in which global youth employment declined by an average of 8.2 per cent (figure 1.5). Youth employment in manufacturing and in communications, financial and professional services was also hit harder than average, resulting in a declining employment share. Youth employment in care services declined on average,[19] but that decline was less severe than in other sectors, leading to a rise in the youth employment share of that sector.[20] Agriculture is the only sector in which youth employment did not fall in 2020 – in fact, it actually expanded. Non-market services provided a much higher job security during the COVID-19 crisis than market services, resulting in their relatively better performance, while agriculture served as an employer of last resort in several countries.

[19] Youth employment in care services fell in 21 out of 30 countries with available data for 2020.

[20] Global youth employment declined by 8.2 per cent in 2020 relative to 2019. In order for sectoral employment to remain stable, the youth employment share of care services would need to rise by at least 100/(100 – 8.2) ≈ 9 per cent.

▶ Figure 1.14 Distribution of youth employment across aggregate economic activities, 2010–20 (percentage)



Note: The figure shows the unweighted average share of youth employment (ages 15–24) in total employment of each aggregate sector for a sample of 30 middle- and high-income countries with available data covering the period 2010–20. To remove the influence of extreme values, the largest and smallest three values were not used in computing the average. Data gaps for individual countries have been filled using linear interpolation. Mining and utilities have been excluded because these sectors have very low youth employment. The shares of the individual sectors therefore do not add up to 100 per cent.

Source: ILO calculations based on ILO harmonized microdata.

Going forward, some of the changes to the sectoral distribution caused by the COVID-19 crisis are likely to be reversed, but not all. The crisis had a highly heterogeneous impact across sectors (ILO 2020d; ILO 2021a). As activity picks up again, the hardest-hit sectors are likely to experience a strong growth in labour demand, which will in turn raise their employment shares again. Nevertheless, some persistent effects may well remain. Tourism-related sectors, for example, may not recover fully for a long time. The expected greater prevalence of remote working and use of e-commerce in the post-pandemic period is likely to continue to affect some sectors such as retail trade and commercial real estate activities. Moreover, as sectors recover, those workers who have lost their jobs may have a greater chance of getting them back than young people trying to enter the labour market in those sectors. Finally, young people may make different career choices in the light of their experience of the COVID-19 crisis.

Structural change can create opportunities for young people as they are able to enter the labour market in growing sectors, provided that they manage to gain the necessary skills. The jury is still out on whether the crisis has accelerated structural change broadly, but at least in some areas, such as information technology, this is probably the case (ILO 2022) (see Chapter 3). Education systems need to equip young people with the basic skills to be able to enter those burgeoning sectors, especially in view of the damage to learning caused by the crisis. Similarly, employers will almost certainly need to step up their efforts to provide training, as it is unlikely that a sufficient number of ready-skilled young workers will be available in the labour market.

> Structural change can create opportunities for young people as they are able to enter the labour market in growing sectors, provided that they manage to gain the necessary skills.

1.6 Conclusions

Young people have been hit particularly hard by the COVID-19 crisis in multiple dimensions. Their rate of employment loss has been much higher than that of adults, and their education has been interrupted (see also ILO 2021d). Projected employment growth in 2022 is insufficient to make up for the damage caused by the crisis, and employment deficits are expected to remain especially large in middle- and low-income countries. The combination of all these factors implies significant labour market and social challenges for years to come.

Young people who lose their job or fail to obtain one are particularly vulnerable to "scarring", the phenomenon whereby their future labour market outcomes are worse than those of their peers even when macroeconomic conditions improve again (see box 1.2 in ILO 2021a). They may accept a job for which they are overqualified, which risks trapping them in an employment trajectory that involves informality and low pay. As highlighted by previous crises, young people in high-income countries are equally affected by scarring. Thus, it has been observed that individuals who graduated from university during the financial crisis of 2007–08 have lower wages and employment probabilities (Rothstein 2020).

Disrupted education can cause significant learning losses, creating both intergenerational and intragenerational inequalities. The generation affected by school closures may have lower employment probabilities than earlier generations. More importantly, school closures had very different effects on young people both across and within countries, depending on countries' capacity to provide effective arrangements for distance learning, and on the socio-economic status of families, which determined the extent to which students could benefit from distance learning.

Global inequalities, both within and across countries, may well increase because of the heterogenous direct and long-term effects of the COVID-19 crisis on young people in different countries and with different socio-economic backgrounds. The children and young people of today are the prime-age workforce of tomorrow. The current generation could end up having a less favourable start than the previous one, leading to inequalities later on. There is a high risk of reversal of the long-standing efforts to reduce global inequalities, both within and across countries.

The COVID-19 crisis has made the prospect of achieving many targets of the Sustainable Development Goals (SDGs) more elusive. The sheer scale of, and the strong heterogeneity in, the disruptions to the youth labour market and educational outcomes aggravates those challenges. Decisive policy action is required to counter these effects, to enable young people to obtain the education that they need, and to support their entry into the labour market in these difficult conditions. The "green", "blue", digital and creative economies, in particular, have great potential to provide decent jobs for young people while contributing to key SDGs, including Goal 5 ("Gender equality"), Goal 8 ("Decent work and economic growth"), Goal 9 ("Industry, innovation and infrastructure"), Goal 13 ("Climate action") and Goal 14 ("Life below water"). These economies and their potential in terms of promoting youth employment are examined in the subsequent chapters.

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> Young people have been hit particularly hard by the COVID-19 crisis in multiple dimensions. Their rate of employment loss has been much higher than that of adults, and their education has been interrupted.

▶ Chapter references

Abraham, Rosa. 2021. "Covid-19 and India's Youth Workforce". *Hindustan Times*, 6 December 2021.

APU (Azim Premji University). 2021. "Loss of Learning during the Pandemic", Field Studies in Education, February 2021.

Bakhla, Nirali, Jean Drèze, Vipul Paikra, and Reetika Khera. 2021. "Locked Out: Emergency Report on School Education". School Children's Online and Offline Learning Team.

Chen, Emily, Kristie Kaczmarek, and Hiroe Ohyama. 2021. "Student Perceptions of Distance Learning Strategies during COVID-19". *Journal of Dental Education* 85 (51): 1190–1191.

Dorn, Emma, Bryan Hancock, Jimmy Sarakatsannis, and Ellen Viruleg. 2021. "COVID-19 and Education: The Lingering Effects of Unfinished Learning". McKinsey & Company, 27 July 2021.

ILO. 2016. *Non-Standard Employment around the World: Understanding Challenges, Shaping Prospects*.

———. 2017. *World Employment and Social Outlook: Trends for Women 2017*.

———. 2018. *Women and Men in the Informal Economy: A Statistical Picture*, 3rd ed.

———. 2019. *A Quantum Leap for Gender Equality: For a Better Future of Work for All*.

———. 2020a. "ILO Monitor: COVID-19 and the World of Work. Fifth Edition", 30 June 2020.

———. 2020b. "Working from Home: Estimating the Worldwide Potential", ILO Policy Brief, April 2020.

———. 2020c. *Youth & COVID-19: Impacts on Jobs, Education, Rights and Mental Well-being*.

———. 2020d. "ILO Monitor: COVID-19 and the World of Work. Second Edition", 7 April 2020.

———. 2021a. *World Employment and Social Outlook: Trends 2021*.

———. 2021b. "ILO Monitor: COVID-19 and the World of Work. Seventh Edition", 25 January 2021.

———. 2021c. *World Social Protection Report 2020–22: Social Protection at the Crossroads – In Pursuit of a Better Future*.

———. 2021d. "An Update on the Youth Labour Market Impact of the COVID-19 Crisis", ILO Statistical Brief, June 2021.

———. 2022. *World Employment and Social Outlook: Trends 2022*.

ILO and UNICEF (United Nations Children's Fund). 2021. *Child Labour: Global Estimates 2020, Trends and the Road Forward*.

Meng, Xin, and R.G. Gregory. 2002. "The Impact of Interrupted Education on Subsequent Educational Attainment: A Cost of the Chinese Cultural Revolution". *Economic Development and Cultural Change* 50 (4): 935–959.

Montenegro, Claudio E., and Harry Anthony Patrinos. 2014. "Comparable Estimates of Returns to Schooling around the World". World Bank Policy Research Working Paper No. 7020.

Rothstein, Jesse. 2020. "The Lost Generation? Labor Market Outcomes for Post Great Recession Entrants", National Bureau of Economic Research Working Paper No. 27516.

Shafiq, M. Najeeb. 2010. "The Effects of an Economic Crisis on Educational Outcomes: An Economic Framework and Review of the Evidence". *Current Issues in Comparative Education* 12 (2): 5–13.

UNESCO (United Nations Educational, Scientific and Cultural Organization). 2021. "COVID-19: Reopening and Reimagining Universities, Survey on Higher Education through the UNESCO National Commissions". ED/E30/HED/2021/01.

UNESCO, UNICEF, World Bank and OECD (Organisation for Economic Co-operation and Development). 2021. *What's Next? Lessons on Education Recovery: Findings from a Survey of Ministries of Education amid the COVID-19 Pandemic*.

UNESCO Institute for Statistics. n.d. UIS.Stat database. http://data.uis.unesco.org.

UNICEF (United Nations Children's Fund). 2020. "COVID-19: Are Children Able to Continue Learning during School Closures?", UNICEF factsheet.

United States of America, Department of Education. 2021. *Education in a Pandemic: The Disparate Impacts of COVID-19 on America's Students*.

World Bank, UNESCO and UNICEF. 2021. *The State of the Global Education Crisis: A Path to Recovery*.

Part II

Investing in transforming futures for young people

▶ Introduction

As discussed in the previous chapter, the COVID-19 crisis has had devastating impacts on labour markets around the world, disproportionately impacting young women and men and aggravating the labour market challenges that they were facing before the pandemic. Supported by COVID-19 policy response packages (see Chapter 5), the recovery has been swift in some countries and regions, but on the whole it remains uneven and fragile, with severe risks posed by supply chain disruptions, price spikes, financial distress, and geopolitical tensions and conflicts. As the pandemic wanes and countries reassess their policy stances, they need to invest in longer-term transformative approaches and overhaul their economic structures to make these more inclusive, sustainable and resilient. This part of the report considers a range of economic clusters – termed "economies" for the sake of simplicity – that have considerable potential to absorb young workers while underpinning just and successful green, digital and demographic transitions: the **"green economy"**; the **"blue economy"** (ocean resources and their sustainable use); the **"platinum economy"** (digital technologies); the **"orange economy"** (creative industries); and the **"purple economy"** (care, health and education).

> As the pandemic wanes, countries need to invest in transformative approaches and establish inclusive, sustainable and resilient economic structures.

A key argument of this report is that targeted investments in these economies not only are central to a human-centred recovery from the COVID-19 crisis but also have long-term transformative implications. They are essential for defining and promoting a better future of work for young people. This introductory section sets out the rationale behind focusing on the above "palette" of economies and introduces the main findings of a modelling exercise carried out to simulate the employment impacts of major investment in the green, digital and care economies. The subsequent chapters provide conceptual definitions of the economic clusters concerned and examine the labour market situation of young people and the transformative potential of investment in the green and blue economies (Chapter 2), the digital and creative economies (Chapter 3) and the care economy (Chapter 4).

A palette of economies: Green, blue, platinum, orange and purple

At the Global Youth Employment Forum held in Abuja in August 2019, which was jointly organized by the ILO and the Government of Nigeria, over 200 young people from 65 countries identified the set of economies, or clusters of interrelated economic sectors, that they considered to be the most promising from their point of view.[1] They also spelled out the key features of those economies (see box II.1). Further consultations with representative young people undertaken in October 2021 as part of the preparation of this report reaffirmed the potential of these economies to create decent jobs for young people while at the same time addressing critical economic, social and environmental challenges.

[1] The Global Youth Employment Forum was organized in the framework of the ILO's centenary celebrations using a tripartite format involving young representatives of governments and workers' and employers' organizations. See ILO (2019a).

▶ Box II.1 Youth voices on the colour spectrum of economies

The young participants in the Global Youth Employment Forum held in Abuja, Nigeria, in 2019 emphasized the following points with regard to the green, blue (marine), platinum (digital), orange (creative) and purple (care) economies:

- **Green economy:** This was identified as the sector of the future, although carbon emissions continue to be on an upward trend. Engaging in a just transition to greener economies and climate neutrality is critical, given that climate change is caused largely by human activities. It is also urgent to change consumption and production patterns and to address their implications for work and job security.
- **Blue (marine) economy:** Fishing sector workers are among the most vulnerable, while "blue" professions are often not as valued as they should be, bearing in mind the hazardous nature of the work. Unequal fishing is widespread and it is important to take value chain aspects into account so as to achieve a more equitable distribution of economic benefits within the sector.
- **Platinum (digital) economy:** Some important considerations for enhancing jobs for young people in the digital and other economies include supportive legislation and economic policies, financial incentives, appropriate education and training (including skills accreditation), and the promotion and protection of youth labour rights.
- **Orange (creative) economy:** Creative industries are a dynamic and exciting sector for young people, although creative work is sometimes marked by a lack of labour and social protection.
- **Purple (care) economy:** More and better care everywhere is critical. At the same time, most care providers are undervalued and underpaid or even unpaid. Care professions need to be certified and accorded the value that they deserve.

Source: ILO (2019a, 8).

Many of these economies, or segments within them, have also been identified as transformative in various international, regional and national policy frameworks.[2] Indeed, the development of these economies is highly relevant to the achievement of the SDGs, including Goal 1 ("No poverty"), Goal 2 ("Zero hunger"), Goal 3 ("Good health and well-being"), Goal 4 ("Quality education"), Goal 5 ("Gender equality"), Goal 7 ("Affordable and clean energy"), Goal 8 ("Decent work and economic growth"), Goal 9 ("Industry, innovation and infrastructure"), Goal 10 ("Reduced inequalities"), Goal 13 ("Climate action") and Goal 14 ("Life below water").

[2] In addition to the Global Call to Action for a Human-Centred Recovery from the COVID-19 Crisis That Is Inclusive, Sustainable and Resilient (2021), the ILO Centenary Declaration for the Future of Work (2019) recognizes that technological innovations, demographic shifts, environmental and climate change, and globalization are driving transformative change in the world of work and having profound impacts on the nature and future of work. The ILO/United Nations Global Accelerator on Jobs and Social Protection recognizes, in particular, the key roles of the green and care economies in creating jobs in low- and middle-income countries but also in promoting gender equality and greater resilience. Given that some 3.6 billion people worldwide remain offline, the Broadband Commission for Sustainable Development has stressed the importance of promoting affordable universal connectivity to achieve the 17 SDGs. At the national level, the proposed legislation in the Build Back Better Bill in the United States sets out a framework for transformative investments in the green and care economies. The European Commission and the Republic of Korea have both singled out the green and digital economies as the main drivers of future sustainable growth. SkillsFuture Singapore has identified the green, digital and care economies as emerging, high-growth areas that open up new opportunities for people, enterprises and training providers.

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Why use the term "economy"? There are several reasons. First, the term encompasses a number of sectors, sometimes ranging from the primary sector to tertiary sectors as traditionally defined. This is perhaps best illustrated by the green economy, which includes natural resource-based sectors such as agriculture, secondary sectors such as the manufacture of green products and clean technology equipment, and tertiary sectors such as sustainable transport (see Chapter 2). Second, the term "economy" reflects the fact that products and services originating from a "core" or narrowly defined set of sectors are permeating into other areas of the aggregate economy in one way or another. For example, many jobs outside the core digital sectors make use of digital tools, technologies, products and services, and digital employment is therefore best visualized as a continuum (see Chapter 3). Third, given the ongoing and rapid socio-economic developments, many emerging activities cannot be grouped into pre-codified sectors or classified under systems such as the International Standard Industrial Classification of All Economic Activities (ISIC). "Economy" as a term is sufficiently flexible to reflect and capture new emerging interrelated industries and jobs. For example, social media has spawned a whole new set of jobs, including that of "influencers", which can be included in the creative economy, while platform-based or platform-facilitated work is proliferating – a trend accelerated by the COVID-19 crisis.

The employment potential of targeted investments to promote inclusive and sustainable green, digital and care transitions

This report uses a macro-econometric model to quantify the economic and employment impacts of policy measures to promote inclusive and sustainable green, digital and care transitions (see box II.2). Specifically, the green policy scenario encompasses measures aimed at improving energy efficiency in buildings and appliances; decarbonizing electrical power generation through a shift to renewable energy; and expanding electric vehicles and associated infrastructure. Taken together, these measures are designed in the model to pave the way towards a net zero economy by 2050 or 2060. The digital policy scenario aims at providing universal (90 per cent) internet broadband coverage, while the care policy scenario includes investments to increase health and social care provision and education coverage with a view to meeting the relevant targets under SDG 3 (health) and SDG 4 (education).

▶ Box II.2 Modelling the youth employment impacts of the green, digital and care transitions

This report uses the global macro-econometric model E3ME developed by Cambridge Econometrics. E3ME is a computer-based model of the world's economic, energy and environmental systems, in which behavioural relationships are estimated using econometric time-series techniques to quantify the economic and employment impacts of the implementation of four policy-induced scenarios, namely: (a) a "green scenario"; (b) a "digital scenario"; (c) a "care scenario"; and (d) a "combined scenario", which combines the first three (see Appendix D for detailed information on the E3ME model, the sources of data used, and limitations inherent in the modelling and results, and Appendix E for the correspondence between ILO country groupings and E3ME regions). These scenarios are compared against a baseline (or "business-as-usual" scenario). Under the baseline, global gross domestic product (GDP) is expected to grow at an annual average rate of 2.9 per cent, with consumer expenditure, investment and government spending expanding by an average annual rate of 2.8 per cent, 3.3. per cent and 3.0 per cent, respectively (table II.1). At the global level, employment is forecast to grow by 3 per cent between 2022 and 2030 (average annual growth of 0.4 per cent), and carbon dioxide (CO_2) emissions by 0.1 per cent annually. The baseline takes into account the impacts of the COVID-19 pandemic, but the modelling and analysis predate the Ukraine crisis, which has impacted GDP forecasts, energy prices, inflation and other variables.

(continued overleaf)

▶ **Box II.2** ***(cont'd)***

▶ **Table II.1 Summary of the baseline scenario**

	2022	2025	2030	Average annual growth, 2022–30 (%)
GDP (2010 US$; billions)	88 965	98 101	112 077	2.9
Consumers' expenditure (2010 US$; billions)	50 001	54 846	62 120	2.8
Investment spending (2010 US$; billions)	23 774	26 530	30 855	3.3
Government spending (2010 US$; billions)	15 554	16 997	19 704	3.0
Employment (millions)	3 472	3 498	3 582	0.4
CO_2 emissions (tonnes)	9 906	9 962	9 993	0.1

Source: E3ME model of Cambridge Econometrics.

Under the baseline scenario, the number of young people in employment is expected to rise by 8 per cent. Assuming that the current gender distribution by age and sector continues into the future, the rate of growth is similar for young men and young women at the global level, although there are important differences at the regional level: for example, the rate of growth of female youth employment is twice the male rate in the Arab States, partly because of a low base effect (table II.2).

▶ **Table II.2 Youth employment growth, by sex and region, 2022–30** (percentage)

ILO region	Youth (male)	Youth (female)
Africa	25	23
Americas	6	5
Arab States	4	8
Asia and the Pacific	2	–1
Europe and Central Asia	–3	–6
World	8	7

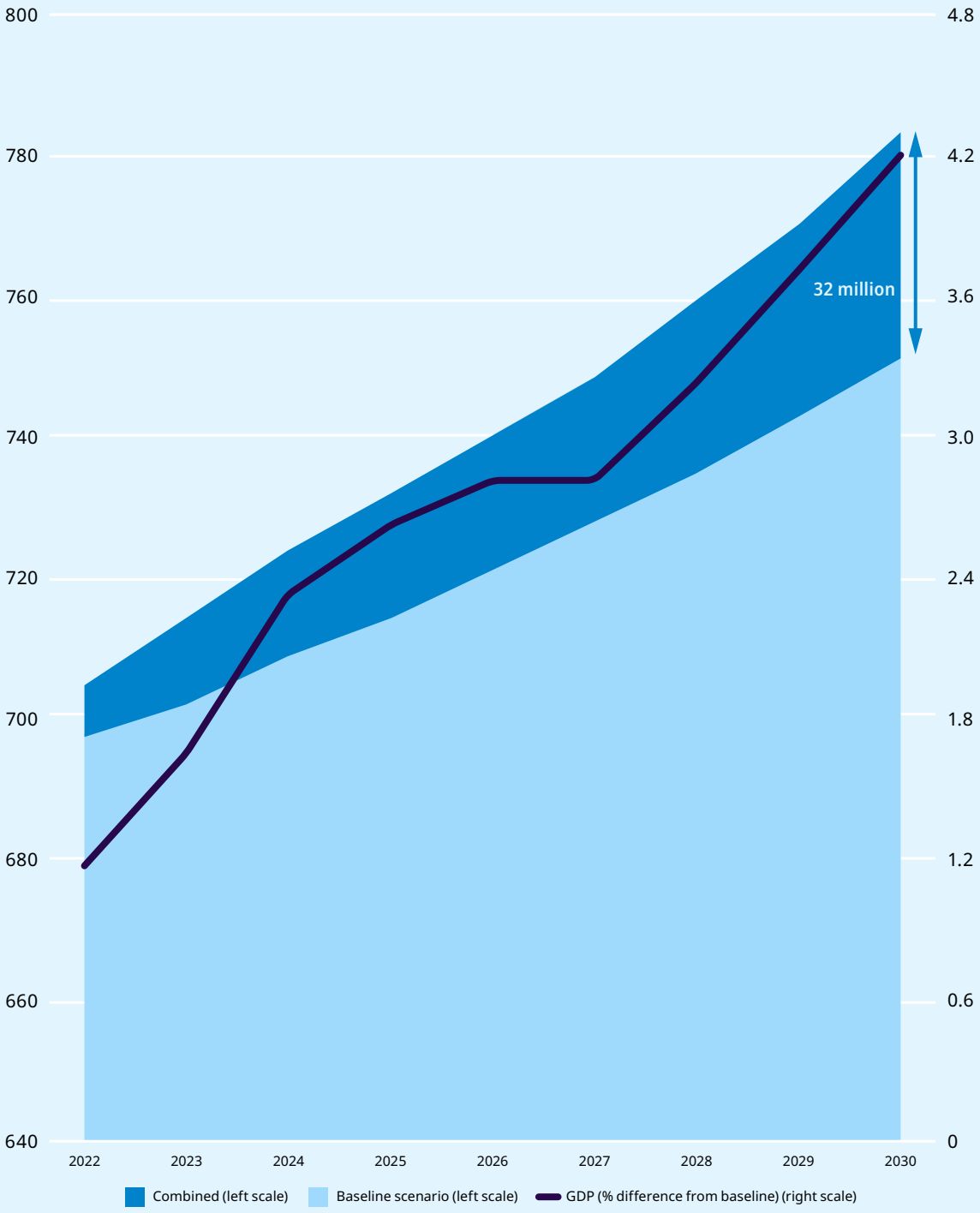
Note: "Youth" refers to ages 15–29.

Source: E3ME model of Cambridge Econometrics.

Source for box: ILO and Cambridge Econometrics.

Detailed scenario assumptions and the quantification of the economic and employment implications of implementing the green, digital and care policy packages individually are provided in Chapters 2, 3 and 4, respectively. **Undertaking these measures together in a "big push" effort (referred to in the modelling as the "combined scenario") is expected to lead to global GDP being 4.2 per cent higher relative to the baseline by 2030, with global employment higher by 139 million jobs** (figure II.1). Global youth employment – defined for this modelling exercise as comprising those aged 15–29 years – would rise from 697 million in 2022 to 751 million by 2030 in the baseline scenario, while the combined scenario is expected to raise youth employment by an additional 32 million jobs by 2030,

▶ **Figure II.1 Evolution of youth employment and GDP growth in the baseline and combined scenarios** (millions)



Note: "Youth" refers to ages 15–29.

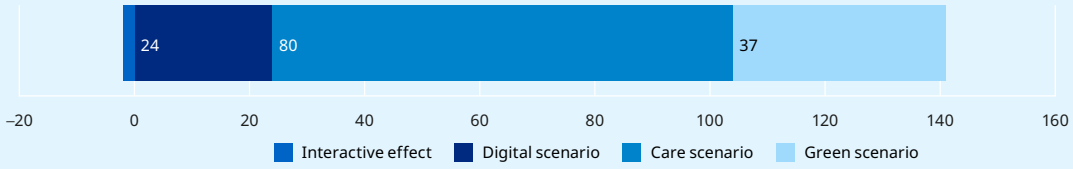
Source: ILO, based on the E3ME model of Cambridge Econometrics.

Additional jobs for young people created through a "big push" would set labour markets on a path towards sustainability, inclusiveness and resilience.

that is, by 4.3 per cent. Those additional jobs would help to make up for the job deficits remaining as a result of the effects of the COVID-19 crisis, while setting labour markets on a more robust path towards sustainability, inclusiveness and resilience. Achieving these outcomes, however, requires that particular attention be paid to the quality of jobs, as will be discussed in the following chapters.

The increase in global employment relative to the baseline is driven largely by the care scenario, which accounts for almost three fifths of that increase. Indeed, the care economy is both labour-intensive and responsible for a relatively large share of global output (figure II.2). The green scenario makes the next largest contribution to employment, followed by the digital scenario. There is also a small negative impact when comparing the change in employment in the combined scenario with the changes in each individual scenario owing to the interactions between them. Given the features of the model, this is due to higher combined investment activity leading to greater technological change and higher wages, which can reduce labour intensity.

▶ **Figure II.2 Contribution to the increase in global employment under the combined scenario, 2030** (millions)

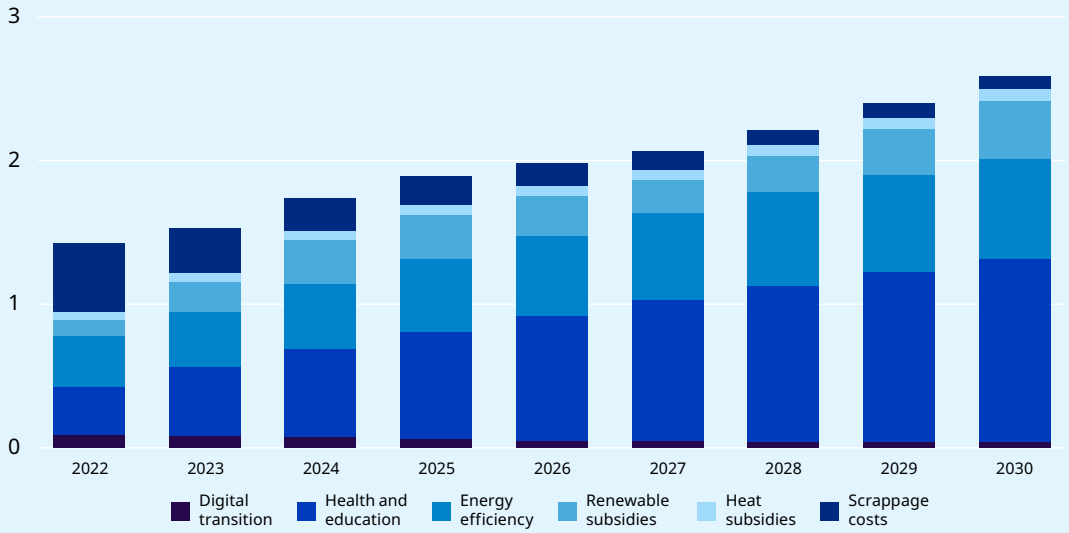


Source: ILO, based on the E3ME model of Cambridge Econometrics.

There are investment costs that come with the additional employment gains. The costs of increasing internet broadband coverage are below 0.1 per cent of GDP and decrease between 2022 and 2030, whereas the costs rise over time for both the green and care scenarios (figure II.3). In 2030, increasing the coverage of education and health and social care is expected to cost 1.3 per cent of GDP,[3] while green measures in the same year also entail a cost of 1.3 per cent of GDP. Among the policy measures in the green scenario, most of the spending is on energy efficiency, representing 0.7 per cent of GDP in 2030, followed by subsidies for renewable energy (0.4 per cent of GDP). Heat subsidies and scrappage costs are relatively inexpensive. All these investment costs are calculated as redirected spending or borrowing to simulate the real financial constraints faced by countries. Some policies generate more jobs per unit of investment than others: in particular, increasing broadband coverage is a one-off policy intervention entailing the highest number of jobs per unit of investment, compared with the green and care policy measures. Care policies in turn are projected to deliver more jobs per unit of investment

[3] See also ILO (2022), which models an alternative scenario that involves extending adequately paid childcare-related leave and breastfeeding breaks, expanding early childhood and education provision, and extending long-term care provision. Under such a scenario, annual investment costs are estimated at US$4.4 trillion (or 4.0 per cent of total annual GDP) by 2030.

▶ **Figure II.3 Costs of simulated policy measures, 2022–30** (percentage of GDP)



Source: E3ME model of Cambridge Econometrics.

than the package of green measures. However, these are conservative estimates of direct employment generation – the indirect benefits in terms of environmental safety and higher productivity triggered by investment in education, health and digitalization are not included.

The chapters that follow highlight the main challenges and explore the potential of strategic investments to support the creation of decent jobs for young people in the green, digital, and care economies. It is worth bearing in mind that there are interlinkages and synergies between the five economies, which can hardly be captured by modelling. For example, digital technologies and knowledge-based solutions are at the centre of many of the transitions to sustainable green and blue economies, such as precision agriculture. Digital solutions can also improve working conditions in the care sector – for example, though remote care or the deployment of robots to take over physically demanding tasks. While the blue and creative policy scenarios are not modelled explicitly owing to modelling and data constraints, they are considered to some extent in the green and digital scenarios, respectively, given the overlap between the green and blue economies and between the digital and creative economies. For example, part of the shift to renewable energy depends on offshore energy, an important component of the blue economy, while greater broadband penetration is tied to the development of the creative industries, which rely increasingly on digital technologies for the production and distribution of creative content.

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2

Young people and the transition to green and blue economies

▶ Chapter 2. Young people and the transition to green and blue economies

2.1 Introduction

Even before the COVID-19 pandemic, the world was facing both a youth employment crisis – with millions of young women and men excluded by the global economy from pathways to decent employment – and an environmental crisis. These concurrent and interrelated crises were exacerbated by the pandemic. As highlighted in Chapter 1, the COVID-19 crisis has disproportionately affected young people, be it through reduced working hours, job losses or reduced pay. Moreover, although there was an initial easing of environmental pressures, with global carbon dioxide (CO_2) emissions declining in 2020 as a result of restrictions on economic activities, emissions surged back in 2021 to reach a historical high (IEA 2022). Recent geopolitical tensions in Europe may contribute to accelerating the shift away from fossil fuels towards renewables over the medium and long term, but they could hamper this transition in the short term. Importantly, even before these latest developments, efforts to address climate change, ocean degradation and biodiversity loss were often postponed as a result of the pandemic. For example, green recovery spending made up a modest 18 per cent of total recovery spending, and 90 per cent of that green spending was accounted for by just seven countries (UNEP 2021). Another study indicates that only about 6 per cent of the total recovery spending in G20 countries was channelled towards initiatives aimed at reducing emissions, and that this share was proportionately smaller than what was spent in the aftermath of previous recessions (Nahm, Miller and Urpelainen 2022).

Young people surveyed by Deloitte in 2021 identified climate change, unemployment and healthcare/disease prevention as the three issues of greatest concern to them (figure 2.1, panel A). At the same time, younger people in every country were more likely than older people to view climate change as an emergency (figure 2.1, panel B). This is not surprising, since many of today's young people have a realistic chance of still being alive in 2100, by which time they are likely to have experienced extreme climatic events annually, rather than once a century as was the case for previous generations (IPCC 2021). The two crises of youth employment and environmental degradation need to be tackled jointly, as there is neither the time nor the resources to address them separately or consecutively (ILO 2015).

The transition to green and blue economies can help to create decent and productive jobs while contributing to environmental sustainability. As highlighted in the outcome document of the United Nations Conference on Sustainable Development (Rio+20) in 2012, the green and blue economies have considerable potential to contribute to sustainable development, poverty eradication and the creation of decent and productive jobs (see box 2.1 for definitions of these economies).[1] Young women and men, with their more contemporary education and training as well as their creativity and ingenuity, are well placed to benefit from a transition to green and blue economies. Opportunities are expected to arise from investments aimed at reaching net zero carbon emissions in order to limit global warning to 1.5°C above pre-industrial levels, including investments in clean and renewable energy, construction, sustainable agriculture, recycling and waste management, and other sectors.

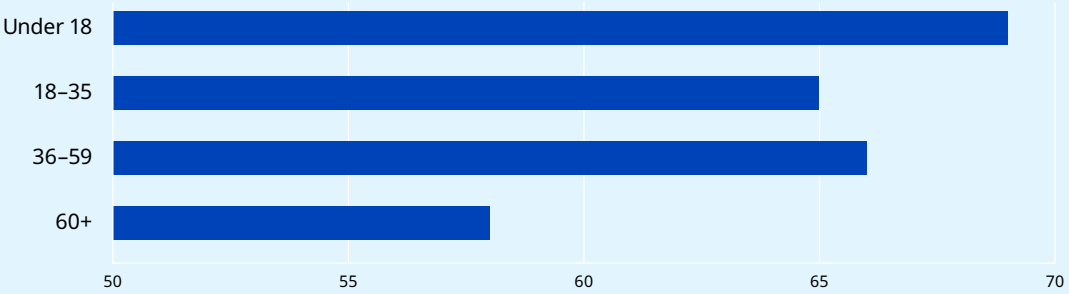
[1] Entitled "The future we want" (UN 2012), the outcome document of the Rio+20 Conference notes: "[W]e consider green economy in the context of sustainable development and poverty eradication as one of the important tools available for achieving sustainable development ... We emphasize that it should contribute to eradicating poverty as well as sustained economic growth, enhancing social inclusion, improving human welfare and creating opportunities for employment and decent work for all, while maintaining the healthy functioning of the Earth's ecosystems" (para. 56); "We stress the importance of the conservation and sustainable use of the oceans and seas and of their resources for sustainable development, including through their contributions to poverty eradication, sustained economic growth, food security and creation of sustainable livelihoods and decent work, while at the same time protecting biodiversity and the marine environment and addressing the impacts of climate change" (para. 158).

▶ **Figure 2.1, panel A. Top personal concerns of "Generation Z", 2021** (percentage)

Note: "Generation Z" is defined as those born between January 1995 and December 2003 (thus aged around 17 to 25 at the time of the survey). The survey featured 8,273 respondents from 45 countries across Northern America, Latin America, Western Europe, Eastern Europe, the Middle East, Africa, and Asia and the Pacific.

Source: Deloitte (2021).

▶ **Figure 2.1, panel B. Share of respondents identifying climate change as an emergency** (percentage)



Note: Survey based on 1.22 million respondents in 50 countries across Africa, the Arab States, Asia and the Pacific, Eastern Europe and Central Asia, Latin America and the Caribbean, and Western Europe and Northern America.

Source: UNDP and University of Oxford (2021).

At the same time, there are challenges and risks as labour markets are reshaped in the transition to green and blue economies, including job transformations and associated changes in skills requirements and job displacement in some sectors. In general, these challenges and risks (and opportunities) are not specific to young people but, rather, apply to all population groups. The opportunities and challenges created by such a transition will vary for all groups by country, skill level and sex. However, young people often have their own specific vulnerabilities because of their relative lack of experience and capital, among other factors. Preventing the potentially catastrophic effects of further global warming on people and nature requires ambitious action in this decade, which is expected

> The transition to green and blue economies can help to create decent and productive jobs while contributing to environmental sustainability.

▶ Box 2.1 Definitions of the green and blue economies

Green economy: There are multiple definitions. For example, the United Nations Environment Programme defines a green economy as "one that results in improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities" (UNEP 2011, 2). As a growth model, the green economy has become an alternative to the conventional, resource-intensive models of the twentieth century. An increasing number of both developed and developing countries are reconsidering their previous growth models and turning to the green economy as a means of achieving sustainable development, employment creation and poverty alleviation. More recently, the green economy is also increasingly being regarded as an important vehicle for recovery from the COVID-19 crisis.

Blue economy: There are likewise a number of definitions of the blue economy, which is often used interchangeably with the terms "ocean economy" and "marine economy". The concept itself was formulated at the United Nations Conference on Sustainable Development (Rio+20), which took place in Rio de Janeiro, Brazil, on 20–22 June 2012. An early United Nations concept paper envisioned oceans as "development spaces" in which "spatial planning integrates conservation, sustainable use, oil and mineral wealth extraction, bioprospecting, sustainable energy production and marine transport. The Blue Economy breaks the mould of the business as usual 'brown' development model where the oceans have been perceived as a means of free resource extraction and waste dumping" (UNEP 2014, 3). The United Nations and the World Bank have subsequently defined a blue economy as one that "seeks to promote economic growth, social inclusion, and the preservation or improvement of livelihoods while at the same time ensuring environmental sustainability of the oceans and coastal areas. At its core it refers to the decoupling of socio-economic development through oceans-related sectors and activities from environmental and ecosystems degradation" (World Bank and UNDESA 2017, vi). In general, the blue economy involves the pursuit of economic and trade activities while integrating conservation and sustainability management in the maritime environment. These consumption and regenerative activities must generate lower greenhouse gas emissions or none whatsoever. The sustainability of the oceans needs to be considered from both a human livelihood and a biosphere perspective.

Both the green and blue economies aim to bring about improved human well-being and social equity, while significantly reducing environmental risks and scarcities. They both rely on the same principles of a low-carbon footprint, resource efficiency and social inclusion (UNEP 2014).

to lead to rapid changes in labour markets. Given that young people are often most vulnerable in times of swift labour market adjustments – as illustrated by the COVID-19 crisis and previous economic crises – it is essential for policymakers to be prepared to anticipate and address youth employment challenges.

An additional 8.4 million jobs for young people could be created by 2030 through the implementation of green and blue policy measures. The transition towards a green and blue economy opens up opportunities for the engagement of young people, whose dynamism and innovative spirit

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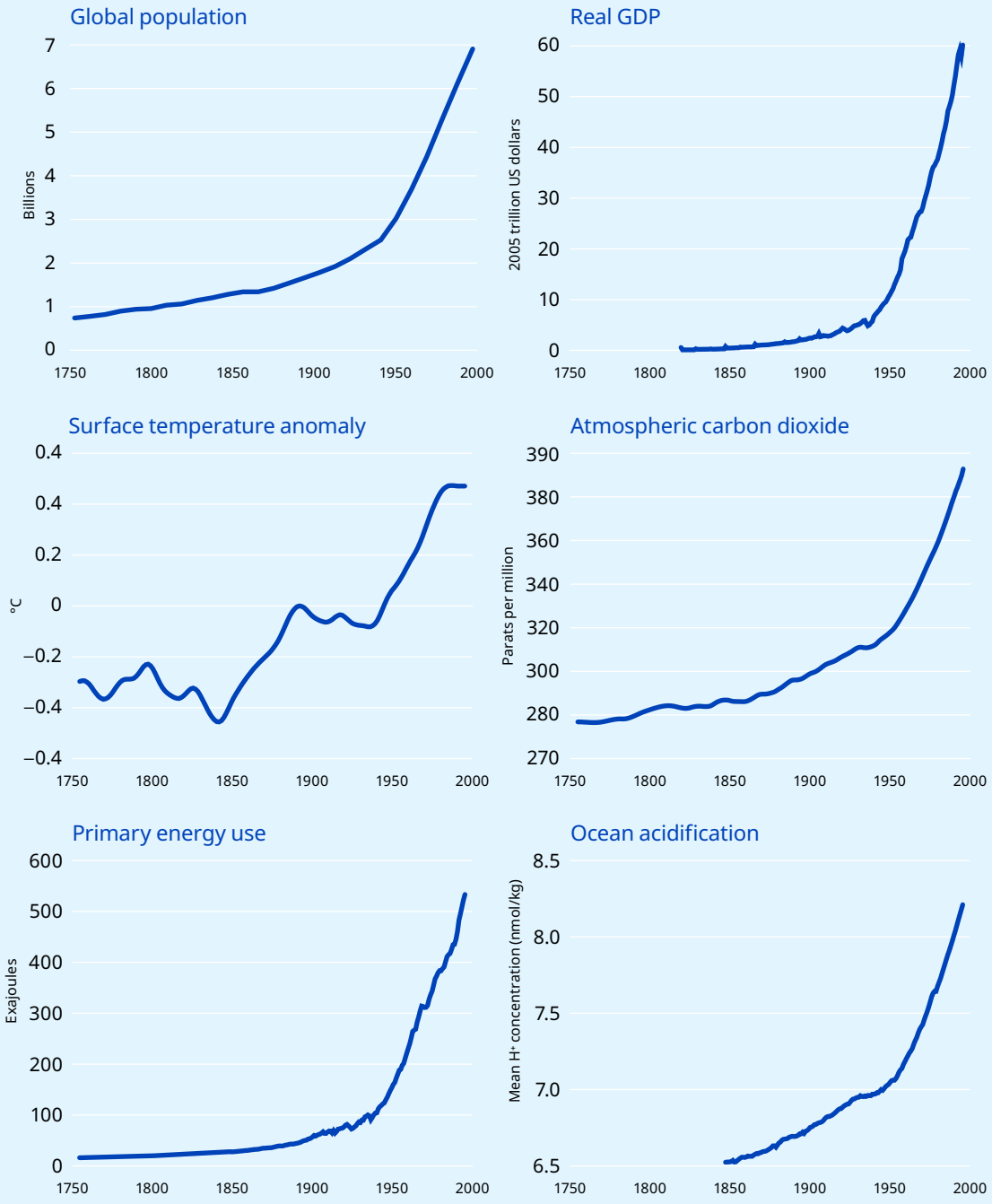
can help to shape a better future of work and achieve a greener planet. This chapter looks broadly at the opportunities and challenges accompanying such a transition and quantitatively assesses the impacts on youth employment arising from a range of policies and investments aimed at achieving climate neutrality. It concludes by offering a number of policy recommendations to ensure that the green and blue transitions create opportunities for decent and productive employment of young people. While the chapter generally follows the United Nations definition of "youth" as comprising those aged 15 to 24 years, the age range was expanded in the quantitative modelling to also include those aged 25–29 years so as to make the modelling results more robust. This broader definition also reflects the fact that in many countries around the world, young people enter the labour market at increasingly later ages. The chapter was informed by consultations with representative young people conducted in October 2021. One key finding is that a package of measures aimed at improving energy efficiency in buildings and appliances, decarbonizing electrical power generation through a shift to renewable energy, and expanding electric vehicles and associated infrastructure could, by 2030, create an additional 8.4 million jobs for young people aged 15–29 years relative to a business-as-usual scenario. Such efforts would make a decisive contribution to achievement of the SDGs, notably Goal 7 ("Affordable and clean energy"), Goal 8 ("Decent work and economic growth"), Goal 13 ("Climate action") and Goal 14 ("Life below water").

2.2 Environmental degradation and its impacts on young women and men

Urgent action is required to address climate change and biodiversity loss. Human activity and economic growth have had unprecedented impacts on the environment and natural resources, threatening the well-being of current and future young generations. From the 1950s onwards, in particular, demographic expansion and GDP growth have been accompanied by adverse changes in the Earth system, including rising surface temperatures, atmospheric CO_2 levels, primary energy use and ocean acidification (figure 2.2). According to the Intergovernmental Panel on Climate Change, CO_2 concentrations are higher than they have been at any time in the past 2 million years (IPCC 2021). The latest assessment from the same body notes how the extent and magnitude of climate change impacts are actually greater than estimated in the past, that climate change is causing irreversible losses and that ecosystems are reaching the limits of their ability to adapt to the changing climate (IPCC 2022). Thiery et al. (2021) find that even with the current climate-policy pledges, children born in 2020 will experience extreme weather events at a frequency two to seven times greater than people born in 1960.

The weather and climate extremes observed in 2021 – when record rainfall and ensuing flooding, scorching heatwaves, severe droughts, uncontrollable wildfires and other events hit various parts of the world – portend further disasters unless urgent action is taken. Ocean levels have risen on average by 20 cm over the past century, with the rate of increase doubling since 2006, while bursts of extreme heat in the ocean have doubled in frequency since the 1980s (IPCC 2021), jeopardizing marine ecosystems and threatening livelihoods, particularly those of the inhabitants of small island nations. These weather extremes disrupt jobs, but also working hours, productivity and working conditions, including occupational safety and health. Heat stress, for example, could cause total working hours worldwide to be reduced by 2.0 per cent by 2030, a productivity loss equivalent to 72 million full-time equivalent jobs (ILO 2018). Climate change would thus increase further the burden on health and care work (see Chapter 4 for a discussion of the care economy). Owing to fiscal constraints, many low-income developing countries have often been unable to adopt adequate policy measures to counteract the socio-economic effects of the COVID-19 pandemic, and climate-related disasters could further aggravate debt burdens and limit fiscal space, rendering such countries more vulnerable to sovereign debt crises (World Bank 2022).

▶ Figure 2.2 Selected socio-economic and Earth trends, 1750–2000



Source: Steffen et al. (2015).

> While everyone is affected by climate change and biodiversity loss, young people are among the most vulnerable.

While everyone is affected by climate change and biodiversity loss, young people are among the most vulnerable. They tend to face economic insecurity – typically entering the world of work with limited capital, work experience and networks, while earning relatively lower incomes – and this means that they are more exposed to both rapid climate change-related disruptions, such as floods, and to slower phenomena, such as sea-level rise and desertification (Bardford et al. 2021). They also tend to have fewer resources to adapt or rebuild after a climatic disaster. With their working lives ahead of them, environmental events and crises can also lead to lost opportunities and scarring effects for young people, similar to those caused by economic recessions, including effects on employment, skills and earnings trajectories over the life cycle. At the same time, climate change and biodiversity loss can exacerbate not only livelihood insecurities but also insecurities stemming from culture, migration and conflict, which overlap with one another (Adger et al. 2014). For young people in extreme working poverty, who numbered some 55 million worldwide before the COVID-19 crisis (ILO 2020a), vulnerabilities are magnified even further, as the poor are often disproportionately dependent on natural resources and are over-represented in agriculture and related sectors.

2.3 Youth employment in the green and blue economies

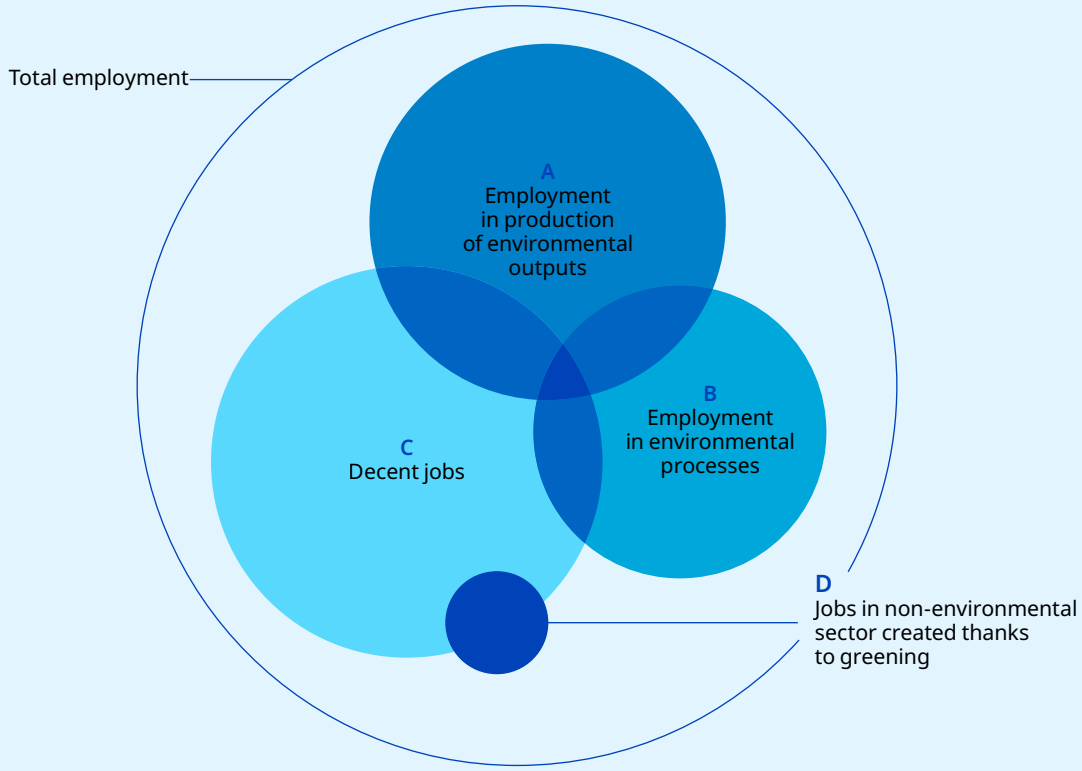
The green and blue economies encompass all sectors either directly or indirectly. Labour markets are intrinsically linked to the environment, with around 1.2 billion jobs depending directly on ecosystem services (ILO 2018). The majority of these jobs are in agriculture (80 per cent), while the rest are mostly in forestry, fishing, food, drink and tobacco, wood and paper, biofuels and renewable energy sources, the pharmaceutical and chemical industries, and environment-related tourism. In addition, ecosystems, which provide services to economies, societies and individuals through natural processes, also indirectly support jobs in downstream or upstream industries.

Measuring the size of the green economy or the number of green jobs is a difficult task because of data limitations, a lack of uniform definitions and the need for additional surveys or the collection of alternative data (Georgeson, Maslin and Poessinouw 2017). The 19th International Conference of Labour Statisticians in 2013 adopted guidelines concerning a statistical definition of employment in the environmental sector and "green jobs" with a view to supporting the collection and harmonization of data required to monitor the transition to the green economy and for the design, implementation and evaluation of environmental and labour market policies (ICLS 2013). Figure 2.3 illustrates the relationships between total employment, employment in the environmental sector and decent jobs. In particular, it shows how green jobs are a subset of jobs in the production of environmental goods and services and of jobs in environmental processes that meet the requirements of decent work. Green jobs are not limited to the environmental sector but can be generated in any sector and any enterprise; they may be defined as decent jobs that reduce the consumption of energy and raw materials, limit greenhouse gas emissions, minimize waste and pollution, protect and restore ecosystems and enable enterprises and communities to adapt to climate change (ILO 2018).

A number of countries have undertaken assessments to quantitatively capture and analyse the extent of green jobs.[2] In Tunisia, the number of green jobs was estimated at 110,000 in 2011, of which the largest share was in agriculture (Lehr et al. 2018), and which accounted for 3.5 per cent of total employment

[2] For an in-depth discussion of green jobs assessments, see ILO (2017).

▶ Figure 2.3 Relationship between total employment, employment in the environmental sector and decent jobs



Note: Employment in environmental sector = A ∪ B; employment created thanks to greening = A ∪ B ∪ D; Green jobs (employment in environmental sector that is decent) = (A ∪ B) ∩ C

Source: ICLS (2013).

in that year. In 2010–11, green jobs in Mauritius stood at around 35,000, accounting for 6.3 per cent of total employment (Sultan and Harsdorff 2014). Other studies have similarly found green jobs to account for between 3 and 5 per cent of total employment in Bangladesh, the Republic of Korea and Spain, but caution is required when comparing countries because of the different methodologies used to obtain estimates (ILO 2013). Furthermore, owing to data limitations, these studies have not examined the share of green jobs accounted for by young women and men, which highlights the urgency of improving data collection and ensuring age- and sex-disaggregation in the collection of statistics on employment in the environmental sector. Limited information on green jobs in both developed and developing countries can often act as a barrier preventing young people from accessing such jobs (box 2.2).

> Green jobs are not limited to the environmental sector but can be generated in any sector and any enterprise.

▶ Box 2.2 Young people's understanding and awareness of green jobs

Although many young people are aware of the scale and intensity of environmental changes, and realize the need for a transition to a green economy and green jobs, understanding of these issues is limited in many countries – a problem compounded by diverging definitions and a lack of data. Focus group discussions by Ipsos with young people in India, Jordan, Kenya, the United Kingdom and the United States, for example, found that some young people did not see green jobs as viable career options because of misconceptions and limited awareness of them (Bruce, Cereso and Ridley-Castle 2021). In Viet Nam, focus group discussions and interviews with young women and men indicated that some did not recall green jobs having been discussed as career options; others presumed that such jobs did not offer financial security and were characterized by manual labour (UNESCO and UNICEF 2021). These findings were confirmed in the ILO's own consultations with young people for this report, highlighting the importance of integrating environmental sustainability and green career pathways in education and training systems. Labour market information systems also need to anticipate green jobs trends and skills requirements and make relevant information available to young people.

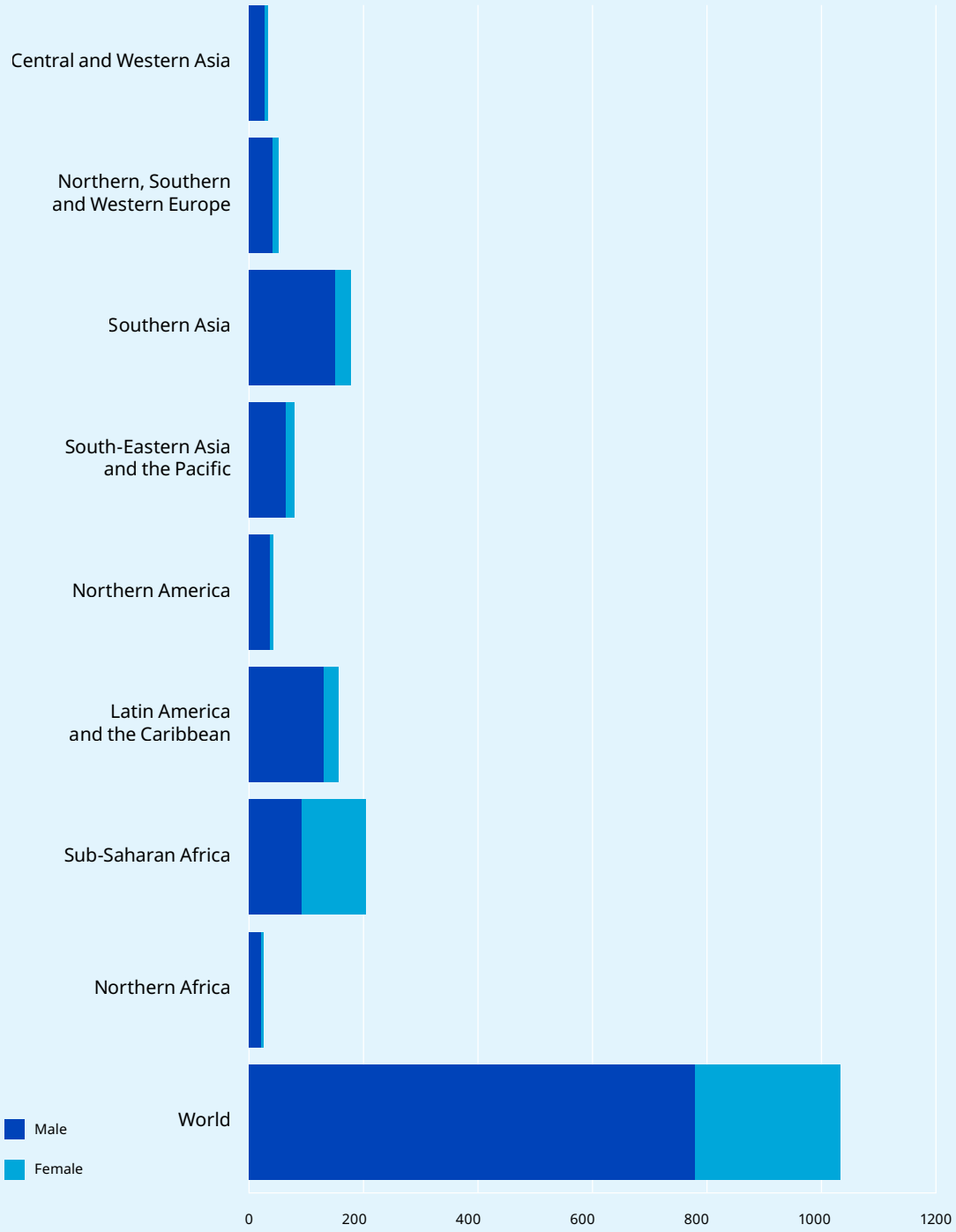
It is important to emphasize that the green and blue economies encompass all sectors of the economy either directly or indirectly. They include the natural resource-based sectors (agriculture, fisheries and forestry); the waste and water treatment-related sectors (waste management, water treatment and recycling); the energy sector (including renewable energy and energy efficiency in buildings and industry); and the transport sector (including sustainable public and electrified transport). All other economic sectors will need to become more sustainable in their business activities, processes and use of resources.

Considering only those environmental sectors that are not concerned with energy or natural resources, that is, water supply, sewerage, waste management and remediation activities, some 12.5 million people worldwide are estimated to be employed in these sectors, representing less than 1 per cent of total global employment (figure 2.4).[3] Around 1.03 million young women and men (aged 15–24 years) are working in these activities, representing 8.3 per cent of total employment. Sub-Saharan Africa has the highest number of young people engaged in these activities, at 203,700, followed by Southern Asia and Latin America and the Caribbean.

At the global level, young women account for 24.5 per cent of youth employment in the aforementioned environmental sectors: this considerable gender disparity is reflected in every subregion except for sub-Saharan Africa, where more young women (111,600) are engaged in these activities than men (92,200). While the gender gap at the global level is wide, the share of young women is higher than the corresponding share of adult women (21.8 per cent), pointing to at least some progress in closing the gender gap. However, it is clearly necessary to continue promoting the participation of women in these activities, notably through gender mainstreaming in environmental and employment policies; fostering a better understanding of the obstacles that prevent young women from embarking on a career in these sectors; and the provision of greater opportunities for women to pursue education and training opportunities in science, technology, engineering and mathematics (STEM), including through appropriate mentorship opportunities. In particular, among students taking the mathematics and science tests under the Programme for International Student Assessment (PISA) of the Organisation for Economic Co-operation and Development (OECD), around 30 per cent of top-performing boys indicated that they expected to work as science and engineering professionals, compared with fewer than 15 per cent of top-performing girls (Schleicher 2019). This highlights the need to provide students with improved and more gender-sensitive labour market information and career guidance.

[3] These sectors correspond to Section E in the fourth revision of ISIC, which has four "divisions": (a) water collection, treatment and supply (division 36); (b) sewerage (division 37); (c) waste collection, treatment and disposal activities; materials recovery (division 38); and (d) remediation activities and other waste management services (division 39).

▶ **Figure 2.4 Youth employment in water supply, sewerage, waste management and remediation activities, 2019** (thousands)



Note: The Arab States, Eastern Asia and Eastern Europe have been omitted because of limited data coverage. "Youth" refers to ages 15–24.

Source: ILO estimates based on ILO harmonized microdata.

Although they are not comparable because of the different definitions and methodologies used, a number of studies and initiatives have sought to quantify employment in the green economy and/or its constituent sectors. Georgeson and Maslin (2019), for example, use an innovative data triangulation approach to measure the economic and employment share of the "low carbon and environmental goods and services sector",[4] which is estimated to employ some 37 million people in G20 countries. Over 4 per cent of the working-age population of the United States are estimated to be employed in this sector, while the share is smaller in China (less than 1 per cent). In the other G20 countries (that is, excluding China and the United States), employment in the sector accounts for over 1 per cent of the working-age population. In the European Union (EU), employment in the environmental goods and services sector (or the environmental economy)[5] stood at 4.4 million full-time equivalent jobs in 2018, an increase from 3.1 million in 2000, with the sector's growth over this period outpacing that of the overall economy in terms of both employment and value added (Eurostat, n.d.). Most of this growth was driven by the expansion of employment in energy efficiency and renewable energy production (management of energy resources), which nearly tripled from around 0.6 million to 1.6 million full-time equivalent jobs.

Age-disaggregated data are vital when designing appropriate policies for a just transition.

Very few countries are compiling and analysing age-disaggregated data on employment in the green economy or green jobs, yet such data are essential for assessing the implications of green growth for young workers and for designing appropriate policies for a just transition. Data from Canada indicate that jobs linked to the production and delivery of environmental and clean technology products made up around 1.6 per cent of total employment in 2017: men accounted for some 72 per cent of these jobs, while young people aged 15–24 years accounted for 8.9 per cent (Canada, Statistics Canada 2019).[6] To put these figures into perspective, young women and men accounted for 13.3 per cent of total employment in that year. At the same time, at 6.5 per cent, the share of indigenous workers was highest in the youth group (Canada, Statistics Canada 2019). A study of potential green jobs in Switzerland, assessed in terms of the potential of occupations to perform green tasks, found that such jobs grew at a faster rate than other jobs between 2012 and 2017 (14.4 per cent versus 6.2 per cent), and that workers in these jobs tend to be younger, are more often men, have higher levels of educational attainment and are more likely to have immigrated (Lobsiger, unpublished).

Workers, including young workers, in the natural resource-based sectors of agriculture and fisheries are among the most vulnerable to the effects of climate change. The share of young people engaged in both agriculture and fisheries has declined in many countries around the world

[4] This sector comprises three broad categories: environmental, low-carbon and renewable energy.

[5] Environmental goods and services are products manufactured or services rendered for the main purpose of: (a) preventing or minimizing pollution, degradation and depletion of natural resources; (b) repairing damage to air, water, biodiversity and landscapes; (c) reducing, eliminating, treating and managing pollution, degradation and depletion of natural resources; and (d) carrying out other activities such as measurement and monitoring, control, research and development, education, training, information and communication related to environmental protection or resource management.

[6] According to Canada, Statistics Canada (2019), environmental and clean technology products are goods and services that reduce environmental impacts through environmental protection activities that prevent, reduce or eliminate pollution or any other degradation of the environment; resource management activities that result in the more efficient use of natural resources, thereby protecting them from depletion; or the production of goods that have been adapted to be significantly less energy- or resource-intensive than the industry standard.

as structural transformation has proceeded, leading to a reallocation of labour towards industry and services. The drudgery, poor working conditions and low economic returns that are prevalent in these two sectors, coupled with challenges such as lack of access to land, finance and market information, have often put young people off. Nevertheless, agriculture and fisheries continue to account for an important share of youth employment in many countries across different regions. In Bangladesh, agriculture, forestry and fishing are responsible for 28 per cent of youth employment (2018); the share is even higher in Ecuador, at 44 per cent (2020), and in Chad, at 79 per cent (2018). Furthermore, while the share of youth employment accounted for by agriculture, forestry and fishing has declined over time in most countries around the world, the absolute number of young people working in these sectors has increased in some countries. In Guatemala, for example, the share of youth employment accounted for by agriculture, forestry and fishing dropped from 38.1 per cent in 2010 to 36.5 per cent in 2019, but the number of young people employed in these sectors actually increased from 542,000 to 668,000 over that period. Moreover, countries that are highly dependent on agriculture, forestry and fishing often have a high proportion of young people in the working-age population.

While all workers in all sectors would be affected by extreme weather patterns and events and higher temperatures, young people in agriculture and fishing are some of the most vulnerable on account of their financial insecurity, and also because of both sectors' susceptibility to rainfall, temperature, climatic and ocean current patterns. At the same time, agriculture and fishing are some of the largest emitters of greenhouse gases (GHGs). In agriculture, GHG emissions are primarily the result of deforestation and slash-and-burn practices to make room for agricultural land, crops and livestock production, all of which produce significant amounts of CO_2, methane and nitrous oxide, while in marine fisheries, whose global emissions rose by a factor of 4.4 between 1950 and 2016, emissions occur mainly through the combustion of fuel (Greer et al. 2019). The food sector, which depends on agriculture and fisheries for its primary resources, is estimated to be responsible for 21 to 37 per cent of global emissions (IPCC 2019). The widespread practice of bottom trawling, considered to be one of the most carbon-intensive fishing methods, is alone estimated to produce the same amount of emissions as the global aviation industry (Sala et al. 2021).

As with the green economy, measuring the size of the blue economy is no straightforward task because of differing definitions and data limitations, including a lack of age-disaggregated information. In particular, it is difficult to define which ocean activities integrate conservation and sustainability principles and may therefore be considered part of the sustainable blue economy. The World Bank and the United Nations Department of Economic and Social Affairs (2017) argue that for an activity to contribute to the blue economy, it needs to include at least two of the four elements of resource efficiency: reducing food loss and waste along the value chain; energy efficiency; decent employment; and innovative financing or technologies. Addressing these conceptual and definitional challenges at the national, regional or global levels is also important for raising young people's awareness of the employment opportunities offered by the transition to a blue economy.

Fishing and aquaculture are large employers, employing around 61 million people (box 2.3). Some 2 million seafarers are engaged in the shipping sector (ILO 2020c), while millions more are employed in ports, shipbuilding and other blue economy industries. Maritime and coastal tourism is also a large employer, particularly in small island developing States (box 2.4). Globally, young people are estimated to account for around 13 per cent of total employment in fishing, aquaculture and water transport, which suggests that young workers can play an important role in the blue economy. There are also new industries emerging in the blue economy, such as offshore energy, marine seabed mining and marine biotechnology, whose growth is driven by demand for alternative sources of energy and minerals as well as by research and development (R&D) (table 2.1). While offering enormous potential to create decent jobs, including jobs as entrepreneurs, much of the employment growth in these new industries is expected to occur in higher-skilled occupations. This underlines the importance of young people having the necessary knowledge and skills to secure such jobs. In addition, there needs to be an enabling environment for green enterprises.

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▶ Table 2.1 Key components of the blue economy and drivers of its growth

Type of activity	Subcategories	Related industries/ sectors	Drivers of growth
Harvesting of and trade in marine living resources	Seafood harvesting	Fisheries (primary fish production)	Demand for food and nutrition
		Secondary fisheries and related activities (e.g. processing, net- and gearmaking, ice production and supply, boat construction and maintenance, manufacturing of fish-processing equipment, packaging, marketing and distribution)	Demand for food and nutrition
		Trade in seafood products	Demand for food and nutrition (particularly proteins)
		Trade in non-edible seafood products	Demand for cosmetic, pet and pharmaceutical products
		Aquaculture	Demand for food and nutrition (particularly proteins)
	Use of marine living resources for pharmaceuticals and chemicals	Marine biotechnology and bioprospecting	R&D and use in healthcare, cosmetic, enzyme, nutraceutical and other industries
Extraction and use of marine nonliving resources (non-renewable)	Extraction of minerals	(Seabed) mining	Demand for minerals
	Extraction of energy sources	Oil and gas	Demand for (alternative) energy sources
	Freshwater generation	Desalination	Demand for fresh water
Use of renewable non-exhaustible natural forces (wind, wave and tidal energy)	Generation of (offshore) renewable energy	Renewables	Demand for (alternative) energy sources
Commerce and trade in and around the oceans	Transport and trade	Shipping and shipbuilding	
		Maritime transport	Growth in seaborne trade; transport demand; international regulations; maritime transport industries (shipbuilding, scrapping, registration, seafaring, port operations, etc.)
		Ports and related services	
	Coastal development	National planning ministries and departments, private sector	Coastal urbanization, national regulations
	Tourism and recreation	National tourism authorities, the private sector, other relevant sectors	Global growth of tourism

(continued overleaf)

▶ **Table 2.1** ***(cont'd)***

Type of activity	Subcategories	Related industries/ sectors	Drivers of growth
Indirect contribution to economic activities and environments	Carbon sequestration	Blue carbon	Climate mitigation
	Coastal protection	Habitat protection and restoration	Resilient growth
	Waste disposal for land-based industry	Assimilation of nutrients, solid waste	Wastewater management
	Existence of biodiversity	Protection of species and habitats	Conservation

Source: World Bank and UNDESA (2017).

▶ Box 2.3 Young people in aquaculture

Aquaculture is the farming of aquatic organisms, including fish, molluscs, crustaceans and aquatic plants; it implies some sort of human intervention in the rearing process to enhance production (FAO, n.d.). Aquaculture is considered an important component of the blue economy, as it generates far fewer emissions than other sectors. The production of animal protein through aquaculture can help to meet the rising global demand for food against a backdrop of global population growth (MacLeod et al. 2019). While aquaculture often faces the same vulnerabilities to climate change as fisheries, the locations and practices involved make this sector more climate-resilient.

Aquaculture is playing an increasingly important role in both global fish production and employment. The global production of fish, crustaceans and molluscs was estimated at 177.8 million tonnes in 2019, of which 92.5 million tonnes (or 52.0 per cent) was accounted for by capture fisheries, and the remaining 85.3 million tonnes (or 48.0 per cent) by aquaculture (table 2.2). Although capture fisheries are still responsible for most fish production, their share has been decreasing steadily, from 60.2 per cent in 2010, while the share of aquaculture has risen from 39.8 per cent in 2010. Reflecting the production figures, employment in capture fisheries is estimated to have decreased marginally by 0.5 per cent between 2010 and 2019, while employment in aquaculture rose by 16.1 per cent over the same period. Women are estimated to account for fewer than 15 per cent of those directly employed in capture fisheries and aquaculture, though if both primary and secondary activities are considered, women make up as much as half of the workforce (ILO 2021a). For every person engaged in primary production in capture fisheries and aquaculture, three to four people are estimated to be employed in secondary activities such as processing, marketing and other services (ILO 2021a).

▶ **Table 2.2 Global production and employment in capture fisheries and aquaculture**

	2010	2019	Change (%)
Total production (million tonnes)	**144.8**	**177.8**	**22.8**
from capture fisheries	87.1	92.5	6.2
from aquaculture	57.7	85.3	47.8
Total employment (millions)	**58.0**	**60.9**	**5.0**
in capture fisheries	38.8	38.6	–0.5
in aquaculture	19.2	22.3	16.1

Source: FAO (2021).

▶ Box 2.3 *(cont'd)*

The availability of recent, reliable and sex- and age-disaggregated data on employment in aquaculture is limited, but evidence suggests that in some countries those aged 20–39 years account for the majority of workers in that sector. In Chile and India more than 18 per cent of workers in surveyed farms were below the age of 20, while in Mozambique and Zimbabwe over 80 per cent of workers in surveyed farms were aged between 20 and 39 years (table 2.3). There appear to be gendered patterns in the division of labour, with young men largely engaged in fish production and young women in processing and other pre- and post- harvesting work (Arulingam et al. 2019). Decent and sustainable work in aquaculture for young women and men, with equality of opportunities and treatment guaranteed, is essential for the inclusive and sustainable development of the blue economy.

▶ Table 2.3 Age distribution of workers in surveyed aquaculture farms, 2009 (percentage)

	‹20 years	20–39 years	40+ years
Canada	3.5	50.3	46.2
Chile	18.7	56.6	24.7
India	19.3	73.4	7.3
Mozambique	0.7	81.3	18.0
Philippines	0	50.7	49.3
Thailand	11.1	44.1	44.8
Viet Nam	9.3	77.7	13
Zimbabwe	0	81.1	18.9

Source: ILO calculations based on Hishamunda et al. (2014).

▶ Box 2.4 Tourism in small island developing States

Maritime and coastal tourism plays a critical role in many of the small island developing States: its contribution to GDP in 2018 among the 12 such States included in table 2.4 ranged from 98.3 per cent in Aruba to 7.6 per cent in Trinidad and Tobago. The COVID-19 pandemic and associated lockdowns and travel restrictions subsequently had a devastating impact on their economies and workers. The health of the ocean is of vital importance to these States, providing valuable jobs for their workforce – in particular, for young workers, since the travel and tourism industry employs a higher share of young people than the overall economy (WTTC 2019). While there are variations among the 12 small island developing States, as may be seen in table 2.4, total employment in direct and indirect tourism averaged 40.1 per cent. On the other hand, maritime and coastal tourism also placed significant strain on the natural resources of these countries, as indicated by the population/tourist ratio, a measure of the strain on local resources. This highlights the importance of transitioning to a sustainable blue economy.

(continued overleaf)

▶ **Box 2.4** ***(cont'd)***

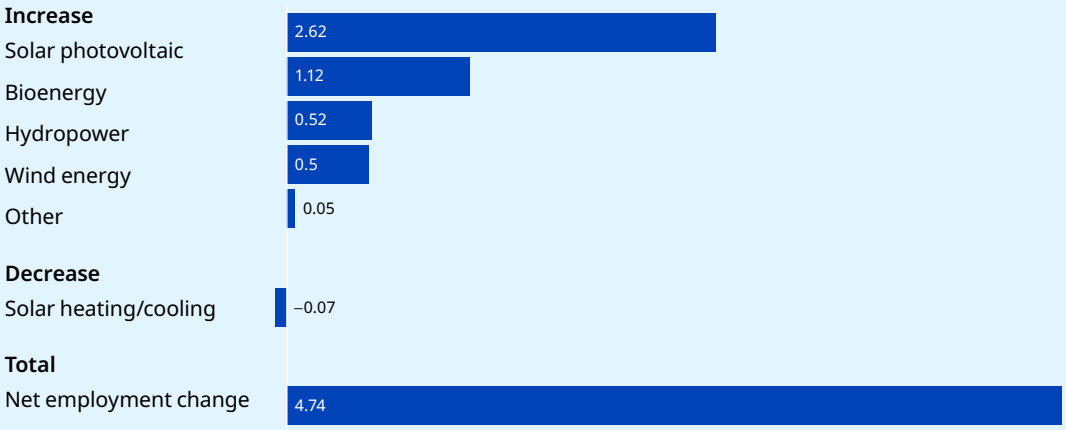
▶ **Table 2.4 Tourism data for selected small island economies, 2018**

	Population	International arrivals	Population-tourist ratio	International tourism receipts (US$ millions)	Contribution of tourism to GDP (%)	Employment in direct and indirect tourism as a share of total employment (%)
Antigua and Barbuda	96 290	269 000	1:3	557 (2017)	44.1	44.1
Aruba	105 840	1 071 000 (2017)	1:10	2 024	98.3	99.1
Bahamas	385 640	1 627 000	1:4	3 355	40.4	48.4
Barbados	286 640	680 000	1:2.5	1 125	34.9	34.9
Dominican Republic	10 627 190	6 569 000	1:0.6	7 561	17.2	16.0
Fiji	883 480	870 000	1:1	956	38.9	35.3
Jamaica	2 934 860	2 473 000	1:0.8	3 099	34.0	30.8
Maldives	515 700	1 484 000	1:2.8	3 028	66.4	32.4
Mauritius	1 265 300	1 399 000	1:1.1	1 887	24.3	23.2
Seychelles	96 760	362 000	1:3.7	564	67.1	66.7
Trinidad and Tobago	1 389 860	375 000	1:0.26	453 (2017)	7.6	9.5
Vanuatu	292 680	116 000	1:0.4	217 (2010)	48.0	41.1

Source: Hampton and Jeyacheya (2020).

The renewable energy sector, in particular, plays a pivotal role in the transition to green and blue economies. Employment in renewable energy is estimated to have risen by 4.74 million jobs between 2012 and 2020, reaching 12 million in the latter year, with the solar photovoltaic industry accounting for over half of the increase (figure 2.5). As in water supply, sewerage, waste management and remediation activities, there are large gender disparities in the renewable energy sector, with women accounting for just 32 per cent of the workforce (IRENA and ILO 2021). Moreover, there are also occupational disparities within the sector, with women accounting for less than 30 per cent of STEM professionals while making up 45 per cent of administrative professionals (IRENA and ILO 2021). The share of women in renewable energy is nevertheless significantly higher than in the overall energy sector (22 per cent) (IRENA 2019), suggesting that, if managed well, the transition to renewable energy could also advance gender equality. Although there are no estimates of the shares of young women and men in the clean energy sector, a study in the United States found that workers in this sector tended to be older (Muro et al. 2019). This points to openings in the longer term as the older workforce retires, but it also highlights the need to equip young people with the appropriate skills and experience, including STEM skills, so that they can seize both near- and longer-term opportunities.

Figure 2.5 Change in global employment in the renewable energy sector between 2012 and 2020, by technology (millions)



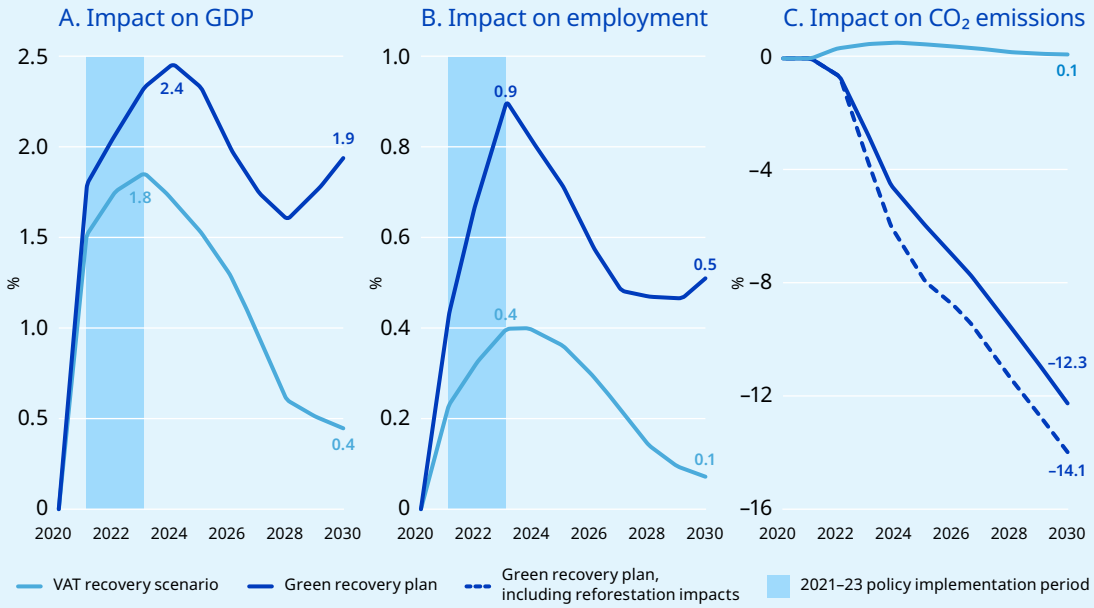
Source: ILO calculations based on International Renewable Energy Agency (IRENA) jobs database.

The share of women working in renewable energy is significantly higher than in the overall energy sector, suggesting that the transition to renewable energy could advance gender equality.

The transition to a sustainable green and blue economy implies economy-wide structural transformation, highlighting the importance of undertaking macroeconomic assessments of the respective impacts of climate change and green and blue policies on labour markets. Indeed, governments and employers' and workers' organizations are increasingly interested in estimating the total employment changes that would occur across economic sectors – that is, gains and losses for all sectors of the economy – rather than counting only green jobs, renewable energy jobs or waste-related jobs. A recent analysis, for example, finds that a package of green measures aimed at reducing the carbon footprint would have a greater positive impact on GDP and employment, while reducing CO_2 emissions to a significantly greater extent, than a stimulus package aimed at boosting consumption through cuts in consumption and sales taxes (PAGE and Cambridge Econometrics 2021). In that study's model, the boost in consumption is achieved through a global 5 per cent reduction in consumption taxes during 2021–23 followed by a gradual phase-out by 2027 (termed the "value-added tax (VAT) recovery scenario"). The package of green measures (termed the "Green Recovery Plan") includes, instead, subsidized renewable energy installations; energy grid investments; energy efficiency measures focusing on households; a car scrappage scheme, focusing on battery electric vehicles; and a global reforestation and ecosystem restoration project.[7] In both scenarios, the ex ante impact on government budgets is equal in magnitude in each country. The modelling results indicate that while both the VAT recovery and the green recovery scenarios initially boost growth as expected, the latter scenario leads to greater longer-term impact on GDP (1.9 per cent versus 0.4 per cent) (figure 2.6, panel A).

[7] For more details of the green policy measures simulated, see PAGE and Cambridge Econometrics (2021).

▶ Figure 2.6 Potential impact of recovery measures on global GDP, employment and CO_2 emissions (panels A, B and C), 2020–30 (percentage change relative to baseline)



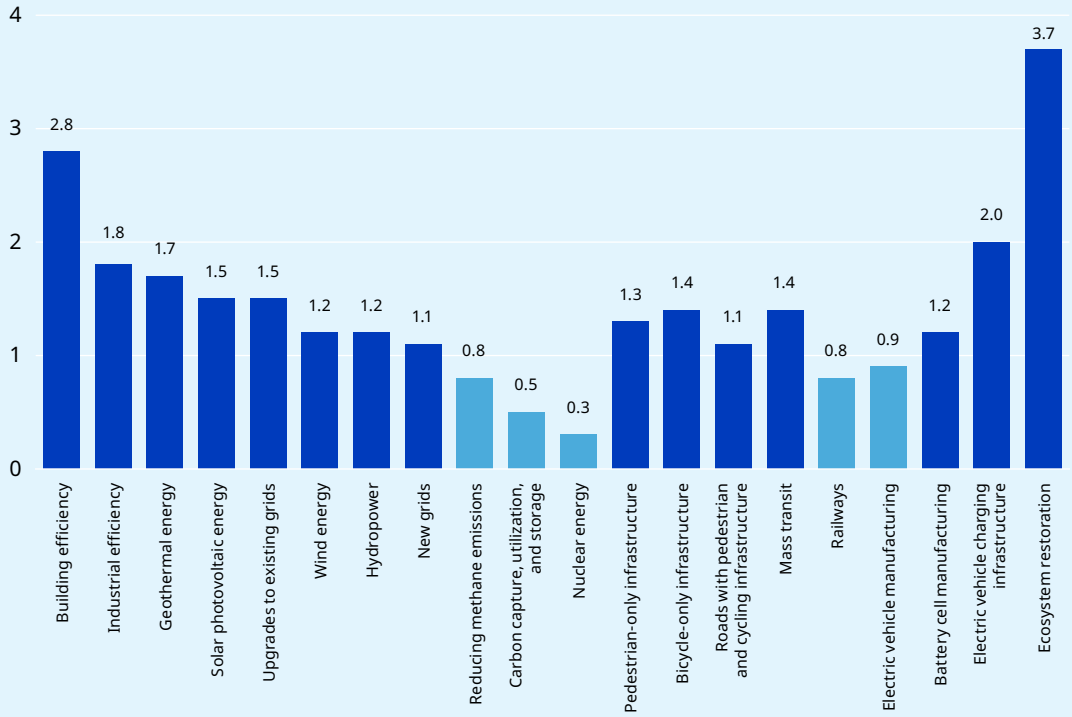
Source: Partnership for Action on Green Economy (PAGE) and Cambridge Econometrics (2021).

Similarly, both the VAT recovery and the green recovery scenario initially boost employment, but in the longer run, employment by 2030 is projected to be 0.5 per cent higher relative to the baseline in the latter scenario, compared with 0.1 per cent higher in the VAT recovery scenario (figure 2.6, panel B). As for CO_2 emissions, these rise in the VAT recovery scenario, whereas they are by design 12.3 per cent lower relative to the baseline by 2030 in the green recovery scenario. Adding reforestation measures would cut emissions further to 14.1 per cent by 2030 (figure 2.6, panel C).

A comprehensive review of the literature also suggests that green investments in general can create more jobs than traditional investments (IMF 2020; CFMCA 2020; Jaeger et al. 2021; Moszoro 2021). For example, studies indicate that investing in energy efficiency retrofits for buildings creates 2.8 times as many jobs as investing the same amount in fossil fuels, while investing in ecosystem restoration creates 3.7 times as many jobs as oil and gas production per US$1 million of investment (figure 2.7), owing in large measure to the labour intensity of such activities. The relatively high job intensity of ecosystem restoration underscores the important role that nature-based solutions can play in promoting both environmental sustainability and job creation, allowing them even to serve as an employment guarantee scheme for young people (box 2.5). On the other hand, given their capital intensity, investments in nuclear energy and carbon capture and utilization may create fewer jobs per unit of investment than fossil fuels. That being said, the number of jobs cannot be the only consideration in assessing the impacts of green investments – the quality of jobs matters too, all the more so as young women and men around the world are more likely to be in informal employment (ILO 2020a) and to be engaged in non-standard forms of employment (ILO 2016).

Earlier analyses carried out by the ILO also suggested that limiting global warming to 2°C above pre-industrial levels could create more employment than a business-as-usual scenario (ILO 2018). More specifically, actions to change energy production and use, including a shift towards renewable

▶ Figure 2.7 Ratio of jobs created per unit of green investment to jobs created per unit of unsustainable investment



Note: This comparison of green and unsustainable investment refers to clean energy versus fossil fuels; public transport versus road traffic; electric vehicles versus internal combustion engine vehicles; and nature-based solutions versus fossil fuels.

Source: Based on Jaeger et al. (2021).

energy sources and greater efficiency, the adoption of electric vehicles, and construction works aimed at achieving greater energy efficiency in buildings could result in the net creation of around 18 million jobs by 2030, with 24 million new jobs created in some sectors and 6 million jobs destroyed in others. Net employment creation was also expected to result from the adoption of certain circular economy principles, while the promotion of sustainability in agriculture was expected to yield mixed results. Building on these findings, ILO (2019b) found that the greatest employment disruption would take place in occupations dominated by men while at the same time creating more job opportunities in these occupations. It was projected that 19 million jobs would be created for men versus 5 million destroyed, while 6 million jobs would be created for women versus 2 million destroyed (ILO 2019b). A number of macroeconomic studies of countries such as Nigeria, South Africa and Zimbabwe also point to overall employment gains across all sectors of the economy, barring the fossil fuel-related industries, with higher economic growth potential than in a conventional baseline scenario (ILO 2021b, 2021c). Although there are data and methodological constraints, as noted earlier, it is important to assess the qualitative elements of the jobs created and to undertake more comprehensive analyses (including sex- and age-disaggregated analyses) of the distributional impact of the transition to a green economy in order to ensure that the new jobs are accessible to all. The next section seeks to expand current knowledge by examining the impacts on youth employment opportunities arising from the transition to a green economy.

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▶ Box 2.5 Nature-based solutions

Nature-based solutions are activities intended to protect, sustainably manage and restore ecosystems so as to benefit both human well-being and biodiversity (IUCN, n.d.). They provide a means to address key societal challenges, including the enhancement of biodiversity, while preserving and creating jobs (ILO and WWF 2020). Many countries around the world are implementing such solutions, often with a focus on young people. In line with the Bonn Challenge to restore 350 million hectares of degraded and deforested landscapes by 2030, the Malawi Youth Forest Restoration Programme seeks to tackle youth unemployment while restoring 4.5 million hectares by 2030. South Africa's Working for Water programme employs poor people to remove and manage invasive alien species. It created more than 60,000 jobs in 2019/20, with young people accounting for over 70 per cent of those jobs and women for 55 per cent (ILO and WWF 2020). The Civilian Conservation Corps programme in the United States was a central pillar of the New Deal launched in the 1930s during the Great Depression with the aim of providing jobs for unemployed young men while at the same time conserving and managing natural resources. India's Mahatma Gandhi National Rural Employment Guarantee Act has played an important role in providing paid employment, particularly for women (Bárcia de Mattos and Dasgupta 2017), but also in carbon sequestration because of the Act's focus on natural resources, such as land, water and trees, which provide adaptation benefits (Ravindranath and Murthy 2021). These and other programmes reflect the potential of nature-based solutions to serve both as an employment guarantee scheme for young women and men and as a response to climate change and biodiversity challenges.

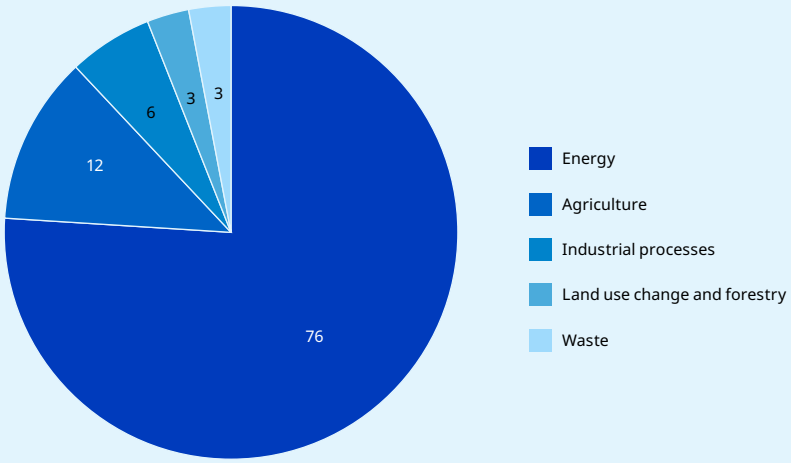
2.4 Modelling the impacts of green policy measures on youth employment opportunities

The development of the green economy can be an important generator of decent employment opportunities for young people while at the same time contributing to sustainable and inclusive structural transformation and economic diversification. The modelling undertaken for this section is aimed at illustrating the potential impact of green policy packages on youth employment opportunities.

Since the Paris Agreement adopted in December 2015 by the States parties to the United Nations Framework Convention on Climate Change, 124 countries have committed to achieving net zero emissions by 2050; these countries represent 61 per cent of global emissions, 68 per cent of global GDP (in PPP terms) and 52 per cent of the global population (Black et al. 2021). Net zero emissions are seen as a prerequisite for limiting warming at any level, and achieving net zero by 2050 is considered to provide the best opportunity to limit global warming to 1.5°C above pre-industrial levels. While reaching net zero emissions will require efforts in all sectors, action in the energy sector is particularly important, since that sector accounts for more than three quarters of GHG emissions at the global level (figure 2.8). Within the energy sector, most emissions take place through energy use in industry, followed by energy use in buildings and transport.

Given the centrality of the energy sector when it comes to tackling emissions, a macro-econometric model developed by Cambridge Econometrics that features close integration of the economy, energy systems and environment was used for this report (see box 2.6) to model the quantitative employment impacts of climate and energy efficiency policies that are expected to lead to climate neutrality by 2050 in the 124 countries that have signed the Paris Agreement and by 2060 in the remaining countries. In this exercise it was assumed that countries implement the green policies from 2022 onwards and that the broad reductions in emissions, energy-efficiency savings, the investment costs of technologies, and carbon prices are aligned with the International Energy Agency's *Net Zero by 2050* report (IEA 2021), which sets out a pathway, albeit a narrow one, towards climate neutrality.

▶ Figure 2.8 Sectoral composition of greenhouse gas emissions, world, 2018 (percentage)



Note: Energy includes that used up in/for buildings, electricity/heat, fugitive emissions, manufacturing/construction, other fuel combustion and transport.

Source: Climate Watch (n.d.), based on Climate Analysis Indicators Tool data.

▶ Box 2.6 Modelling the green scenario: Descriptions and key assumptions

A description of the E3ME model of Cambridge Econometrics is provided in Appendix D. Details (including the data and methodological approach) of the baseline scenario, against which the green scenario is compared, are also provided in Appendix D. As noted earlier in this report, the modelling and analysis predate the Ukraine crisis, which has impacted GDP forecasts, energy prices, inflation and other variables. This box focuses on the specificities of the green scenario.

CO_2 and energy prices: Carbon pricing policy is one of the key drivers of investment in green and energy efficiency technologies. An increase in carbon prices leads to additional net investment (including a reduction in investment in the energy and mining sectors) channelled towards technologies that reduce emission levels. Low-carbon investment will also lead to increased investment in other parts of the economy, as a spillover effect. In terms of effects on the economy, an increase in carbon prices leads to an increase in both consumer and industrial prices, impacting countries and sectors differently. Rising consumer prices in turn lead to lower disposable incomes, which result in lower spending on goods and services and lower demand for industrial outputs. On the environmental side, an increase in carbon prices will lead to lower demand for products with a high carbon content, which in turn will reduce CO_2 emissions. The carbon and energy prices for each country are set in the model to match those in *World Energy Outlook 2020* (IEA 2020).

Power generation: Power generation is endogenous to the model, and investment in this sector is therefore determined by the model. Coal generation is expected to decrease in the scenario envisaging the achievement of net zero emissions. Additionally, policies are added to promote uptake of renewable technologies, in particular solar and wind power. The main policy options implemented are:

(a) subsidy support for certain electricity-generating technologies (such as those used to harness renewable energy sources);

(b) feed-in-tariffs; and

(c) regulations to prevent the new construction of certain types of power plants (such as coal-fired plants).

The model was configured to be consistent with the following data and projections from *World Energy Outlook 2020*:

- electricity capacity and generation by country; and
- investment by country/region in power generation by technology/sector.

Energy efficiency: The modelling includes assumptions about increased energy efficiency relative to the baseline and about the costs of achieving energy savings. These savings are assumed to be the result of increased appliance efficiency and improvements in buildings (renovation and retrofitting). The modelling also includes assumptions about which sectors are more likely to achieve energy savings and how these savings are financed. With regard to buildings, various policy options, such as subsidies or regulation, can be adopted to change the heating technologies used by the building sector with a view to improving energy efficiency and reducing emissions. The levels of investment by country/region in energy efficiency by sector and change in final demand by product/industry as a result of energy efficiency are set to match the projections in *World Energy Outlook 2020*.

Transport sector: The modelling focuses specifically on the road transport sector, which in most countries is the second-largest CO_2-emitting sector, though policies for aviation and water transport could also be considered. Assumptions are made regarding improved fuel efficiency standards and alternative fuel vehicles (running on electricity, bioenergy or hydrogen). For the transport sector, an increase in the deployment of public recharging and refuelling points, and in the number of electric vehicles sold, is assumed. To reduce emissions, the main policies considered for road transport are:

(a) subsidies to support electric vehicles;

(b) biofuel mandates, if required; and

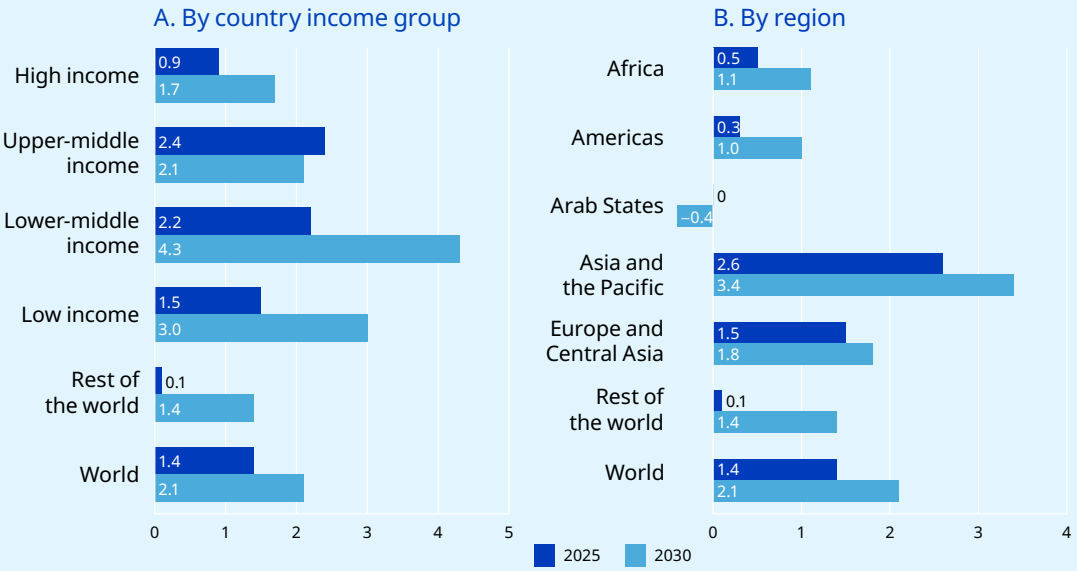
(c) various tax options for inefficient vehicles (such as fuel taxes, road taxes or registration taxes).

The policy inputs are adjusted so that the final energy demand of the transport sector aligns closely with International Energy Agency (IEA) projections.

Revenue and funding: The carbon pricing applied to all sectors and regions in the modelling generates revenue, which is used to pay for: energy efficiency investments, power sector subsidies to support low-carbon technologies, early scrappage costs (that is, compensation for taking a power plant out of service earlier than originally intended), and heating subsidies for households. If any revenue is left over, it is used to lower taxes on income, VAT and employers' social security contributions (equally distributed). Conversely, if there is not enough revenue, taxes are raised to cover the shortfall. In addition, it is assumed that the governments of the oil-exporting countries lose royalty revenues and will have to take measures in order to limit the volume of any additional debt under the scenario. The countries impacted are all members of the Organization of the Petroleum Exporting Countries, the Russian Federation, the United States and Canada. The loss of these revenues is offset in equal measure by a reduction in government spending and increases in taxes (if carbon pricing revenues are insufficient). The estimated loss of revenue is calculated on the basis of the decrease in oil and gas exports and the change in the price of these commodities, taking into account the volume exported and the cost of extraction (for example, it can be more expensive to extract fossil fuels in Canada because they come from oil sands, as opposed to the Middle East, where they are extracted by traditional drilling and pumping methods).

Source: ILO and Cambridge Econometrics.

▶ Figure 2.9 Projected change in GDP by 2030 under the green scenario
(percentage change relative to baseline)



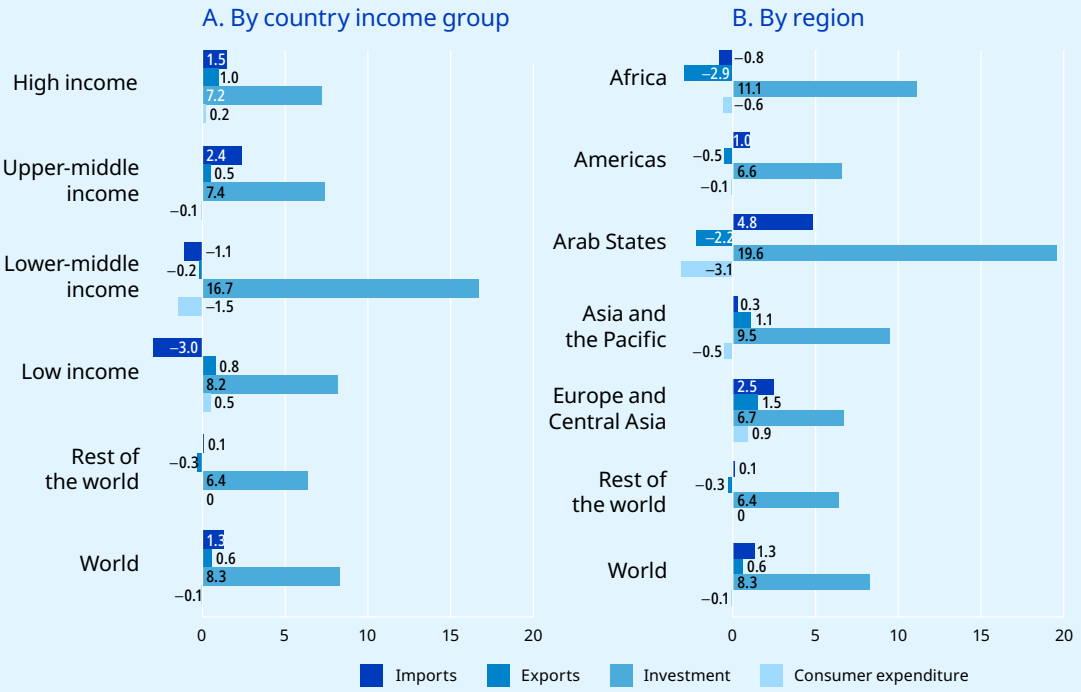
Source: ILO, based on the E3ME model of Cambridge Econometrics.

Specifically, the green policies modelled to reach climate neutrality in all these countries include: increasing the uptake of renewable technologies through subsidies, feed-in tariffs and regulations; improving energy efficiency in appliances and buildings through subsidies and regulations; and increasing the share of electric vehicles and the deployment of public recharging and refuelling points through subsidies and other measures. As with all modelling, various assumptions were made and caution is therefore required in interpreting the results. The results themselves should be considered in terms of orders of magnitude, rather than as precise values.

Implementation of the energy efficiency measures identified above leads, in the green scenario, to global GDP being 2.1 per cent higher in 2030 relative to the baseline. This increase is driven primarily by investment in technologies that allow fossil fuels to be phased out and by the competitiveness effects resulting from improvements in energy efficiency (figure 2.9). However, this global aggregate masks substantial heterogeneity of outcomes across country income groups and regions, with lower-middle-income countries expected to experience the largest GDP boost relative to the baseline by 2030, namely 4.3 per cent, while GDP gains in high-income countries would be just 1.7 per cent. Across regions, GDP in the Arab States is projected to be lower by 0.4 per cent in 2030 relative to the baseline, while GDP gains relative to the baseline are highest in Asia and the Pacific.

The Arab States, together with other oil- and gas-exporting countries, are expected to experience a small relative decline in GDP owing to a decrease in the global demand for, and prices of, such commodities, which in turn affects exports, while the lower revenues from fossil fuels negatively impact government expenditure. In countries in Asia and the Pacific, together with other countries that import significant amounts of fossil fuels, gains are driven by improved trade balances resulting from the lower commodity prices and by investments in technologies that enable a transition to renewable sources and the phasing out of fossil fuels. Such investments in green technologies are expected to lead to further cost reductions through learning effects and to boost production while also having a positive impact on aggregate GDP though supply chain and multiplier effects in various sectors of the economy. Investment, as a proportion

▶ Figure 2.10 Projected changes in consumption, investment, exports and imports by 2030 under the green scenario (percentage change relative to baseline)



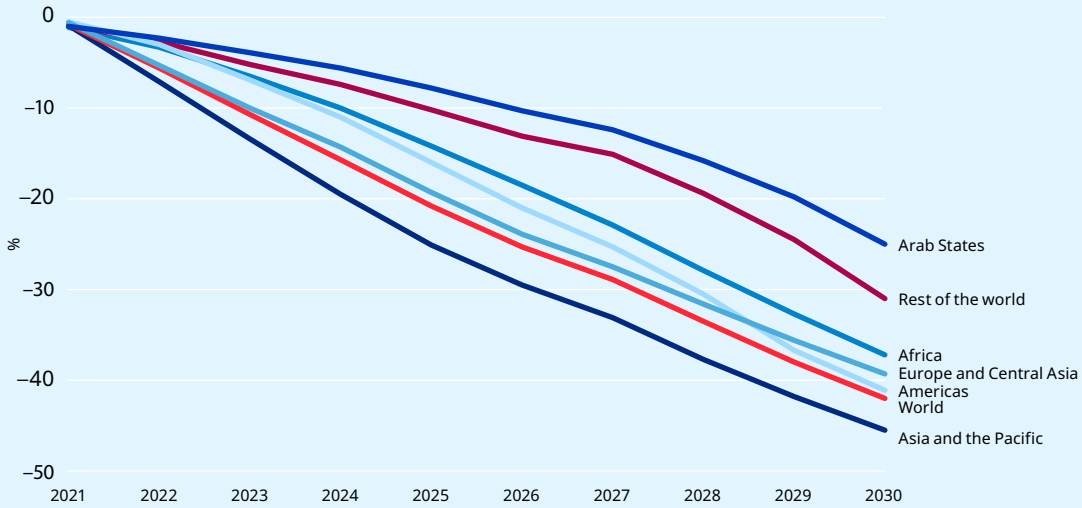
Source: ILO, based on the E3ME model of Cambridge Econometrics.

of GDP, is expected to increase the most in the Arab States (figure 2.10, panel B) and in lower-middle-income countries (figure 2.10, panel A), since these countries start from a lower base in the adoption of green technologies and greater investment is therefore necessary for them to catch up. In the Americas and in Europe and Central Asia (and in high-income countries), investment is more modest, since green technologies have been adopted at a relatively quicker pace to date. In the Arab States, Africa and Asia (and lower-middle-income countries), carbon pricing revenues are forecast to be insufficient to cover the necessary costs of investments in some countries, and hence higher income taxes are levied to make up the difference, reducing disposable incomes and consumption in 2030 relative to the baseline.

The GDP gains are accompanied by substantial reductions in global CO_2 emissions, which are projected to be 42.0 per cent lower in 2030 relative to the baseline (figure 2.11). Across the regions, emissions decline the most in Asia and the Pacific (by 45.5 per cent), while the reduction is smallest in the Arab States (by 25.0 per cent), which reflects the very low relative cost of fossil fuels in that region.

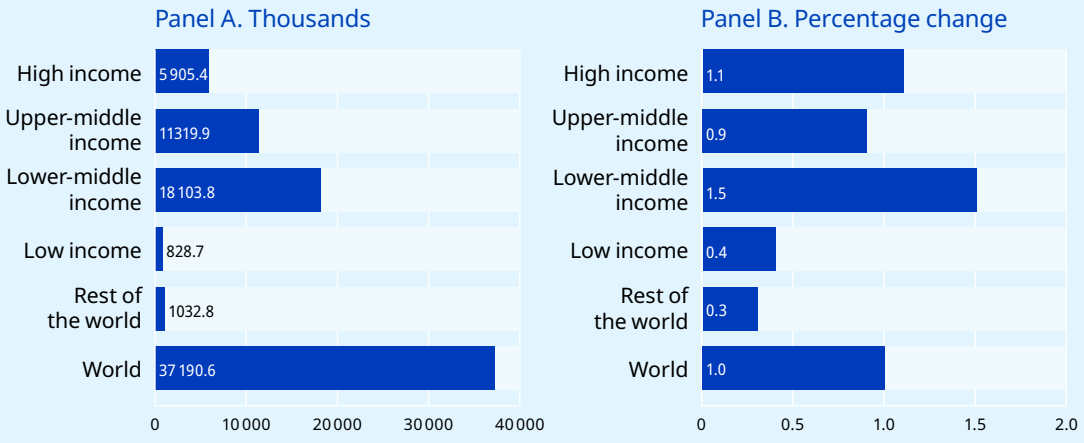
The measures undertaken in the green scenario would lead to a net increase in employment by 2030 of 37.2 million, or 1 per cent, relative to the baseline (figure 2.12). All country income groups (and regions) are expected to experience an increase in employment relative to the baseline, although such gains are highest in lower-middle-income countries, in both absolute and percentage terms, while the gains in low-income countries are modest: employment in these countries would increase by less than 1 million (or 0.4 per cent). These increases are driven by the higher investments in, and the transition to, green technologies, which are on average more labour-intensive than conventional fossil fuels; and by the competitiveness effects of greater energy efficiency, which more than offset the loss of employment in fossil fuel industries and any dampening effect that increases in energy costs might have on consumer expenditure.

▶ Figure 2.11 Projected change in CO_2 emissions, world and by region, 2021–30
(percentage change relative to baseline)



Source: ILO, based on the E3ME model of Cambridge Econometrics.

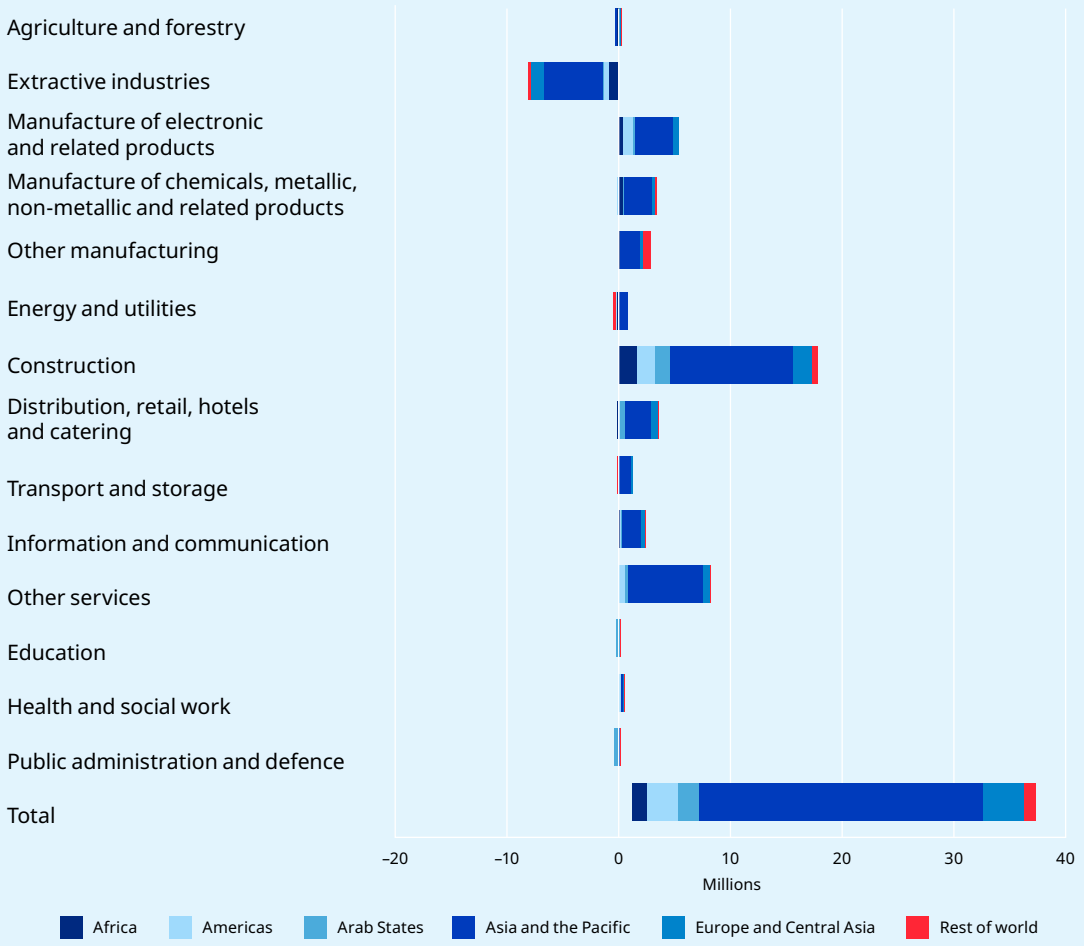
▶ Figure 2.12 Projected difference in employment in 2030 relative to the baseline
(thousands and percentage)



Source: ILO, based on the E3ME model of Cambridge Econometrics.

The impacts on employment vary greatly across sectors, with employment rising the most relative to the baseline in construction (17.8 million jobs), followed by "other services" (8.3 million jobs) (figure 2.13). On the other hand, employment in extractive industries (coal, oil and gas extraction) declines by 8.1 million jobs by 2030 relative to the baseline, while there are very small decreases in employment at the global level in education and in public administration and defence. Broadly, these patterns can also be seen in each region, although there are some subtle differences. In Africa and the Americas, it is the manufacturing of electronics and related products, rather than "other services", that accounts for the

▶ Figure 2.13 Projected difference in employment in 2030 relative to the baseline, by sector and region (millions)



Source: ILO, based on the E3ME model of Cambridge Econometrics.

second-largest increase in employment relative to the baseline (428,000 and 853,000, respectively), while in the Arab States, the "distribution, retail, hotels and catering" sector accounts for the second-largest increase (412,000). Both in Asia and the Pacific and in Europe and Central Asia, the "other services" sector accounts for the second-largest increase (6.7 million and 675,000, respectively), resembling the global pattern. In terms of employment losses by 2030 relative to the baseline, the "energy and utilities" sector has the second-highest employment decline in Africa (157,000) after the extractive industries. The manufacture of chemicals, metallic, non-metallic and related products and "agriculture and forestry" have the second-highest declines after the extractive industries in the Americas (151,000) and in Asia and the Pacific (148,000), respectively. On the other hand, in the Arab States, employment declines relative to the baseline are highest in public administration followed by education.

A green transition would also help to create more job opportunities for young people in all regions: an additional 8.4 million jobs for young people aged 15–29 years relative to the baseline are forecast in 2030. The gains as a percentage change relative to the baseline are slightly higher for this group of young workers than for adults (aged 30+ years) (not shown). Youth employment gains in 2030 are highest

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▶ Table 2.5 Projected difference in employment relative to the baseline, by age and sectors, 2025 and 2030 (thousands)

	2025		2030	
	Youth (15–29)	Adult (30+)	Youth (15–29)	Adult (30+)
Agriculture and forestry	–77	–505	10	16
Extractive industries	–647	–3 520	–1 306	–6 766
Manufacture of electronic and related products	544	2 910	1 085	4 262
Manufacture of chemicals, metallic, non-metallic and related products	344	1 506	732	2 522
Other manufacturing	292	1 183	625	2 257
Energy and utilities	100	555	7	299
Construction	3 235	10 325	4 417	13 420
Distribution, retail, hotels and catering	240	–482	694	2 853
Transport and storage	214	881	248	877
Information and communication	314	1 186	597	1 838
Other services	879	6 089	1 341	6 917
Education	–3	47	–32	–28
Health and social care	18	378	11	508
Public administration and defence	–10	–2	–65	–148
Whole economy	**5 444**	**20 551**	**8 363**	**28 827**

Source: ILO, based on the E3ME model of Cambridge Econometrics.

in Asia and the Pacific – mainly because labour force growth is projected to be highest in that region, as is the forecast GDP growth, accounting for more than two thirds of the global increase. Youth employment gains are lowest in the Arab States, at around 437,000 relative to the baseline. In all regions, the gains accruing to young men are substantially greater than those of young women, reflecting the current labour market structure, where men dominate in the sectors impacted by the green transition (for example, the renewable energy sector, as discussed earlier in this chapter, or construction). Young women account for fewer than 10 per cent of the additional net jobs arising from the green transition in Africa and the Arab States, while accounting for almost four in ten additional net jobs in Europe and Central Asia (figure 2.14).

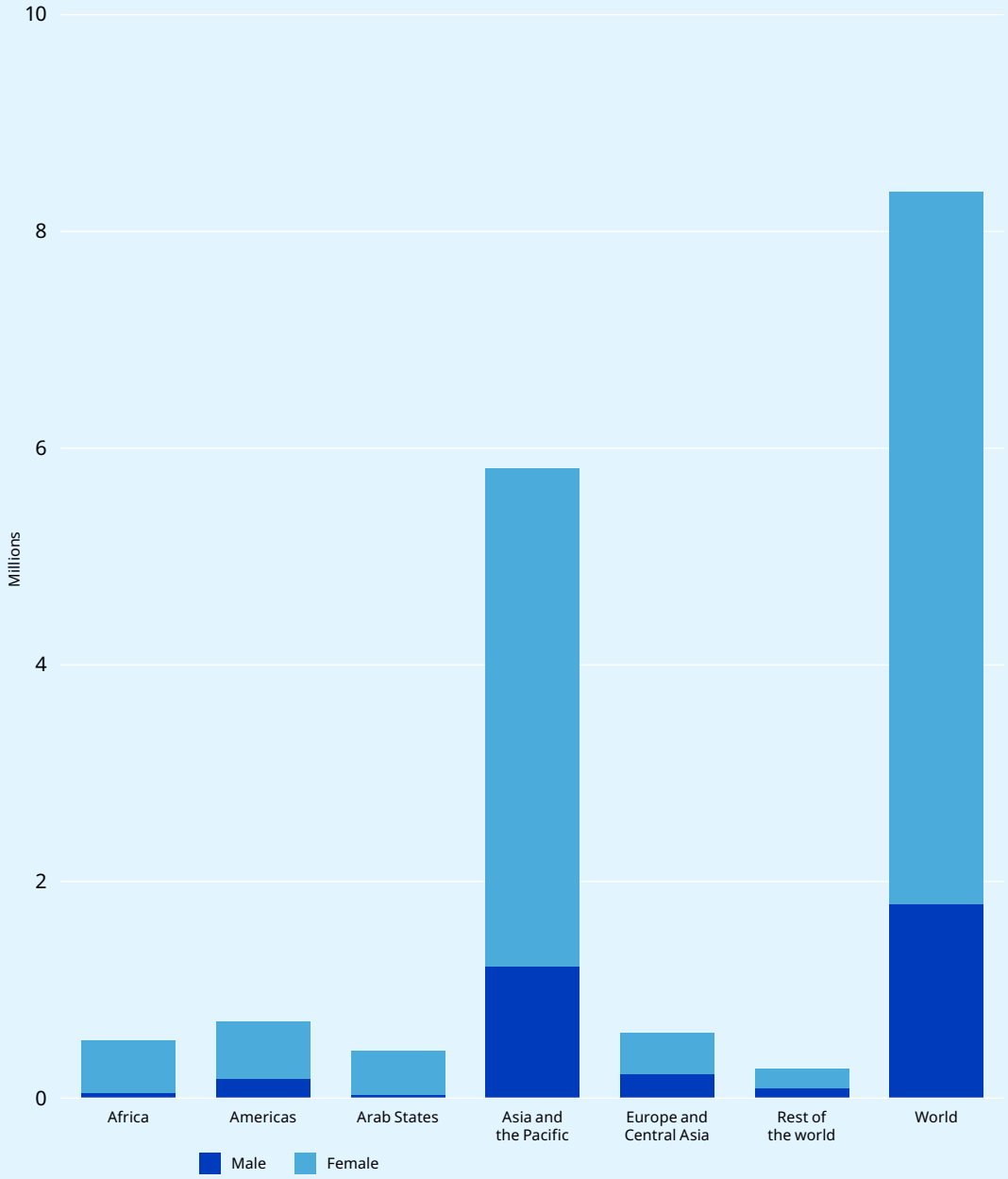
Across sectors, construction steadily increases in employment and sees the most employment gains by 2030 relative to the baseline, accounting for more than half of the global jobs gains; it is followed by "other services" and the manufacture of electronic and related products (table 2.5). In contrast, the extractive industries face lower demand for fossil fuels and shed 647,000 youth jobs by 2030 relative to the baseline, while small relative declines also take place in education and in public administration and defence.

All in all, the modelling results indicate that a comprehensive package of climate and energy efficiency policies that lead to climate neutrality can be designed to promote a transition towards a green and blue economy that results in welfare, economic and employment gains, not least for young people. The aggregate employment gains for young people of 8.4 million jobs by 2030 relative to the baseline are modest – particularly if one bears in mind that the youth potential labour force[8] rose by 7 million in one

[8] The potential labour force comprises those who are available for work but not actively seeking a job and those who are seeking but not available to start work immediately.

A green transition would help create by 2030 an additional 8.4 million jobs worldwide for young people aged 15–29.

▶ **Figure 2.14 Projected difference in youth employment by 2030 relative to the baseline, by sex, world and by region** (millions)



Note: "Youth" refers to ages 15–29.

Source: ILO, based on the E3ME model of Cambridge Econometrics.

year alone as a result of the COVID-19 pandemic or that the global employment deficit was still 22 million in 2021 relative to 2019 (see Chapter 1) – but they do nonetheless represent a sizeable contribution in some countries, sectors and groups of workers. Moreover, as younger generations enter the labour force, if they possess the right skills for the green and blue economies, they will increasingly be able to benefit from an accelerated transition to carbon neutrality, with significantly more job opportunities opening up after 2030. That being said, this aggregate figure masks employment losses in some countries, sectors and groups of workers, pointing to the importance of ensuring a just transition for all. Investments in renewable energy infrastructure, including solar, hydroelectric and wind power installations and electric vehicle charging stations, and likewise investments in the retrofitting of buildings tend to benefit traditionally male-dominated sectors, which also highlights the need to tackle the barriers faced by young women.

2.5 Supporting a human-centred recovery that is inclusive, sustainable and resilient

Many countries are implementing policies and making investments aimed at tackling climate change and biodiversity loss while creating more and better jobs. The ILO Centenary Declaration for the Future of Work (2019), for example, highlights the importance of "ensuring a just transition to a future of work that contributes to sustainable development" (see also box 2.7), and the ILO Global Call to Action for a Human-Centred Recovery from the COVID-19 Crisis That Is Inclusive, Sustainable and Resilient (2021) calls for the opportunities provided by just digital and environmental transitions to be leveraged to advance decent work. Countries around the world have responded to the spirit of these appeals. For example, the European Green Deal, adopted by the EU countries in 2020, provides the framework for turning Europe into the first climate-neutral continent by 2050, and in July 2021, the EU further proposed a "Fit for 55" package, designed to increase the reduction in GHG emissions by 2030 from the already agreed 40 per cent to 55 per cent. At the height of the COVID-19 pandemic, the Republic of Korea adopted the Korean New Deal – composed of the Digital New Deal, the Green New Deal and the Human New Deal – with the aim of creating 2.5 million jobs by 2025 (box 2.8). Similarly, despite the crisis, Ghana recently adopted a national strategy on green jobs (box 2.9).

Ahead of the 26th United Nations Climate Change Conference held in Glasgow in November 2021, most countries submitted new or more ambitious nationally determined contributions (NDCs). However, this would still not be sufficient to keep global warming well below 2°C or limit it to 1.5°C above pre-industrial levels. The level of ambition of NDCs would need to increase substantially between now and 2030 (UNFCCC Secretariat 2021). As countries strive for environmental sustainability while creating decent jobs for young people and addressing intergenerational equity, a number of important considerations stand out. The first is the role of technology, since the quantity and quality of jobs created in the transition to green and blue economies depend on the specific technologies adopted. The Paris Agreement of 2015 notes the importance of "[a]ccelerating, encouraging and enabling innovation … for an effective, long-term global response to climate change and [of] promoting economic growth and sustainable development" (art. 10, para. 5). At the same time, it is necessary to carefully take into account the low-carbon and climate-resilient technologies that are available when developing youth employment policies, and to scale up and diffuse those technologies that are best suited to the specific socio-economic and climate change-related circumstances of each country. To illustrate the importance of such an assessment, Diao et al. (2021) argue that the general technologies currently available to low-income countries are excessively capital-intensive, and so large firms in Ethiopia and the United Republic of Tanzania have recorded large productivity gains but hardly any employment gains. While this finding is applicable to all technologies, not just to green ones, the implication remains the same, namely that the green technologies selected for promotion and diffusion will have heterogenous impacts on job creation. Table 2.6 provides examples of mitigation technologies, which seek to reduce GHG emissions, and adaptation technologies, which seek to enable adaptation to the effects of climate change, and identifies a selected number of jobs and occupations that would emerge from the diffusion of these technologies.

▶ Box 2.7 The ILO *Guidelines for a Just Transition towards Environmentally Sustainable Economies and Societies for All* (2015)

The *Guidelines for a Just Transition towards Environmentally Sustainable Economies and Societies for All* (ILO 2015) include the following guiding principles:

(a) Strong social consensus on the goal of and pathways to sustainability is fundamental. Social dialogue has to be an integral part of the institutional framework for policymaking and implementation at all levels. Adequate, informed and ongoing consultation should take place with all stakeholders.

(b) Policies must respect, promote and realize fundamental principles and rights at work.

(c) Policies and programmes need to take into account the strong gender dimension of many environmental challenges and opportunities. Specific gender policies should be considered in order to promote equitable outcomes.

(d) Coherent policies across the economic, environmental, social, education/training and labour portfolios need to provide an enabling environment for enterprises, workers, investors and consumers to embrace and drive the transition towards environmentally sustainable and inclusive economies and societies.

(e) These coherent policies also need to provide a just transition framework for all to promote the creation of more decent jobs, including as appropriate: anticipating impacts on employment; adequate and sustainable social protection for job losses and displacement, skills development and social dialogue, including the effective exercise of the right to organize and bargain collectively.

(f) There is no "one size fits all". Policies and programmes need to be designed in line with the specific conditions of countries, including their stage of development, economic sectors and types and sizes of enterprises.

(g) In implementing sustainable development strategies, it is important to foster international cooperation among countries. In this context, we recall the outcome document of the United Nations Conference on Sustainable Development (Rio +20), including section VI on means of implementation.

Source: ILO (2015).

▶ Box 2.8 The Korean New Deal

Adopted in response to the structural changes expected as a result of the COVID-19 crisis, including an accelerated transition to a green and digital economy, and an associated increase in labour market polarization, the Korean New Deal is a national development strategy that seeks to transform the Republic of Korea into a first-mover, low-carbon and inclusive country. Originally launched in 2020, it was upgraded in 2021 as the Korean New Deal 2.0 by adding to and expanding the original initiatives. The strategy is based on three pillars: the Digital New Deal, the Green New Deal and the Human New Deal. Under the first of these, the Government will invest in information and communications technology infrastructure, including a "Data Dam", which will support the development of big data and the better integration of data, networks and artificial intelligence throughout the economy. The Green New Deal is aimed at achieving net zero emissions through investments in environmentally friendly energy infrastructure while supporting climate-friendly industries. The Human New Deal seeks to address the labour market churn expected to arise from the transition towards a more environmentally friendly and digital economy – in particular, through advanced job training, expansion of the employment

insurance system to cover workers in non-standard forms of employment, and improved matching of skills and jobs. Job creation is at the centre of the Korean New Deal. Through public investments aimed at catalysing private investment, the New Deal is expected to invest a total of 160 trillion Korean won (US$185 billion) by 2025 and create 2.5 million jobs. The Government has identified major projects under each of the pillars and set specific employment targets for these projects.

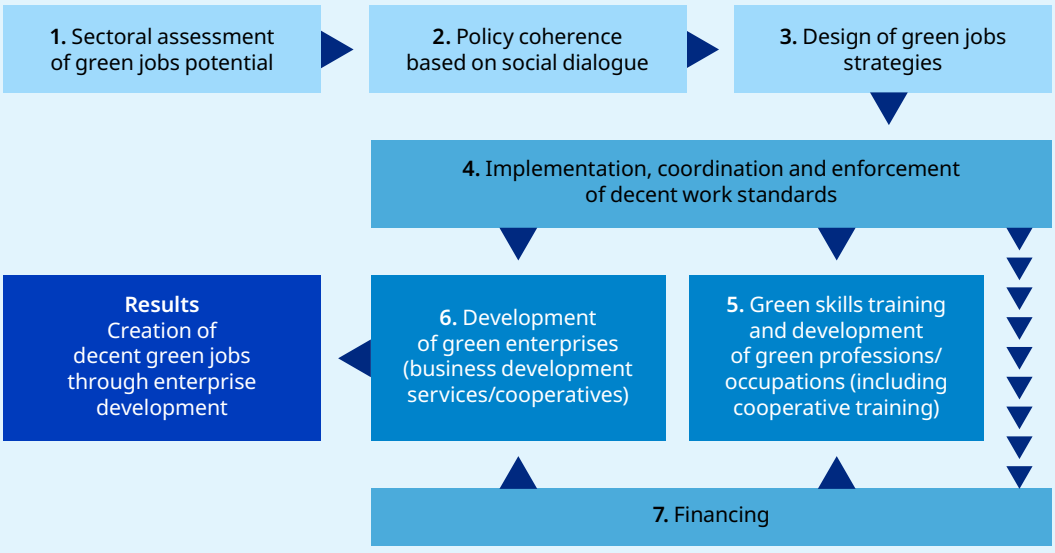
Source: ILO (2020b); Republic of Korea, Ministry of Economy and Finance (2021).

▶ Box 2.9 Ghana's National Green Jobs Strategy 2021–25

The Strategy seeks to provide decent job opportunities for Ghana's growing number of jobseekers, particularly young women and men, while making progress on environmental goals at the same time. The strategy focuses on four interrelated and complementary components (as illustrated in figure 2.15):

1. ensuring policy alignment, coherence and coordination for the maximization of green jobs;
2. developing employable skills, particularly for young people, women and persons with disabilities, so that workers are able to take advantage of existing and emerging potential green job opportunities;
3. supporting the creation of green jobs across sectors through the promotion of sustainable and competitive green enterprises and markets; and
4. mobilizing and facilitating access to sustainable financing for green enterprises through intersectoral cooperation.

▶ Figure 2.15 Interrelated and complementary processes and components underpinning Ghana's National Green Jobs Strategy 2021–25



Source: Ghana, Ministry of Employment and Labour Relations (2021).

▶ Table 2.6 Mitigation and adaptation technologies and associated occupations

Technology group	Technology	Illustrative jobs/occupations
Mitigation		
Energy storage	Compressed air energy storage	Installers; multiple machine-tool setters
	Phase change materials for the storage of thermal energy	Materials engineers; resource analysts
	Capacitors	Electrical and electronic equipment assemblers; electrical engineers
	Batteries	Inspectors; testers
	Pumped-storage hydroelectricity	Pump operators; hydrologic technicians
	Flywheels	Product designers; sales managers
	Superconducting magnetic energy storage	Environmental science and protection technicians; power distributors and dispatchers
	Underground thermal energy storage	Underground mining machine operators; geoscientists
Adaptation		
Fisheries management	Protection of breeding areas	Conservation officers; fish and wildlife administrators
	Sustainable fishing	Fisheries scientists, economists
	Artisanal fishing	Fishers; fish-processing workers
	Fish farming	Fish farm workers; hatchery technicians
	Discharge reduction	Environmental scientists; engineers
	Regulations for abandoned fishing equipment	Compliance officers; legislators

Source: Based on CTCN (2019).

Young people cannot seize the opportunities opened up by the transition to a more environmentally sustainable economy without being aware of the technologies and activities that underlie this transition and of the associated emerging occupations, or without possessing the skills demanded by these occupations. This highlights the importance of identifying and anticipating skills needs. Systematic, innovative and institutionalized mechanisms for skills anticipation are required to develop the relevant skills, appropriately shape technical and vocational education and training, and effectively adapt active labour market programmes (ILO 2019b). The transition to a green and blue economy requires both skills that are specific to each occupation and generic, core skills (ILO 2019b). Some core competencies are required in occupations of all skill levels, including environmental awareness, teamwork and occupational safety and health, while workers in medium- and high-skilled occupations will probably require additional skills such as analytical thinking, innovation and strategic leadership skills (table 2.7). In particular, most new green occupations are likely to be highly skilled, calling not just for the core competencies but also for technical and scientific knowledge and skills (Strietska-Ilina et al. 2011; ILO 2019b).

Given the scale and urgency of the green and blue transitions, more transformative skills are also required. Kwauk and Casey (2021) emphasize both job-specific and generic skills, such as business and technological skills among the former, and adaptability, creativity and resilience among the latter, which they refer to as "green life skills" in view of the high degree of overlap with the concept of "life skills" used in the education sphere (table 2.8). Additionally, the authors underscore the need for generic skills that transform individual mindsets and structural factors, such as the current socio-economic systems of inequity that, so they argue, underlie the current environmental crisis. These "skills for

▶ Table 2.7 Main core skills required for green jobs, by skill level of occupation

Core skills required across the economy	Core skills required in medium- to high-skilled occupations
▶ Environmental awareness and protection; willingness and capability to learn about sustainable development ▶ Adaptability and transferability skills to enable workers to learn and apply the new technologies and processes required to green their jobs ▶ Teamwork skills reflecting the need for organizations to work collectively on tackling their environmental footprint ▶ Resilience to see through the changes required ▶ Communication and negotiation skills to promote required change to colleagues and customers ▶ Entrepreneurial skills to seize the opportunities of low-carbon technologies and environmental mitigation and adaptation ▶ Occupational safety and health	▶ Analytical thinking (including risk and systems analysis) to interpret and understand the need for change and the measures required ▶ Coordination, management and business skills that can encompass holistic and interdisciplinary approaches incorporating economic, social and ecological objectives ▶ Innovation skills to identify opportunities and create new strategies to respond to green challenges ▶ Marketing skills to promote greener products and services ▶ Consulting skills to advise consumers about green solutions and to spread the use of green technologies ▶ Networking, information technology and language skills to perform in global markets ▶ Strategic and leadership skills to enable policymakers and business executives to set the right incentives and create conditions conducive to cleaner production and transport

Source: ILO (2019b, 30, table ES 2).

▶ Table 2.8 Specific, generic and transformative skills required for green jobs

Skills for green jobs	Green life skills	Skills for a green transformation
Specific skills	**Generic skills**	**Generic skills**
▶ Business skills ▶ Data analysis ▶ Engineering ▶ Entrepreneurship ▶ Environmental and ecosystem management ▶ Environmental knowledge and awareness ▶ Finance skills ▶ Information and communication technology (ICT) skills ▶ Innovation skills ▶ Marketing skills ▶ Project management ▶ Research skills ▶ Sales skills ▶ Scientific skills ▶ Technological skills ▶ Gender empowerment skills	▶ Adaptability ▶ Collaboration ▶ Collaborative thinking ▶ Communication ▶ Coping with emotions ▶ Coping with uncertainty ▶ Creativity ▶ Critical thinking and reasoning ▶ Decision-making ▶ Empathy ▶ Flexibility ▶ Growth mindset ▶ Higher-order thinking skills ▶ Interpersonal competence ▶ Leadership ▶ Negotiation ▶ Networking ▶ Open-mindedness ▶ Participatory skills ▶ Problem-solving ▶ Resilience ▶ Strategic thinking ▶ Teamwork	▶ Ability to analyse unequal systems of power ▶ Coalition-building ▶ Collective action ▶ Disruptive as opposed to normative thinking ▶ Environmental stewardship ▶ Forward-looking and anticipatory thinking ▶ Integrative thinking ▶ Interdisciplinary and multidisciplinary thinking ▶ Interrelational thinking ▶ Political agency, activism ▶ Reflexivity ▶ Respecting diverse viewpoints ▶ Solidarity ▶ Systems thinking ▶ Trans-cultural, trans-spatial, trans-temporal mindsets ▶ Valuing traditional and indigenous knowledge ▶ Working within complexity

Source: Kwauk and Casey (2021).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> A novel set of employment policies is needed for an inclusive, job-rich recovery and a just transition to a green and blue economy.

a green transformation" include the ability to analyse unequal systems of power, interdisciplinary and multidisciplinary thinking, and appreciation of traditional and indigenous knowledge. Supporting the education and training system to equip young people with all these skills is a challenge for many countries around the world.

The creation of green jobs for young people requires a wide array of policies and initiatives to be coordinated, all the more so as time and resources are limited. A novel set of employment policies needs to be adopted to promote both an inclusive and job-rich recovery from the COVID-19 crisis and a just transition to a green and blue economy. Table 2.9 sets out a range of demand- and supply-side measures, together with policy instruments for institutional strengthening, that can be integrated in comprehensive employment policy frameworks, broader national development frameworks, green jobs strategies or sectoral strategies, and gives examples of how these measures can be used to support green and blue jobs for young women and men. For example, fiscal policies, such as linking carbon taxes to tax reductions for the hiring of young people, are a powerful means of creating a win-win situation for youth employment and the environment.

▶ Table 2.9 Employment policy instruments and their relevance to green jobs for young people

Component (selected)	Relevance to green jobs for young people (illustrative examples)
I. Demand-side measures	
1. Pro-employment macroeconomic policies	
Monetary policy – quantitative easing, credit expansion	▶ Assessments of the impact of climate change on the mandates of central banks, including price stability and full employment (where such mandates exist) ▶ Monetary facilities to support decarbonization projects based on an intergenerational approach ▶ Initiatives to enhance access to credit for micro, small and medium-sized enterprises in the green economy (for example, by promoting microfinance)
Fiscal policy – stimulus packages; automatic stabilizers; strategies to create fiscal space	▶ Support for green start-ups ▶ Using carbon taxes to finance temporary reductions of social insurance contributions and taxes for companies that hire young people
Investment policies and improving the investment climate, including investment in infrastructure, in public services, in green production and R&D	▶ Channelling green investments into sectors and regions/localities with a high share of youth unemployment ▶ Linking green R&D with tertiary educational institutions (also for green start-ups and incubators) ▶ Support to young green entrepreneurs through public procurement policies
2. Sectoral policies: agriculture, services, environmental industries and services, industrial policies that enhance economic diversification	▶ Sustainable agriculture, green construction, sustainable tourism, waste management, ecosystem services in climate change adaptation (nature conservation, restoration, reforestation, irrigation, flood protection, etc.)

(continued overleaf)

▶ **Table 2.9** ***(cont'd)***

Component (selected)	Relevance to green jobs for young people (illustrative examples)
3. Financial policies: national supervisory and regulatory framework for the financial sector, development of financial sector and financial institutions (including microcredits and funds); credit facilities, access to credit, guarantees, payment facilities	▶ Green funds for green entrepreneurship among young people ▶ Support for greening business practices in enterprises run by young people
4. Trade and regional integration: policies to promote efficient and well-regulated trade and markets that benefit all	▶ Measures to support the export of sustainable agriculture products ▶ Facilitating the import of renewable energy equipment ▶ Attracting foreign visitors to sustainable tourist destinations
5. Private sector development: support for public and private enterprises (including cooperatives) and micro-entrepreneurs and creation of an enabling business environment	▶ Support for enterprises in green sectors/value chains with high potential for youth employment ▶ Support for incubators and technology hubs
6. Demand-side active labour market measures Incentives/subsidies to hire	▶ Green enterprises employing young people
Social stabilizers – public employment guarantee schemes, emergency public works, other direct job creation schemes	▶ "Green works", i.e. public employment schemes targeting young people that create or maintain climate-proofing infrastructure (e.g. flood protection) or improve environmental quality (land restoration and rehabilitation, afforestation, etc.) ▶ Payment for ecosystem services: providing an income for those who protect/support ecosystems through certain land management or agricultural practices
II. Supply-side measures	
1. Human resources development and vocational and technical skills Training policies and systems: vocational training policy review and development; management of training institutions and systems; investment in training; core work skills; work-based learning, including apprenticeships	▶ Anticipating skills for green jobs among young people ▶ Developing training modules/curricula relevant to green occupations ▶ Training within green enterprises ▶ Green apprenticeships
Technology: improving capacity to innovate and invest; improving training delivery through ICTs; improving access to ICTs to reduce the skills gap	▶ Green technology and innovation centres ▶ Facilitating access for young people
2. Supply-side active labour market measures Job orientation measures	▶ Publicizing/promoting green jobs prospects and vacancies in green enterprises
Skills development, skills upgrading and reskilling to improve employability, especially for those who have lost or are at risk of losing their job and/or other vulnerable groups	▶ Promotion of sector-specific green skills ▶ Reskilling programmes targeting young people in precarious or recently acquired jobs in sectors/enterprises under pressure from environmental regulations or market changes (e.g. plastic packaging material production, the cement industry)
Entrepreneurial skills development programmes	▶ Green entrepreneurship promotion for young people
III. Institutional strengthening	
1. Employment services Supporting the reform and modernization of public employment services and promoting cooperation between the former and private employment agencies	▶ Services targeting young people in green sectors and enterprises ▶ Enhanced information on green careers in education and training systems

▶ **Table 2.9** ***(concl.)***

Component (selected)	Relevance to green jobs for young people (illustrative examples)
2. Social protection systems Strengthening social protection to facilitate just transitions for young workers (unemployment benefits, health protection, pre-retirement and pension schemes, and social assistance) especially in the context of external shocks and structural transition to a green economy	▶ Enhanced capacity to protect young people in unstable employment in sectors under pressure (e.g. owing to stricter environmental regulations and taxation), facilitating work and life transitions, and protecting young people from life-cycle risks ▶ Cash transfers, public employment programmes, employment injury benefits for environmental hazards targeting young people
3. Social dialogue and collective bargaining Measures and mechanisms to address environmental concerns in dialogue and negotiations at the national, sectoral and enterprise level	▶ Social partners advocating and promoting green jobs for young people ▶ Strengthening the institutional capacities of social partners and mobilizing them to engage in designing low-carbon strategies for a just transition ▶ Work-based learning on green practices with incentives for operators and workers

Source: Based on Nebuloni and van der Ree (2021).

2.6 Achieving a more sustainable future

Urgent and decisive action in this decade is required to address climate change and biodiversity loss and limit global warming to 1.5°C above pre-industrial levels. As countries around the world embark on such measures, there will inevitably be adjustments in labour markets, with impacts that vary across different regions, countries, sectors and demographic groups. New jobs will be created in some sectors, including renewable energy, construction, manufacturing, waste management and recycling, while job displacements will occur in carbon-intensive and fossil fuel-based industries. However, all sectors will be affected in one way or another, since in addition to jobs being created and lost, existing jobs will be redefined and transformed – as a result of green and blue policies and investments, but also as a result of concurrent and interrelated drivers of change, including digitalization (see Chapter 3) and developments in the care sector due to demographic shifts (see Chapter 4).

Young women and men are particularly vulnerable to rapid adjustments in labour markets, as evidenced by previous economic crises and the COVID-19 crisis, during which they bore disproportionate job and income losses. As shown in this chapter, the implementation of a set of policies aimed at improving energy efficiency in buildings and appliances, decarbonizing electrical power generation through a shift to renewable energy, and expanding electric vehicles and associated infrastructure could generate millions more jobs for young people compared with a business-as-usual scenario. While section 2.5 in this chapter identified some measures to promote youth employment in the green and blue economies, Chapter 5 presents a range of policy recommendations to support the creation of decent and productive jobs for young women and men both within and outside the green and blue economies, including an appropriate macroeconomic policy framework, integrated employment policies and a reform of skills systems.

Some key considerations for policymakers seeking to support the transition to a green and blue economy are outlined below:

- **Coherence and coordination across multiple policy domains:** addressing climate change and biodiversity loss cuts across numerous policy areas, including: macroeconomic policy; agricultural and land-reform policy; employment, skills and social protection policies; support for small enterprises so that they can develop and implement just transition plans; and innovation policy. Employment services and labour market policies, in particular, will be critical in facilitating job transitions. Regulatory changes will also play a central role, whether in terms of green building codes, carbon taxes, fishing regulations

or the phase-out of fossil fuel vehicles, and also in relation to incentivizing firms' investment in new climate-friendly technologies. Coherence and coordination across the multiple policy and regulatory domains are essential for a fair and inclusive transition. In addition, the wide range of investments calls for coordination between the public and private sectors, notably with regard to ensuring long-term financing. The lessons learned from sectoral policies, which are intertwined with green and blue policies, point to the need for a whole-of-government approach with strong commitment at the highest government levels in shaping and sustaining the coordination agenda. International coordination is also required in multiple areas, including technology transfer.

- **Green and blue technologies will play an instrumental role in decarbonization and in shaping labour markets.** However, some of these technologies may not be easily accessible to developing countries or well-suited to the socio-economic circumstances of all countries, including the structure of national labour markets. Efforts are required to build the capacity of governments, workers and firms, particularly in developing countries, to identify the technologies that best match their socio-economic and climate change-related specificities. Efforts are also required to deploy, adapt and scale up these technologies in developing countries, not least through funding and international cooperation. Implementation of the pledge made by developed countries at the Copenhagen Climate Change Conference in 2009 to channel US$100 billion a year to developing countries to support them with climate change mitigation and adaptation would be an important milestone in that regard.
- **Better data and information on green and blue jobs** are required to inform the design and implementation of evidence-based labour and employment policies, and to adequately monitor and evaluate progress towards a green and blue economy. Such data and information will also be critical in raising young people's awareness of the opportunities that exist in the green and blue economies, in anticipating future skills, in shaping education and technical and vocational education and training, and in facilitating social dialogue.
- **Social consensus on sustainability pathways based on social dialogue and the meaningful involvement of young people:** the journey to sustainability is different for each country and can be successfully navigated and sustained only through nationwide social dialogue between workers, employers and governments. Many young people are passionate both about environmental issues and their work, and it is essential to enhance their participation in decision-making, including decisions on national plans for just transitions, and to strengthen their capacity through intergenerational partnerships and dialogue.

References for the introduction to Part II and for Chapter 2

Adger, W. Neil, Juan M. Pulhin, Jon Barnett, Geoffrey D. Dabelko, Grete K. Hovelsrud, Marc Levy, Úrsula Oswald Spring, and Coleen H. Vogel. 2014. "Human Security". In *Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*, edited by Christopher B. Field, Vicente R. Barros, David Jon Dokken, Katharine J. Mach, Michael D. Mastrandrea, T. Eren Bilir, Monalisa Chatterjee, Kristie L. Ebi, Yuka Otsuki Estrada, Robert C. Genova, et al., 755–791. Cambridge, United Kingdom, and New York: Cambridge University Press.

Arulingam, Indika, Likimyelesh Nigussie, Sonali Senaratna Sellamuttu, and Liza Debevec. 2019. *Youth Participation in Small-Scale Fisheries, Aquaculture and Value Chains in Africa and the Asia-Pacific*. Consultative Group on International Agricultural Research (CGIAR) Research Program on Fish Agri-Food Systems.

Bárcia de Mattos, Fernanda, and Sukti Dasgupta. 2017. "MGNREGA, Paid Work and Women's Empowerment", ILO Employment Policy Department Working Paper No. 230.

Bardford, Anna, Rachel Proefke, Anthony Mugeere, and Barbara Stocking. 2021. "Young People and Climate Change", The British Academy COP26 Briefings Series.

Black, Richard, Kate Cullen, Byron Fay, Thomas Hale, John Lang, Saba Mahmood, and Steve Smith. 2021. "Taking Stock: A Global Assessment of Net Zero Targets". Energy & Climate Intelligence Unit and Oxford Net Zero.

Bruce, Jessica, Ilya Cereso, and Thea Ridley-Castle. 2021. "Generation Stand Up, Start Up". The Prince's Trust Group.

Canada, Statistics Canada. 2019. "Portrait of Environmental and Clean Technology Jobs in Canada, 2017".

CFMCA (Coalition of Finance Ministers for Climate Action). 2020. "Better Recovery, Better World: Resetting Climate Action in the Aftermath of the COVID-19 Pandemic".

Climate Watch. n.d. "Historical GHG Emissions". https://www.climatewatchdata.org/ghg-emissions?end_year=2018&start_year=1990.

CTCN (Climate Technology Centre and Network). 2019. "CTCN Technology Taxonomy".

Deloitte. 2021. "A Call for Accountability and Action: The Deloitte Global 2021 Millennial and Gen Z Survey".

Diao, Xinshen, Mia Ellis, Margaret S. McMillan, and Dani Rodrik. 2021. "Africa's Manufacturing Puzzle: Evidence from Tanzanian and Ethiopian Firms", National Bureau of Economic Research Working Paper No. 28344.

Eurostat. n.d. "Environmental Economy: Statistics on Employment and Growth". https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Environmental_economy_%E2%80%93_statistics_on_employment_and_growth&oldid=549001#Employment_by_environmental_domain.

FAO (Food and Agriculture Organization of the United Nations). 2021. *Fishery and Aquaculture Statistics 2019*.

———. n.d. "Aquaculture". https://www.fao.org/fishery/en/aquaculture/en.

Georgeson, Lucien, and Mark Maslin. 2019. "Estimating the Scale of the US Green Economy within the Global Context". *Palgrave Communications* 5.

Georgeson, Lucien, Mark Maslin, and Martyn Poessinouw. "The Global Green Economy: A Review of Concepts, Definitions, Measurement Methodologies and Their Interactions". *Geo* 4 (1):e00036.

Ghana, Ministry of Employment and Labour Relations. 2021. *National Green Jobs Strategy 2021–2025: Supporting Green Enterprises for Decent Job Creation*.

Greer, Krista, Dirk Zeller, Jessika Woroniak, Angie Coulter, Maeve Winchester, M.L. Deng Palomares, and Daniel Pauly. 2019. "Global Trends in Carbon Dioxide (CO_2) Emissions from Fuel Combustion in Marine Fisheries from 1950 to 2016". *Marine Policy* 107.

Hampton, Mark P., and Julia Jeyacheya. 2020. "Tourism-Dependent Small Islands, Inclusive Growth, and the Blue Economy". *One Earth* 2 (1): 8–10.

Hishamunda, Nathanael, Pedro Bueno, Ana Maria Menezes, Neil Ridler, Premachandra Wattage, and Elisabetta Martone. 2014. "Improving Governance of Aquaculture Employment: A Global Assessment", FAO Fisheries and Aquaculture Technical Paper No. 575.

ICLS (International Conference of Labour Statisticians). 2013. *Guidelines concerning a Statistical Definition of Employment in the Environmental Sector*, 19th ICLS, Geneva, 2–11 October 2013.

IEA (International Energy Agency). 2020. *World Energy Outlook 2020*.

———. 2021. *Net Zero by 2050: A Roadmap for the Global Energy Sector*.

———. 2022. *Global Energy Review: CO2 Emissions in 2021.*

ILO. 2013. "Evaluation of the Potential of Green Jobs in Mexico".

———. 2015. *Guidelines for a Just Transition towards Environmentally Sustainable Economies and Societies for All*.

———. 2016. *Non-Standard Employment around the World: Understanding Challenges, Shaping Prospects*.

———. 2017. *How to Measure and Model Social and Employment Outcomes of Climate and Sustainable Development Policies: Training Guidebook*.

———. 2018. *World Employment and Social Outlook 2018: Greening with Jobs*.

———. 2019a. "Global Youth Employment Forum 2019 – 'Today and Tomorrow with Decent Jobs for Youth' – Abuja, 1–3 August 2019: Activity Report".

———. 2019b. *Skills for a Greener Future: A Global View*.

———. 2020a. *Global Employment Trends for Youth 2020: Technology and the Future of Jobs.*

———. 2020b. "Republic of Korea: A Rapid Assessment of the Employment Impacts of COVID-19", ILO Policy Brief, November 2020.

———. 2020c. "COVID-19 and Maritime Shipping & Fishing", ILO Sectoral Brief, 17 April 2020.

———. 2021a. "The Future of Work in Aquaculture in the Context of the Rural Economy". Background document for Technical Meeting on the Future of Work in Aquaculture in the Context of the Rural Economy, Geneva, 13–17 December 2021.

———. 2021b. *Nigeria Green Jobs Assessment Report: Measuring the Socioeconomic Impacts of Climate Policies to Guide NDC Enhancement and a Just Transition*.

———. 2021c. *Zimbabwe Green Jobs Assessment Report: Measuring the Socioeconomic Impacts of Climate Policies to Guide NDC Enhancement and a Just Transition*.

———. 2022. *Care at Work: Investing in Care Leave and Services for a More Gender Equal World of Work*.

ILO and WWF (World Wildlife Fund). 2020. *Nature Hires: How Nature-Based Solutions can Power a Green Jobs Recovery*.

IMF (International Monetary Fund). 2020. *Fiscal Monitor: Policies for the Recovery*.

IPCC (Intergovernmental Panel on Climate Change). 2019. *Climate Change and Land: An IPCC Special Report on Climate Change, Desertification, Land Degradation, Sustainable Land Management, Food Security, and Greenhouse Gas Fluxes in Terrestrial Ecosystems* [edited by Priyadarshi R. Shukla, Jim Skea, Eduardo Calvo Buendia, Valérie Masson-Delmotte, Hans-Otto Pörtner, Debra C. Roberts, Panmao Zhai, Raphael Slade, Sarah Connors, Renée van Diemen, et al.]. Cambridge University Press (in press).

———. 2021. *Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* [edited by Valérie Masson-Delmotte, Panmao Zhai, Anna Pirani, Sarah L. Connors, Clotilde Péan, Sophie Berger, Nada Caud, Yang Chen, Leah Goldfarb, Melissa I. Gomis, et al.]. Cambridge , United Kingdom, and New York, NY: Cambridge University Press.

———. 2022. "Summary for Policymakers". In *Climate Change 2022: Impacts, Adaptation, and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*, edited by Hans-Otto Pörtner, Debra C. Roberts, Melinda M.B. Tignor, Elvira Poloczanska, Katja Mintenbeck, Andrés Alegría, Marlies Craig, Stefanie Langsdorf, Sina Löschke, Vincent Möller, et al. Cambridge University Press (in press).

IRENA (International Renewable Energy Agency). 2019. *Renewable Energy: A Gender Perspective*.

IRENA and ILO. 2021. *Renewable Energy and Jobs: Annual Review 2021*.

IUCN (International Union for Conservation of Nature). n.d. "Nature-Based Solutions". https://www.iucn.org/theme/nature-based-solutions.

Jaeger, Joel, Ginette Walls, Ella Clarke, Juan Carlos Altamirano, Arya Harsono, Helen Mountford, Sharan Burrow, Samantha Smith, and Alison Tate. 2021. "The Green Jobs Advantage: How Climate-Friendly Investments are Better Job Creators", World Resources Institute working paper, October 2021.

Kwauk, Christina, and Olivia Casey. 2021. *A New Green Learning Agenda: Approaches to Quality Education for Climate Action*. Brookings Institution.

Lehr, Ulrike, Rafik Missaoui, Andreas Bockermann, Sami Marrouki, Anke Mönnig, and Ghazi Ben Salem. 2018. *Green Jobs in Tunisia: Measuring Methods and Model Results*. ILO.

Lobsiger, Michael. Unpublished. "Jobs with Green Potential in Switzerland: Demand and Possible Skills Imbalances", 9 June 2020.

MacLeod, M., M.R. Hasan, D.H.F. Robb, and M. Mamun-Ur-Rashid. 2019. "Quantifying and Mitigating Greenhouse Gas Emissions from Global Aquaculture", FAO Fisheries and Aquaculture Technical Paper No. 626.

Moszoro, Marian. 2021. "The Direct Employment Impact of Public Investment", IMF Working Paper No. WP/21/131.

Muro, Mark, Adie Tomer, Ranjitha Shivaram, and Joseph Kane. 2019. *Advancing Inclusion through Clean Energy Jobs*. Brookings Institution.

Nahm, Jonas M., Scot M. Miller, and Johannes Urpelainen. 2022. "G20's US$14-Trillion Economic Stimulus Reneges on Emissions Pledges". *Nature* 603 (7899): 28–31.

Nebuloni, Valter, and Kees van der Ree. 2021. "Green Jobs and Green Futures for Youth". In *Is the Future Ready for Youth? Youth Employment Policies for Evolving Labour Markets*, edited by Juan Chacaltana and Sukti Dasgupta, 171–185. Geneva: ILO.

PAGE (Partnership for Action on Green Economy) and Cambridge Econometrics. 2021. *Modelling a Global Inclusive Green Economy COVID-19 Recovery Programme*.

Ravindranath, N.H., and Indu K. Murthy. 2021. "Mitigation Co-Benefits of Carbon Sequestration from MGNREGS in India". *PLoS ONE* 16 (5): e0251825.

Republic of Korea, Ministry of Economy and Finance. 2021. "Government announces Korean New Deal 2.0, an Upgrade to Properly Reflect Changes." Press release, 14 July 2021.

Sala, Enric, Juan Mayorga, Darcy Bradley, Reniel B. Cabral, Trisha B. Atwood, Arnaud Auber, William Cheung, Christopher Costello, Francesco Ferretti, Alan M. Friedlander, et al. 2021. "Protecting the Global Ocean for Biodiversity, Food and Climate". *Nature* 592 (7854): 397–402.

Schleicher, Andreas. 2019. "PISA 2018: Insights and Interpretations". Organisation for Economic Co-operation and Development.

Steffen, Will, Wendy Broadgate, Lisa Deutsch, Owen Gaffney, and Cornelia Ludwig. 2015. "The Trajectory of the Anthropocene: The Great Acceleration". *The Anthropocene Review* 2 (1): 81–98.

Strietska-Ilina, Olga, Christine Hofmann, Mercedes Durán Haro, and Shinyoung Jeon. 2011. *Skills for Green Jobs: A Global View – Synthesis Report Based on 21 Country Studies*. ILO.

Sultan, Riad, and Marek Harsdorff. 2014. *Green Jobs Assessment: Mauritius*. ILO.

Thiery, Wim, Stefan Lange, Joeri Rogelj, Carl-Friedrich Schleussner, Lukas Gudmundsson, Sonia I. Seneviratne, Marina Andrijevic, Katja Frieler, Kerry Emanuel, Tobias Geiger, et al. 2021. "Intergenerational Inequities in Exposure to Climate Extremes". *Science* 374 (6564): 158–160.

UN (United Nations). 2012. General Assembly resolution 66/288, The future we want. A/RES/66/288.

UNDP (United Nations Development Programme) and University of Oxford. 2021. *Peoples' Climate Vote: Results*.

UNEP (United Nations Environment Programme). 2011. *Towards a Green Economy: Pathways to Sustainable Development and Poverty Eradication – A Synthesis for Policy Makers*.

———. 2014. "Blue Economy Concept Paper".

———. 2021. "How Can COVID-19 Recovery Spending Slow Climate Change?".

UNESCO (United Nations Educational, Scientific and Cultural Organization) and UNICEF (United Nations Children's Fund). 2021. "Environmental Knowledge for Youth Can Help Viet Nam Accelerate Its Green Actions for the Economy, People and Environment", UNESCO and UNICEF Policy Brief No. 5.

UNFCCC Secretariat (Secretariat of the United Nations Framework Convention on Climate Change). 2021. "Nationally Determined Contributions under the Paris Agreement: Revised Synthesis Report by the Secretariat". FCCC/PA/CMA/2021/8/Rev.1

World Bank. 2022. *Global Economic Prospects, January 2022*.

World Bank and UNDESA (United Nations Department of Economic and Social Affairs). 2017. *The Potential of the Blue Economy: Increasing Long-Term Benefits of the Sustainable Use of Marine Resources for Small Island Developing States and Coastal Least Developed Countries*.

WTTC (World Travel and Tourism Council). 2019. *Travel & Tourism: Generating Jobs for Youth*.

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3

The digital and creative economies

▶ Chapter 3. The digital and creative economies

3.1 Introduction

Increasing digitalization of the economy and society is profoundly affecting the world of work, and the trend is expected to continue and even accelerate in the years to come. The digital economy has considerable potential to promote the employment of young people, but much is required in the policy arena to transform this potential into actual decent work opportunities.

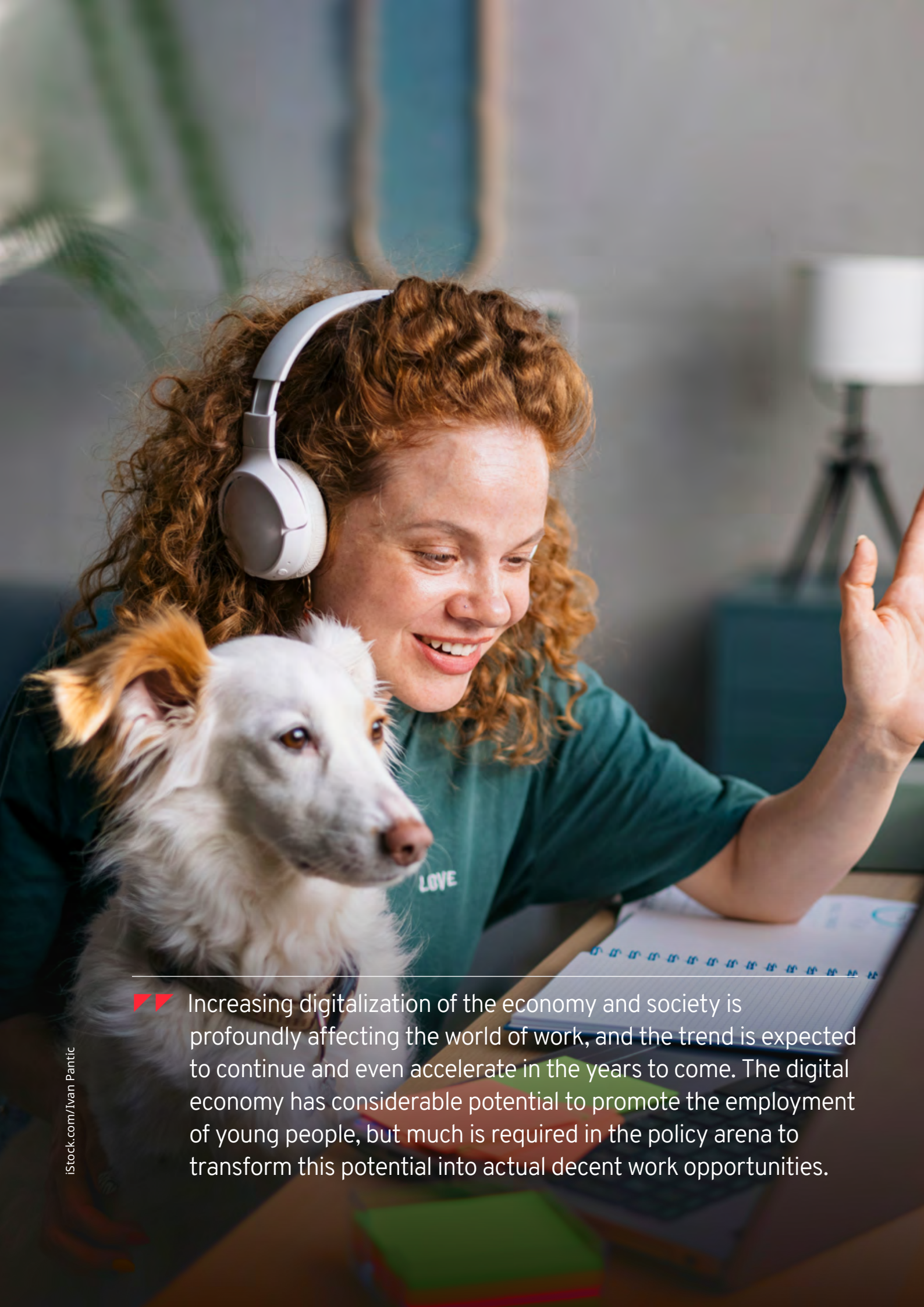
The digital, or "platinum", economy has been defined in numerous ways, but it is generally agreed that the term refers to economic activities using the internet as a platform and digital information and knowledge as key inputs in the production, marketing and distribution of goods and services (ILO 2019). One of the distinguishing features of the digital economy has been the exponential growth in machine-readable information, or digital data, over the internet. Such data are key to all fast-emerging digital technologies, including data analytics, artificial intelligence, blockchain, the "internet of things", cloud computing and, indeed, all internet-based services. Digital data have accordingly become a fundamental economic resource. *C*onsequently, digitalization has the potential to transform large areas of the world of work and affect occupations at every skill level. The digitalization of production processes is pervasive. It is not limited to one or two highly technological sectors and the approach adopted in this chapter recognizes this by identifying the intensity of digitalization in specific sectors, rather than presenting a dichotomous division between digital and non-digital sectors. Hence, the digital economy in this chapter is defined as comprising not only the ICT sector but all economic activities that use or are enabled by digital technologies.

Digitalization can enhance productivity (ITU 2020), income and social well-being, but like other disruptive technological transformations throughout history, it entails risks as well as opportunities. While it can create jobs in new markets and increase employment in some existing occupations, it also exposes some workers to the risk of unemployment or lower wages, as digital technologies enable the production of more goods and services with less labour. Digitalization also transforms tasks within occupations, which can have various impacts on skills needs for specific jobs. Both the shifting distribution of jobs and the transformation of tasks within occupations have major implications for skills requirements and the working conditions faced by workers in some sectors.

The COVID-19 crisis accelerated pre-existing trends towards greater digitalization of production and employment, as more and more people continued, to the extent possible, to pursue many of their activities via online channels – for example, working, studying, communicating, selling and buying, or in entertainment. To ensure that everyone can reap the benefits of the adoption of digital technologies, governments, businesses, trade unions and researchers need to address the ensuing new economic and labour market challenges.

This chapter also discusses the creative, or "orange", economy which refers to sectors of the economy involved in the "production or reproduction, promotion, distribution or commercialization of goods, services and activities of a cultural, artistic or heritage-related nature" (Ernst & Young 2015, 11).[1] Creative and cultural industries are increasingly linked to the internet, where barriers of creation and distribution between producers and consumers have been diluted. Indeed, an increasing number of young people around the world participate in, and contribute to, the digitally networked environment in many forms, ranging from creative expression on social media to interactive gaming and musical and artistic collaboration. This, too, was reflected in the significant impact of the COVID-19 crisis on the creative economy, which caused a reduction of live performances on the one hand, and led to a greater emphasis on digitalization on the other – something that is likely to resonate long into the future (UNESCO 2021a).

[1] Similar definitions used by a variety of organizations are cited in World Bank (2020, 35).



Increasing digitalization of the economy and society is profoundly affecting the world of work, and the trend is expected to continue and even accelerate in the years to come. The digital economy has considerable potential to promote the employment of young people, but much is required in the policy arena to transform this potential into actual decent work opportunities.

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> Digitalization can enhance productivity, income and social well-being, but like other disruptive technological transformations throughout history, it entails risks as well as opportunities.

This chapter explores the world of work for young people through the lens of the platinum and orange economies and seeks to generate a preliminary understanding of key employment trends and job characteristics in both. To that end, the ILO has developed the Digital and Creative (DC) micro-database – a unique data set based on labour force surveys from 28 countries at different stages of economic development across three years (2013, 2018 and 2020).[2] By adopting taxonomies to identify workers operating in digital and creative workplaces, the analysis highlights key employment features of both economies and contrasts them with those of other segments of the labour market.

The digital and creative economies are both cross-cutting elements of the 2030 Agenda for Sustainable Development. The digital economy is expected to contribute significantly to the achievement of every SDG. Goal 8, for instance, emphasizes that technology creates new jobs, enables resilient work and commerce, and stimulates broader social and economic development. The orange economy, meanwhile, is considered to be a powerful force for supporting entrepreneurship, stimulating innovation and empowering people, including young women and men, while preserving and promoting cultural heritage and diversity. Creativity and culture are explicitly or implicitly covered by SDGs 8, 9, 11, 12 and 17. These aspirations were recently reaffirmed when the United Nations declared 2021 the International Year of Creative Economy for Sustainable Development.

This chapter provides an overview of youth employment trends and job characteristics in the digital (sections 3.2–3.4) and creative economies (sections 3.5–3.7), respectively. In both cases, a key issue underlying the discussion and analysis is the extent to which these economies have the potential to create high-quality job opportunities for all young people, not just those who are fortunate enough to have tertiary educational qualifications and/or live in urban areas. To establish whether the opportunities created are inclusive or exclusive, these sections consider both their effects on indicators of job quality and the way in which these opportunities are distributed among young people, depending on sex, geographical location and educational attainment. The chapter concludes with a summary of the key findings and discusses some of their implications for policymakers seeking to increase the inclusivity of youth employment in these economies.

3.2 The digital economy and young people

3.2.1 What is digital employment?

There is no universally accepted definition of digital employment. Digital jobs are sometimes taken to mean those supported by digital platforms, and sometimes those concerned with economic activities directly associated with the production and distribution of ICT-related products. The approach taken here is broader: this chapter is concerned with the potential of digitalization to promote good jobs for young people. The digital transformation has affected most jobs to some extent, albeit with varying requirements in terms of digital infrastructure and skills. Digital employment refers here to activities which are supported by ICTs in the workplace and is regarded as a continuum, rather than as a digital versus non-digital dichotomy.

[2] See Appendix F for more details of the database.

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This chapter uses the concept of the "digital intensity" of industries, which captures the extent to which economic sectors have "gone digital", in order to investigate digital youth employment trends and job characteristics for a range of countries over the period 2013–20. While the impact of digitalization on work of all types is recognized, "digital employment" is broadly understood here to comprise jobs in sectors characterized by high digital intensity (HDI). This is of course a simplification, but one which facilitates discussion of the key issues involved (see box 3.1 for a more precise definition of digital employment). It also has a more direct bearing on the impact of digital technologies on production and employment across sectors.

▶ Box 3.1 Definition of digital employment

For the purposes of this report, digital employment is captured using the OECD's index of digital intensity of economic activity. This allows sectors (at the two-digit level in ISIC Rev.4) to be categorized as having a low (LDI), medium (MDI) or high digital intensity (HDI).[1] The criteria used to measure digital intensity cover various aspects, including:

- ICT investment;
- purchases of ICT intermediates;
- robot use;
- employment of ICT specialists; and
- online sales.

The index and the three levels of digital intensity derived from it serve as a practical approximation for the extent to which different areas of the economy are "going digital" (otherwise a rather nebulous and variable concept).

The correspondence between two-digit ISIC categories and the broad industrial sectors identified in this chapter (table 3.1) illustrates the more inclusive nature of this approach to "digital employment".

▶ Table 3.1 Correspondence between digital intensity categories and ISIC Rev.4 sectoral categories

Sectoral group	ISIC Rev.4 sectors	Sectors at the ISIC Rev.4 two-digit level, grouped by digital intensity		
		High	Medium	Low
Agriculture	A	–	–	01–03
Industry	B, C, D, E, F	29–30	13–28, 31–33	05–12, 35–39, 41–43
Trade, transport and accommodation	G, H, I	–	45–47	49–56
Communications, financial and professional services	J, K, L, M, N	61–66, 69–82	58–60	68
Care services	P, Q	–	85–88	–
Other non-market services	O, R, S	94–96	84, 90–93	–

Note: The table excludes sectors T, U and X, which have no digital intensity classification in the taxonomy. A full list of ISIC sectors can be found in UN (2008).

▶ **Box 3.1** ***(cont'd)***

An important feature of digital employment which will be returned to is that, despite its broad nature, HDI sectors are typically associated with higher productivity and correspondingly higher wages than MDI and LDI sectors. For example, in the sample of countries studied for this report, sector K (financial and insurance activities), a fully HDI sector, boasts average monthly wages that are over 40 per cent higher than the mean for these economies as a whole. Conversely, remuneration in sector A (agriculture), which is fully LDI, is around 40 per cent lower than the average.[2] More generally, average wages within HDI sectors as a whole are significantly higher than those in MDI sectors, which are in turn higher than wages in LDI sectors. At the same time, there are significant differences between very digitally intensive sectors. The wage gains arising from employment in "other non-market services", for example, are more modest than in financial and insurance activities.

[1] The original classification has four categories, distinguishing between lower- and upper-medium digital intensity. These two categories have been combined here into a single MDI category.

[2] ILO calculations based on average wage data reported in the ILOSTAT database, https://ilostat.ilo.org/topics/wages/.

Source: Calvino et al. (2018).

3.2.2 Trends and characteristics of digital employment for young people

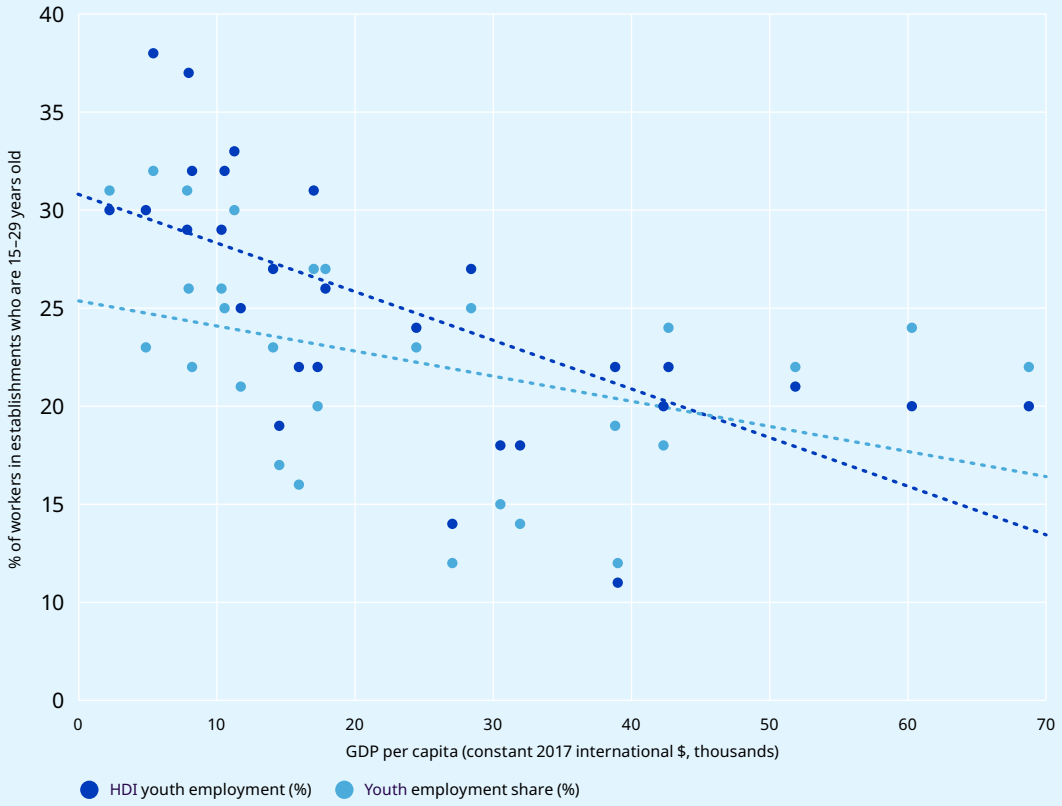
In the sample of 28 countries included in the ILO's Digital and Creative micro-database,[3] 16 per cent of all employment is found in HDI sectors. Employment in these sectors is growing steadily, although, somewhat surprisingly perhaps, young people (aged 15–29 years) are on average no more likely than adults (aged 30+ years) to be employed in HDI sectors (table 3.2).[4] On the other hand, the employment of young people in these sectors is growing slightly faster than that of adults. Between 2013 and 2020, for instance, youth employment in HDI sectors grew by 1.8 percentage points, compared with 1.5 percentage points for adults.

In terms of country income groups, HDI employment among young people is significantly higher in high-income countries than in low- and middle-income countries, accounting for, respectively, 20.8 per cent and 12.8 per cent of youth employment in 2020 in the sample (table 3.2). Moreover, while young people comprise roughly the same share of workers of all ages in HDI sectors as they do in the economy as a whole – around one in four, or 25 per cent, in the countries covered – they do tend to account for a significantly higher proportion of digital employment in lower-income countries (figure 3.1). In other words, as a country's income level increases, the digital economy expands, but at the same time, the share of young workers in digital employment within countries tends to fall (figure 3.1; dark blue dotted line). This relationship can partly be attributed to differences in the age structure of labour markets across countries at different stages of development, with lower labour force participation rates and a smaller relative size of youth population cohorts being the norm in high-income countries. This tendency is reflected in the light blue trend line in figure 3.1, which shows how the share of young people in employment tends to fall as country income increases. However, the fact that the dark blue trend line is more steeply sloped than the light blue line indicates that digital youth employment falls faster with country income than does young people's share in employment. Thus, the distribution of digital youth

[3] The database includes microdata from 11 high-income and 17 low- and middle-income countries and territories: Austria, Bolivia (Plurinational State of), Bosnia and Herzegovina, Brazil, Colombia, Cyprus, Dominican Republic, Ecuador, France, Greece, Italy, Mali, Mexico, Mongolia, Myanmar, North Macedonia, Occupied Palestinian Territory, Peru, Philippines, Portugal, Seychelles, Slovakia, Switzerland, Thailand, Türkiye, United Kingdom, United States, Viet Nam. See Appendix F for further details.

[4] In 2020, HDI employment accounted for 15.6 per cent of employment among young people and for 15.8 per cent among adults.

▶ Figure 3.1 Youth shares of digital employment and total employment against GDP per capita, 2020



Note: Youth refers to ages 15–29.

Source: ILO calculations based on the ILO Digital and Creative micro-database.

employment by country income level reflects more than just demographic and institutional trends. At lower country income levels, young people are relatively more likely to be working in HDI sectors than adults, even if one controls for the smaller relative size of the youth labour force in higher-income countries, which suggests that young people in developing and emerging countries are particularly well placed to take advantage of the opportunities opened up by the digital economy.

Women, particularly young women, are on the whole slightly more likely than men to be in digital employment, but their employment share in HDI sectors is growing at a slightly slower rate than that of men. For example, young women's HDI employment share increased from 16.1 per cent in 2013 to 17.5 per cent in 2020, while for young men it increased from 13.0 to 15.0 per cent over the same period. The moderate predominance of young women over young men in HDI sectors, however, is entirely driven by their greater involvement in HDI sectors in low- and middle-income countries. In high-income countries, young men account for a greater share of HDI employment than young women.

Digital employment is heavily concentrated in urban areas, especially in low- and middle-income countries. In the sample studied, HDI (18.8 per cent) and MDI (51.3 per cent) youth employment shares in urban centres in 2020 were 3 and 1.5 times higher, respectively, than the corresponding shares in rural areas. The majority of LDI jobs for young people (60.1 per cent) were concentrated in rural areas.

However, economic development plays an important role in creating digital job opportunities, especially in rural areas. HDI sectors account for less than 4 per cent of rural employment among young people in low- and middle-income countries, compared with over 14 per cent in high-income countries.

Broadly speaking, digital intensity increases as one moves from agriculture to industry, and from industry to services (figure 3.2). Agriculture is an entirely LDI sectoral group, as one would expect.[5] Trade and transport are a mixture of LDI and MDI, while non-market services are a mixture of HDI and MDI, with the care subgroup of services being entirely MDI. The broad "industry" group contains

▶ **Table 3.2 Employment shares in high, medium and low digital intensity sectors, by demographic characteristics and country income group, 2013, 2018 and 2020** (percentage)

A. High digital intensity

		2013–20 (All)	All			High-income countries			Low- and middle-income countries		
			2013	2018	2020	2013	2018	2020	2013	2018	2020
Age	15+		14.7	15.6	16.3	21.3	21.9	22.5	10.0	10.6	11.2
	15–29		14.3	15.4	16.1	19.7	20.3	20.8	11.4	12.3	12.8
	30+		14.9	15.6	16.4	21.8	22.4	23.0	9.5	10.0	10.7
Sex	Women (15–29)		16.1	16.8	17.5	19.5	19.6	20.4	13.9	14.8	15.0
	Men (15–29)		13.0	14.4	15.0	19.8	21.0	21.1	9.8	10.7	11.3
Geography	Urban (15–29)		18.1	18.4	18.8	23.3	23.7	24.4	14.2	14.2	14.5
	Rural (15–29)		5.5	5.8	6.0	14.2	14.8	14.6	3.5	3.8	3.9

B. Medium digital intensity

		2013–20 (All)	All			High-income countries			Low- and middle-income countries		
			2013	2018	2020	2013	2018	2020	2013	2018	2020
Age	15+		46.3	47.4	48.4	53.0	52.1	52.2	41.5	43.8	45.3
	15–29		45.7	47.7	49.0	51.1	50.6	50.8	42.8	45.9	47.7
	30+		46.4	47.4	48.3	53.5	52.5	52.5	41.0	43.1	44.5
Sex	Women (15–29)		54.4	56.7	57.5	58.3	57.9	58.4	51.9	55.7	56.8
	Men (15–29)		39.4	41.1	42.6	44.6	44.0	43.9	36.9	39.6	41.8
Geography	Urban (15–29)		52.1	51.4	51.3	51.9	51.1	51.0	52.3	51.7	51.6
	Rural (15–29)		29.4	32.3	33.9	54.4	53.6	53.9	23.5	27.4	29.1

(continued overleaf)

[5] This does not mean, of course, that digital technology is absent from agriculture, just that it is less pervasive. It is worth emphasizing that there is also considerable scope for agricultural incomes and productivity to be raised through digitalization.

▶ **Table 3.2** ***(cont'd)***

C. Low digital intensity

		2013–20 (All)	All			High-income countries			Low- and middle-income countries		
			2013	2018	2020	2013	2018	2020	2013	2018	2020
Age	15+		39.0	37.0	35.2	25.7	26.0	25.3	48.4	45.5	43.5
	15–29		40.0	36.9	34.9	29.3	29.1	28.4	45.8	41.8	39.5
	30+		38.7	37.0	35.3	24.7	25.1	24.5	49.5	46.9	44.8
Sex	Women (15–29)		29.6	26.5	25.0	22.2	22.5	21.2	34.3	29.5	28.2
	Men (15–29)		47.7	44.5	42.4	35.5	35.1	35.0	53.3	49.7	46.9
Geography	Urban (15–29)		29.7	30.2	29.9	24.8	25.3	24.6	33.5	34.1	33.9
	Rural (15–29)		65.1	61.9	60.1	31.4	31.6	31.5	73.0	68.8	67.1

Source: ILO calculations based on the ILO Digital and Creative micro-database.

sectors of all digital intensities but is clearly dominated by MDI and LDI sectors. Employment in the "communications, financial and professional services" group, as discussed below,[6] is dominated by HDI sectors. However, digital (HDI) employment in "other non-market services" is more than twice as large as employment in the communications group, which is more commonly associated with the digital economy. This suggests that although "communications, financial and professional services" is the most digitally intensive group, "other non-market services" generates the largest number of digitally intensive jobs.[7] Of significance for what follows, it is worth noting here that the communications group, in addition to being the most digitally intensive, also boasts the highest average wages (box 3.1).

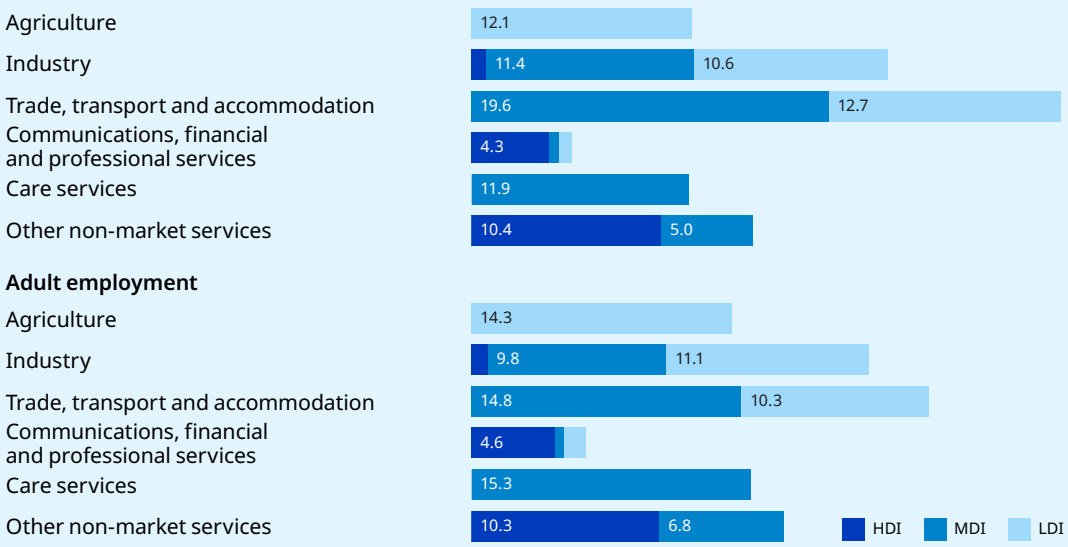
Economic activity and, consequently, the pattern of employment by digital intensity varies significantly by age. A larger share of youth as opposed to adult employment in the communications group is HDI, while at the same time a smaller share of overall HDI youth employment is accounted for by that sectoral group. Similarly, the "other non-market services" group is more digitally intensive among young people, although it accounts for a smaller share of employment among the latter than among adults. More generally, as already noted in Chapter 1, young people are more concentrated in the trade group, which in part accounts for the greater impact of the COVID-19 crisis on youth as opposed to adult employment (ILO 2021a).

There are also notable differences in the distribution of employment across sector groupings when these are disaggregated by sex. In particular, a large share of female youth employment is concentrated in the care sector, reaching over 21 per cent in 2020, whereas the corresponding share is significantly smaller for young men (5 per cent). Conversely, young men (29 per cent) were nearly

[6] That is, ISIC Rev.4 sections J, K, L M and N. See UN (2008) for full details.

[7] As noted in box 3.1 above, "other non-market services" includes ISIC Rev.4 divisions 94–96: "activities of membership organizations", "repair of computers and personal and household goods" and "other personal service activities".

▶ Figure 3.2 Employment by ISIC (Rev.4) broad sector, digital intensity and age, 2020 (percentage)



Note: "Youth" refers to ages 15–29, "Adults" to ages 30+.

Source: ILO calculations based on the ILO Digital and Creative micro-database.

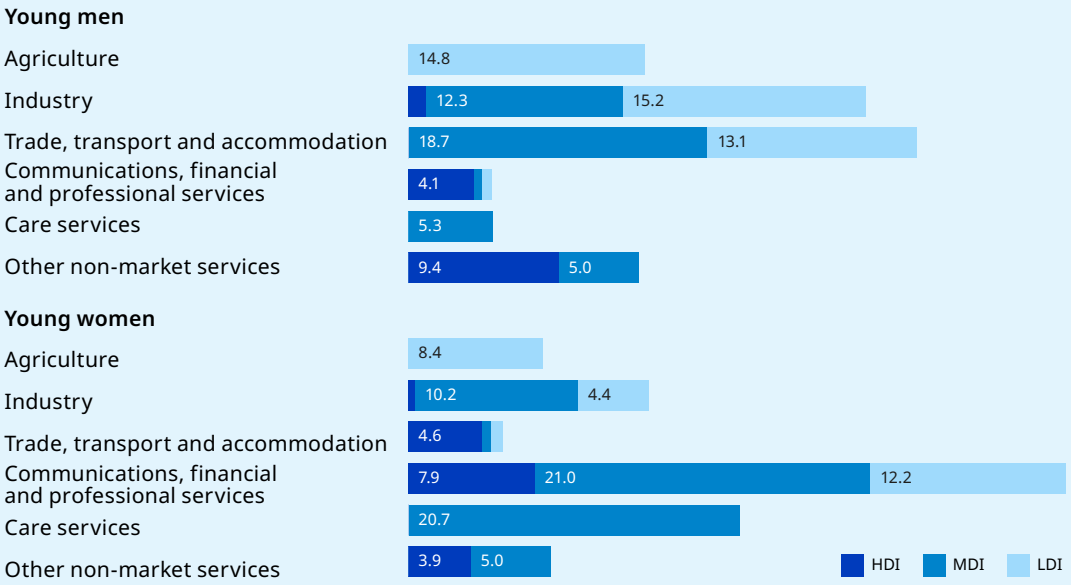
twice as likely as young women (15 per cent) to work in the industrial sector in 2020.[8] As regards digital employment, with the exception of the industry group, young women invariably have higher rates of HDI employment across all sectors than young men (figure 3.3).

The sectoral distribution and hence the digital intensity of young people's economic activity also varies markedly by country income level (figure 3.4). This, too, has implications for the digital economy's potential to generate employment for young people and for its quality. HDI employment among young people is more extensive in high-income countries and is also growing faster there than in developing and emerging economies (see table 3.2 above). In 2020, it accounted for over one fifth (20.8 per cent) of youth employment in advanced economies, up from 19.7 per cent in 2013, but for only one eighth (12.8 per cent, up from 11.4 per cent in 2013) in developing and emerging economies. Employment in agriculture, on the other hand, although falling fast, still accounts for nearly one fifth of youth employment among the low- and middle-income countries in the sample, but for less than 2 per cent in high-income countries.

Differences in the digital intensity of employment by country income level can be ascribed mainly to the large employment share of agriculture in low- and middle-income countries, and to the concomitant more extensive engagement of young workers in services in high-income countries – in particular, in the more digitally intensive communications and "other non-market services" sectoral groups.

[8] There has been a clear upward trend in the share of female workers engaged in the care sector – a trend that predates the COVID-19 pandemic but which continued throughout it. In the countries covered by the ILO Digital and Creative micro-database, female youth employment in the sector increased from 17.7 per cent in 2013 to 20.7 per cent in 2020. For a more detailed analysis, based on a larger sample of countries, see Chapter 4.

▶ Figure 3.3 Youth employment by ISIC (Rev.4) broad sector, digital intensity and sex, 2020 (percentage)



Note: "Youth" refers to ages 15–29.

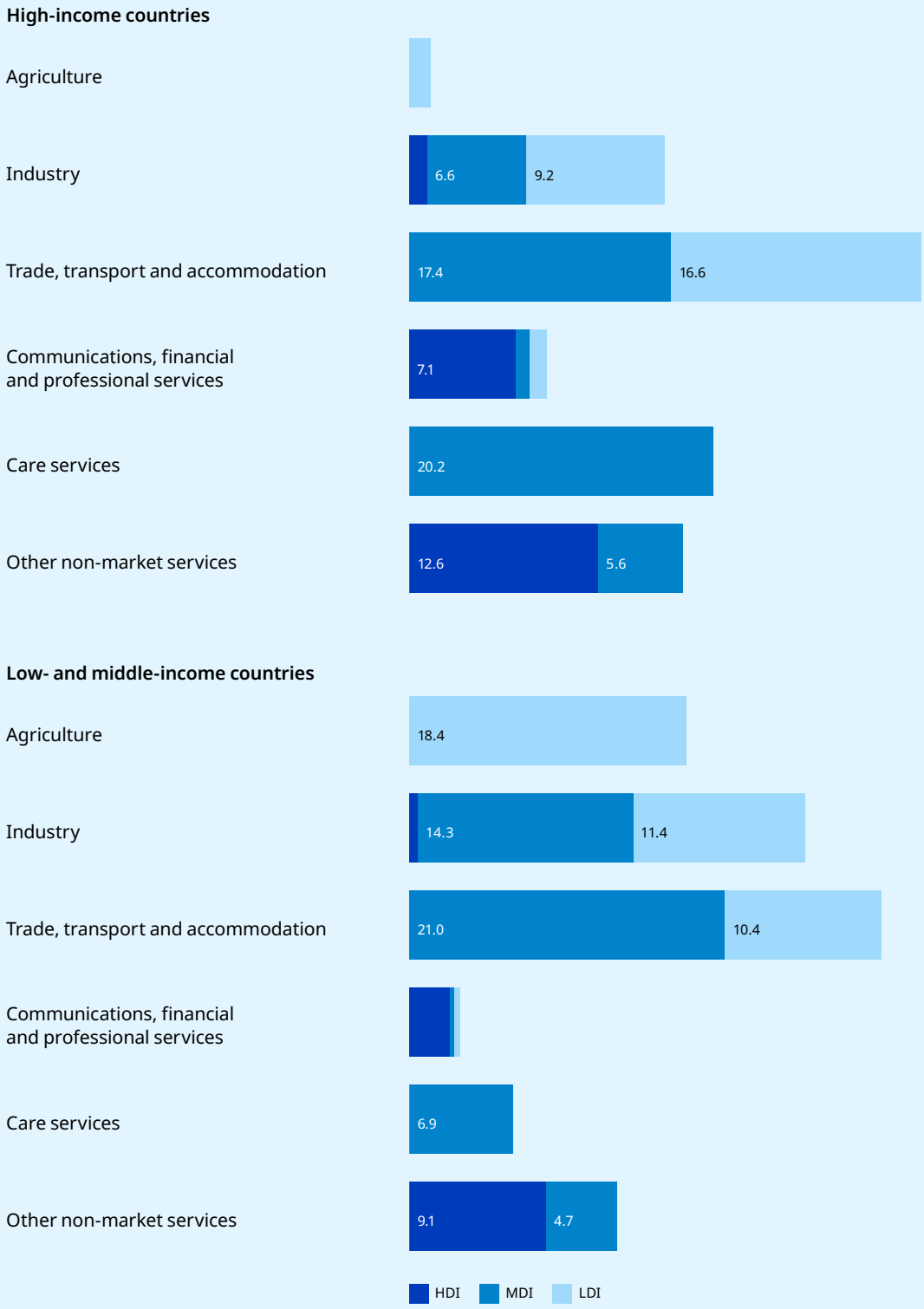
Source: ILO calculations based on the ILO Digital and Creative micro-database.

The divergence in digital youth employment between high-income countries on the one hand, and low- and middle-income countries on the other, is also reflected in differences in the distribution of young workers across the two main digital sectoral groups. Although youth engagement in HDI sectors is lower in low- and middle-income counties in both the communications and "other non-market services" groups, the relative gap is much larger in the higher-paying communications group, where the share of young workers is over twice as high as the corresponding share in low- and middle-income countries (7.1 per cent versus 2.7 per cent, respectively), while in the more modestly remunerated "other non-market services" group, the difference in shares is "only" one third (12.6 per cent versus 9.1 per cent).[9] Moreover, growth in HDI youth employment in high-income countries is accounted for largely by the rise of youth employment in the communications group, whereas in low- and middle-income countries such growth is driven by the expansion of "other non-market services".

In conclusion, age and gender differences, as well as variations in the distribution of economic activity by country income level, have important implications for understanding patterns in employment by digital intensity and for evaluating the potential of development of the digital economy to provide decent work for young people in the future.

[9] In the sample of countries studied for this report, occupational earnings in the "communications, financial and professional services" group are well above average earnings in the economy. Specifically, they are over 20 per cent above the average in ISIC Rev.4 section J ("information and communication") and over 40 per cent higher in section K ("financial and insurance activities"). On the other hand, earnings in the "other non-market services" group are either around 10 per cent higher than the average, as in the case of section M ("professional, scientific and technical activities"), or they are well below it: by nearly 20 per cent in section N ("administrative and support service activities") and by nearly 30 per cent in sector S ("other service activities").

Figure 3.4 Youth employment by ISIC (Rev.4) broad sector, digital intensity and country income level, 2020 (percentage)



Note: "Youth" refers to ages 15–29.

Source: ILO calculations based on the ILO Digital and Creative micro-database.

3.2.3 The digital economy and job characteristics

Youth employment in the digital economy is characterized by the relatively high proportion of skilled workers with concomitant high levels of education, as can be seen in figure 3.5, which reports the shares of young workers in HDI, MDI and LDI sectors who are high-skilled.[10] The COVID-19 crisis reinforced this trend, presumably because less skilled (young) workers were more likely to lose their jobs (ILO 2021b). Although the skill levels of young workers are rising as a whole, especially among young women, this is driven primarily by the rising skill levels of young workers in HDI sectors, and for young women also in MDI sectors. In 2020, nearly half of all young workers in HDI sectors were in high-skilled occupations; in the economy as a whole this was the case of only one in four young workers, while in LDI sectors it was fewer than one in ten.

> Youth employment in the digital economy is characterized by the relatively high proportion of skilled workers with concomitant high levels of education.

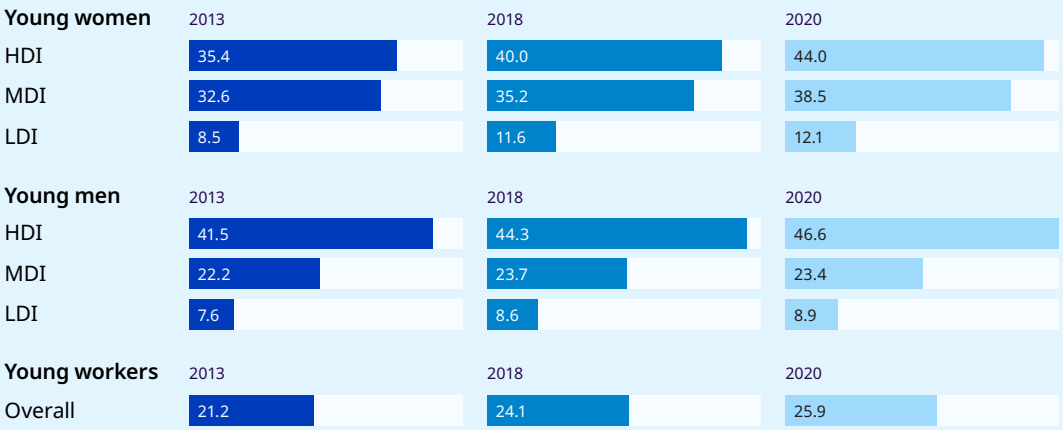
The trend towards more highly skilled young workers in the overall economy and, even more so, the trend towards ever greater concentration of skills in digitally intensive sectors are both clearly driven by what is happening in high-income countries (figure 3.6). In low- and middle-income countries, the share of high-skilled workers is much smaller at all levels of digital intensity. This gap is particularly pronounced in HDI sectors, where in 2020 there was a 24.6 percentage point gap (22.1 percentage points for young women and 26.8 percentage points for young men) between the share of high-skilled young workers in high-income countries and the corresponding share in low- and middle-income countries. In other words, not only are young "digital" workers more likely to be engaged in better-paying sectors in high-income countries, but they are also more likely to be employed in more highly skilled occupations within these sectors, which suggests a further divergence between advanced, developing and emerging economies with regard to job quality in HDI sectors.[11]

One significant challenge faced by young people nowadays is the lack of stability of the jobs available to them. In high-income countries, the share of permanent employment contracts among young workers is relatively high and broadly similar across sectors of differing digital intensities. However, whereas the share of young workers with permanent jobs has been falling over time in MDI and LDI sectors, it has been growing moderately in the more digitally intensive HDI sectors, namely from around 70 per cent in 2013 to around 73 per cent in 2020 (figure 3.7). In lower-income countries, the positive relationship between job stability and digital intensity is more marked than in high-income countries. Moreover, the trend towards permanent employment is also significantly stronger there than in richer countries, especially in HDI and MDI sectors. The lack of a permanent contract pervades the employment experience of young people working in LDI sectors in low- and middle-income countries, and a positive trend towards improvement is visible but relatively weak. This reflects the widespread informality which also characterizes the employment experience for the vast majority of young people in lower-income countries, and which is concentrated among the least skilled and least educated. Data on access to social protection, which is one of the defining features of formal employment, corroborate these observations. In low-and middle-income countries in the sample, around 65 per cent of young workers in HDI sectors had access to social security in 2020, compared with just 34 per cent in LDI sectors.

[10] High-skilled workers are defined as those who work in occupations at skill levels 3 or 4 as defined in the International Standard Classification of Occupations (ISCO) 2008, that is, managers, professionals or associate professionals. For more details, see the ILOSTAT web page on the ISCO classification, https://ilostat.ilo.org/resources/concepts-and-definitions/classification-occupation/.

[11] Although the higher wages in the "communications, financial and professional services" group reflect, inter alia, higher skill levels, this is obviously not the whole picture.

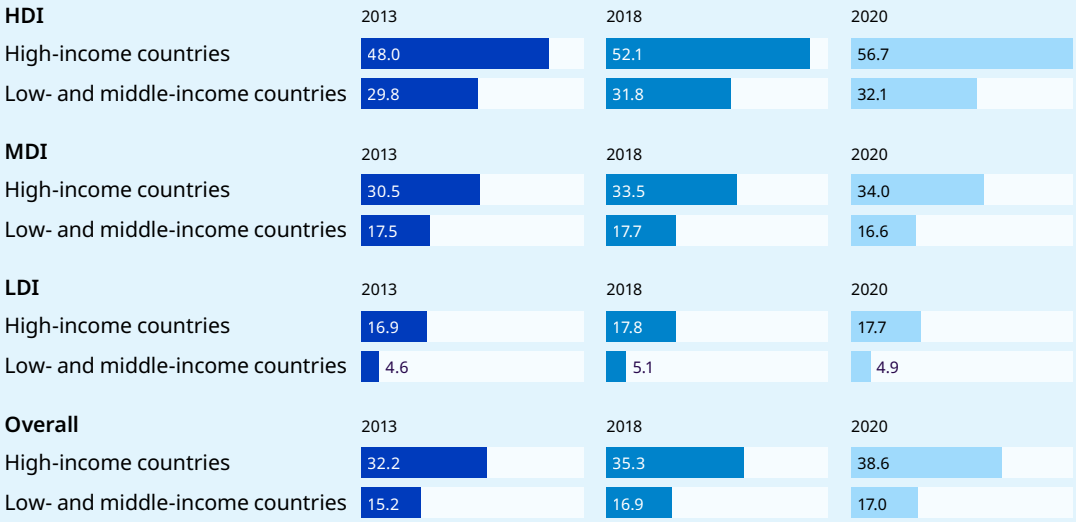
▶ Figure 3.5 Share of young workers in highly skilled occupations, by digital intensity and sex, 2013, 2018 and 2020 (percentage)



Note: Young workers are defined here as those aged 15–29 years.

Source: ILO calculations based on the ILO Digital and Creative micro-database.

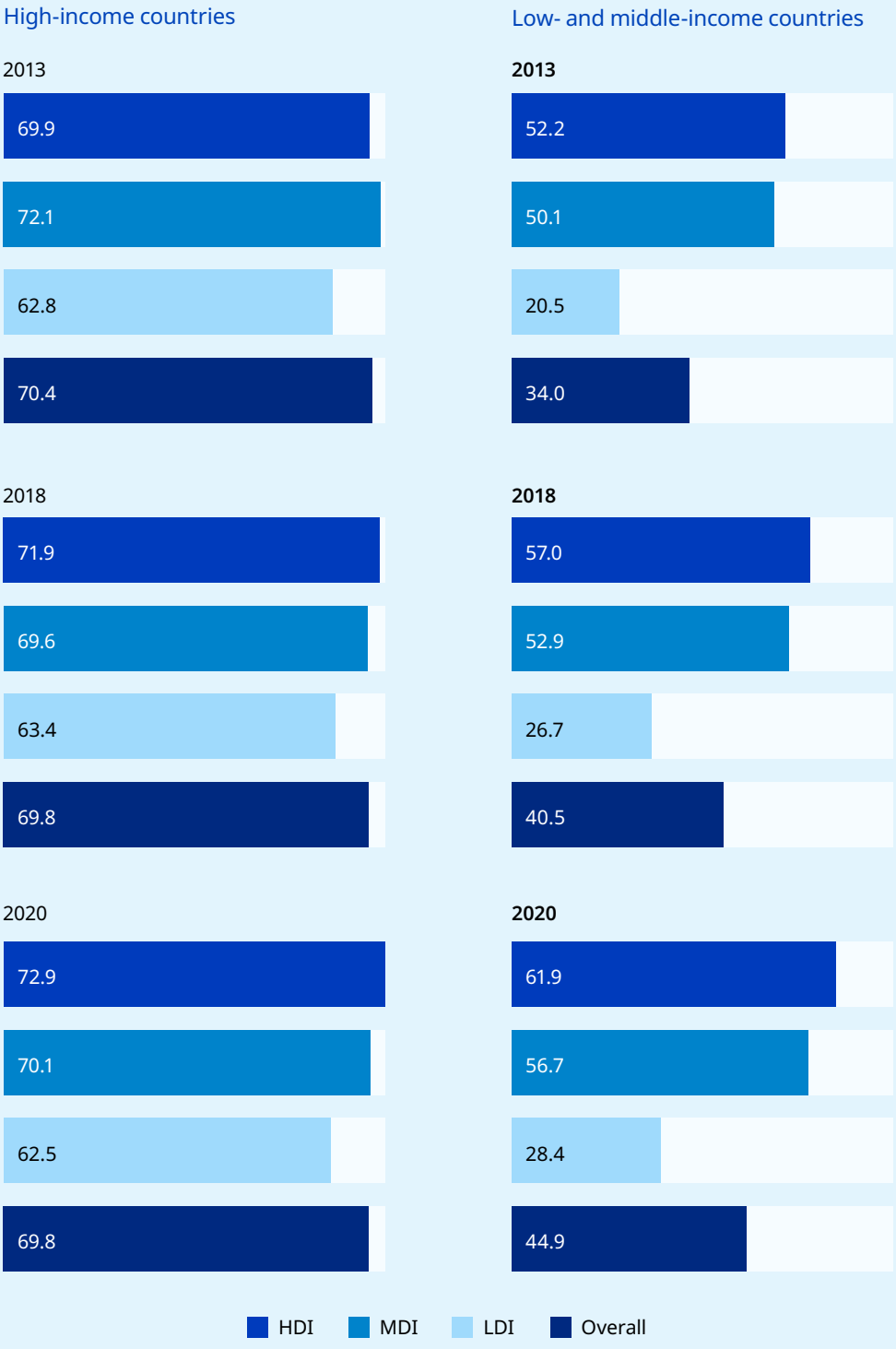
▶ Figure 3.6 Share of young workers in highly skilled occupations, by digital intensity and country income group, 2013, 2018 and 2020 (percentage)



Note: Young workers are defined here as those aged 15–29 years.

Source: ILO calculations based on the ILO Digital and Creative micro-database.

▶ **Figure 3.7 Share of young employees with permanent employment contracts, by digital intensity and country income group, 2013, 2018 and 2020** (percentage)



Note: Young employees are defined here as those aged 15–29 years.

Source: ILO calculations based on the ILO Digital and Creative micro-database.

Accordingly, the expansion of job opportunities in the digital economy, accompanied by efforts to raise educational attainment and skill levels, could well contribute to the formalization of employment among young people. This process could be supported further by more general structural adjustment policies. For example, formalization in Viet Nam has been driven by the expansion of formal job opportunities in more digitally intensive manufacturing and service sectors for more educated young workers (box 3.2; ILO 2021c).

An association can be observed between growth of the digital economy and the expansion of wage employment – as opposed to self-employment – in low- and middle-income countries (figure 3.8).[12] In high-income countries, self-employment is low and relatively stable across sectors with varying degrees of digital intensity, while in low- and middle-income countries, its prevalence is of course much higher but is falling over time. However, in low- and middle-income countries, although non-wage employment is clearly concentrated in LDI sectors, the prevalence of self-employment in HDI sectors, in contrast to MDI and LDI sectors, has been steadily increasing over time. This is because some forms of digital employment, such as platform-based employment, rely on workers who are predominantly self-employed. The specifics of gig and platform work will be discussed further down.

▶ Box 3.2 Employment formalization, educational attainment and young people in Viet Nam

Viet Nam has boasted an impressive growth record in recent decades, maintaining an annual growth rate of real GDP well above 6 per cent throughout the new millennium until the onset of the COVID-19 pandemic in 2020. Strong economic growth has led to an impressive reduction of working poverty and a significant decrease in the prevalence of informal employment in the country, especially among young people. In the new millennium, the share of workers living in extreme or moderate poverty – that is, those living on incomes below US$3.20 per day – has been reduced drastically, from 72.4 per cent in 2000 to just 7.1 per cent in 2019. Between 2013 and 2019 informal employment fell by 22 percentage points. In 2013, four in five (79.5 per cent) Vietnamese workers were informally employed; by 2019 this share had fallen to two in three (67.5 per cent) workers.

Economic growth and the transition to formality have been driven by structural transformation, which is attributable to reduced agricultural employment and an expansion of jobs in manufacturing and market service sectors. Reduced informal employment has mainly manifested itself in terms of less informality among young and prime-age workers (those aged under 45 years) and has been supported by rapidly rising levels of educational attainment in the younger Vietnamese cohorts. Better-educated young people not only are less likely to enter informal employment but also find it much easier to transition to formal employment if they do find themselves working in the informal economy.

Rising levels of educational attainment have played a fundamental role in supporting structural transformation and the concomitant formalization of employment in Viet Nam. However, a better-educated young workforce is not in itself enough to guarantee rising incomes and improved job quality, as the previous edition of *Global Employment Trends for Youth* (ILO 2020) illustrated. The creation of a sufficient number of jobs remains a prerequisite for more educated young cohorts to be able to obtain decent work.

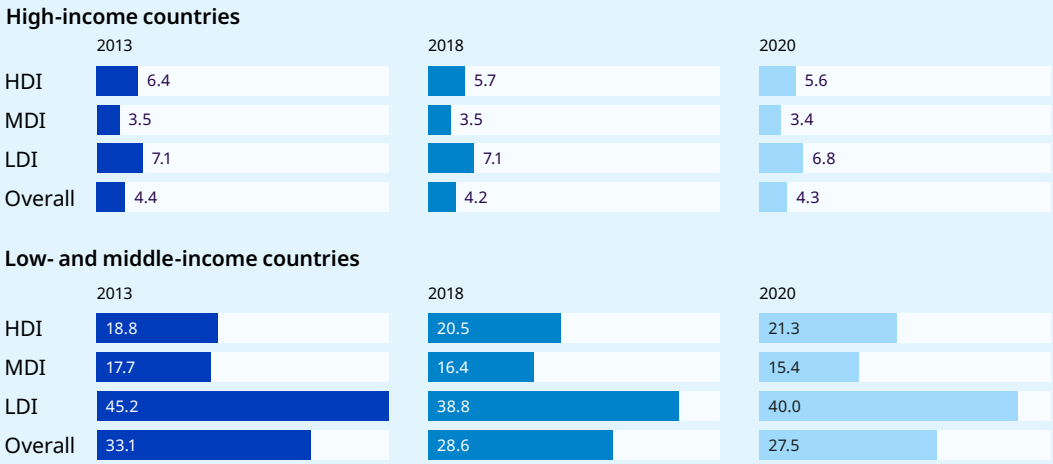
Source: ILO (2021c).

[12] The employed can be divided into two broad categories: employees and the self-employed. See the ILOSTAT web page on employment by status in employment, https://ilostat.ilo.org/resources/concepts-and-definitions/description-employment-by-status/. Employees (that is, people in paid or wage employment) represent the category of status in employment usually associated with more job security and better working conditions in general, whereas the majority of the self-employed (specifically, own-account workers and contributing family workers) constitute categories of employment status regarded as vulnerable employment (ILO 2018). The vast majority of young workers in self-employment fall into one of these two "vulnerable" categories (O'Higgins 2017).

> The expansion of job opportunities in the digital economy, accompanied by efforts to raise educational attainment and skill levels, could well contribute to the formalization of employment among young people.

iStock.com/Hispanolistic

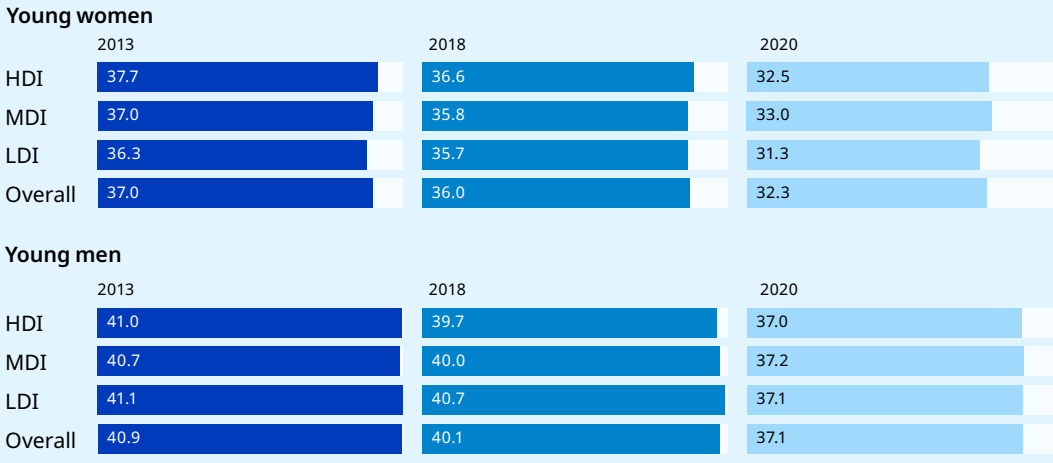
▶ Figure 3.8 Share of self-employment among young workers, by digital intensity and country income group, 2013, 2018 and-2020 (percentage)



Note: Young workers are defined here as those aged 15–29 years.

Source: ILO calculations based on the ILO Digital and Creative micro-database.

▶ Figure 3.9 Average weekly working hours of young workers, by digital intensity and sex, 2013, 2018 and 2020



Note: Young workers are defined here as those aged 15–29 years.

Source: ILO calculations based on the ILO Digital and Creative micro-database.

Young workers in HDI sectors work longer hours than their colleagues in less digitally intensive sectors (figure 3.9). Overall, young women work fewer hours than young men, and for both men and women working hours have been falling over time, especially during the COVID-19 crisis, which triggered a relatively steep fall in working hours. These trends can be observed in sectors at all levels of digital intensity.

3.2.4 The digital economy and educational attainment

In line with the relatively high-skilled nature of digital employment, the educational attainment levels of young workers in the digital economy are also relatively high (figure 3.10).[13]

The discussion above focused on the greater stability of jobs and the higher prevalence of wage employment in digital employment, especially in low- and middle-income countries. At the same time, it was observed that non-wage employment, though relatively low in HDI sectors, was growing quite rapidly in digitally intensive sectors in low- and middle-income countries. This begs the question of inequality within sectors of differing digital intensity and, in particular, whether the benefits of digital employment in terms of job quality apply to all those working in digitally intensive sectors. One way of addressing this is to consider the extent to which the positive characteristics of digitally intensive employment, such as a greater likelihood of permanent employment and/or wage jobs, are conditional on educational attainment. Are more stable jobs the preserve of the more highly educated within the digital economy, or do such beneficial features also extend to those with lower levels of educational attainment working in the digital economy? Moreover, how do job stability and wage employment depend on education in sectors of different digital intensity? Exploring these questions can shed light on whether digital employment has the potential to reduce or exacerbate education-based inequalities in youth labour markets.

A comparison of the distribution of job stability by education in the digital economy with the corresponding distribution for those working in LDI sectors yields a mixed picture, as can be seen in figure 3.11, which plots the "difference in the difference" in the prevalence of permanent employment by educational level (specifically for those with advanced education compared to those with basic education or below) in HDI versus LDI sectors at the country level. Put simply, positive observations (above the horizontal axis) imply less inequality in HDI sectors, or, more precisely, that there is a smaller difference in the likelihood of having a permanent contract in HDI and LDI sectors, respectively, between those with high levels of educational attainment and those with basic levels.[14]

Two significant findings emerge from the above exercise. First, there is a substantial degree of variation across countries, which, however, is most pronounced among lower-income countries and falls as country income increases. Second, the fact that the non-linear trend line has a positive slope suggests that as country income grows, inequalities in HDI sectors fall compared with those present in other sectors. In lower-income countries, HDI sectors are more unequal in that the benefits of digital employment are more concentrated among the better educated. In other words, in lower-income countries, the beneficial effects of the digital economy are more conditional on educational attainment, but as country income increases, digital employment is more inclusive in its impact on job stability.

A similar, albeit not identical, picture emerges from an examination of wage versus self-employment based on the same approach (figure 3.12). One difference here is that more of the observations are negative (below the horizontal axis), which means that, compared to figure 3.11, differences by educational attainment tend to be more pronounced in HDI sectors than in LDI sectors at all levels of country income. As before, though, the difference between digital and non-digital sectors tends to diminish with rising country income.[15]

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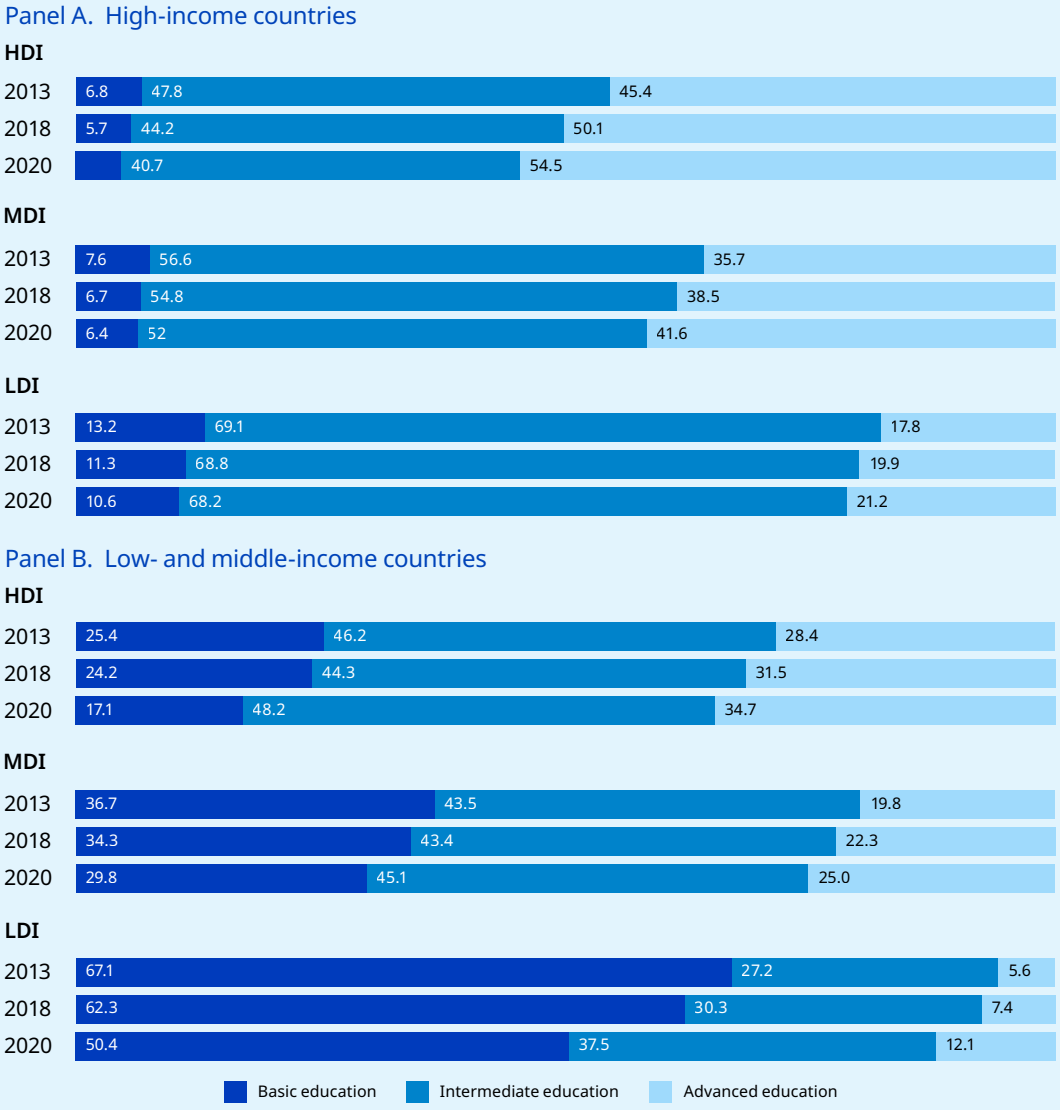
[13] Figure 3.10 subdivides educational attainment into "basic", "intermediate" and "advanced" following the standard distinctions used by the ILO. Specifically, basic education corresponds to levels 1 and 2 in the International Standard Classification of Education 2011 (ISCED-11); intermediate education corresponds to ISCED-11 levels 3 and 4; and advanced education corresponds to ISCED-11 levels 5–8. For more details, see the ILOSTAT web page on employment by education, https://ilostat.ilo.org/resources/concepts-and-definitions/description-employment-by-education/.

[14] Contractual job stability is, of course, only one of many indicators of job quality. It has the advantage of being widely available in labour force survey data and of being directly connected to other broad indicators such as informal employment.

[15] One might observe that, while the position of the trend line in figure 3.12 is influenced by the presence of the three obvious outliers, the slope is not – that is, there is a stable trend towards greater equality as country income grows. Removing the outliers means that the trend line shifts upwards, with little change in slope, making it more similar to the trend line in figure 3.11.

In lower-income countries, the beneficial effects of the digital economy are more conditional on educational attainment, but as country income increases, digital employment is more inclusive in its impact on job stability.

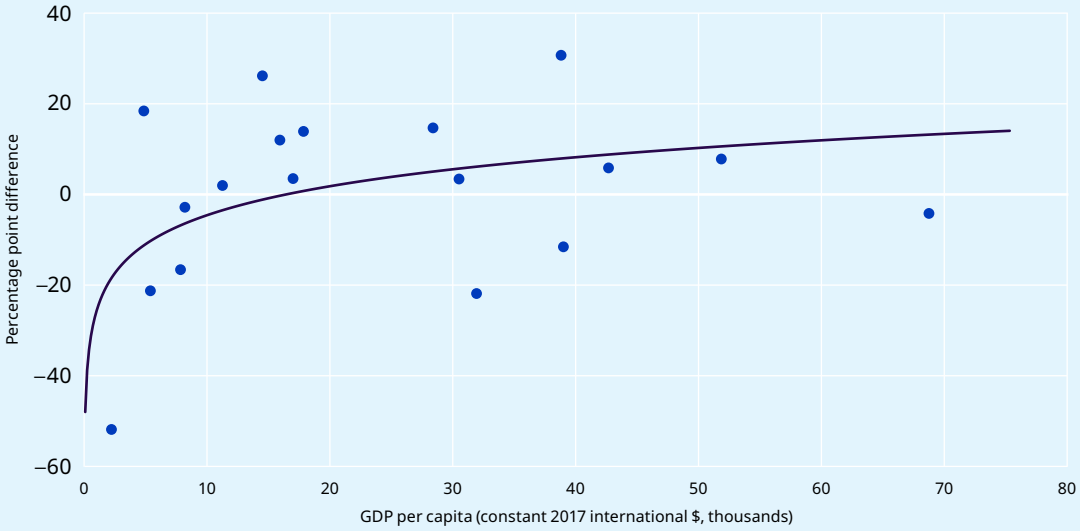
Figure 3.10 Educational attainment of young workers, by digital intensity and country income group, 2020 (percentage)



Note: Young workers are defined here as those aged 15–29 years.

Source: ILO calculations based on the ILO Digital and Creative micro-database.

▶ Figure 3.11 Intragroup differences in the prevalence of permanent contracts by level of education among employees in high and low digital intensity sectors against GDP per capita, 2020



Note: The horizontal axis shows GDP per capita, while the vertical axis represents the percentage point difference between: (a) the difference in prevalence of permanent contracts among those with advanced and basic educational attainment in HDI sectors; and (b) the corresponding difference for LDI sectors. Positive values indicate that inequality in the prevalence of permanent contracts is lower in HDI sectors than in LDI sectors, and vice versa for negative values. Young employees are defined here as those aged 15–29 years.

Source: ILO calculations based on the ILO Digital and Creative micro-database.

All in all, the picture emerging from an examination of inequalities within and between sectors is that the benefits of digital employment, in terms of greater job stability, and a higher prevalence of wage employment, tend to be conditional on educational attainment in lower-income countries. The policy implication of this finding is that, especially for lower-income countries seeking to expand job opportunities for young people in the digital economy, it is important to ensure that these opportunities drive inclusivity rather than education-based exclusivity. Some means to do that are discussed later in this chapter.

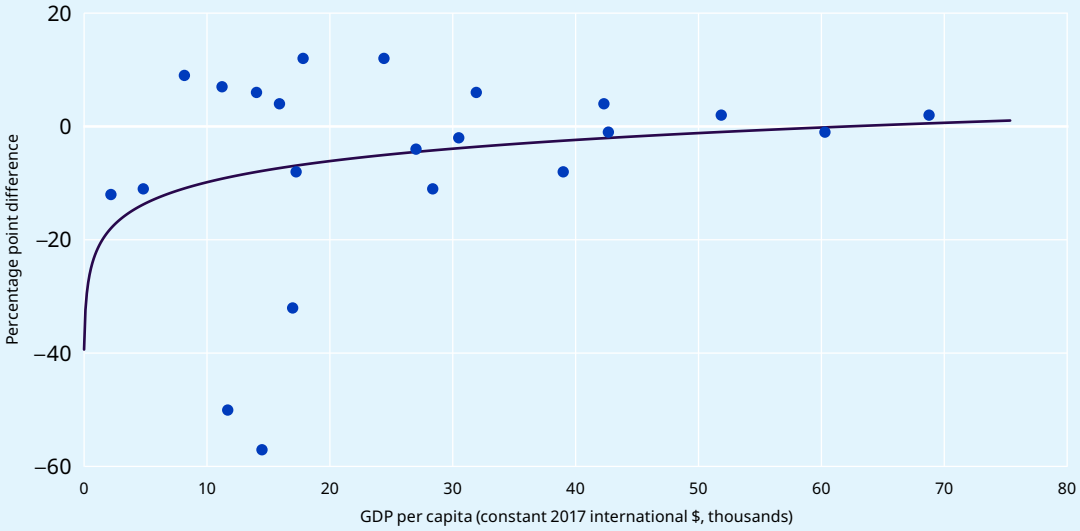
3.3 The digital economy: A pathway to more and better work for young people?

3.3.1 Potential for youth employment growth: Macro-econometric estimates

Creating job opportunities for young people in the digital economy calls for efforts on a number of fronts: the establishment of an enabling policy framework, the provision of affordable connectivity[16] and ensuring a sufficient supply of digital skills in the population, to name just three. Access to the

[16] An important, albeit not strictly necessary, condition for harnessing the full potential of digitalization is internet connectivity. The low rate of broadband internet penetration in developing countries – above all, but not exclusively, in rural areas – remains a major barrier to the adoption of digital technologies. The expansion of mobile broadband access is seen as a key factor driving digitalization in lower-income countries (ITU 2020).

▶ Figure 3.12 Intragroup differences in the prevalence of self-employment by level of education among young workers in high and low digital intensity sectors against GDP per capita 2020



Note: The horizontal axis shows GDP per capita, while the vertical axis represents the percentage point difference between (a) the difference in prevalence of self-employment among those with advanced and basic educational attainment in HDI sectors; and (b) the corresponding difference for LDI sectors. Positive values indicate that inequality in the prevalence of self-employment is lower in HDI sectors than in LDI sectors, and vice versa for negative values. The negative correlation between economic development and intragroup inequality in the prevalence of self-employment between workers with basic and advanced educational attainment also holds when the three outliers with vertical axis values of less than 30 percentage points have been removed. Young workers are defined here as those aged 15–29 years.

Source: ILO calculations based on the ILO Digital and Creative micro-database.

internet is a fundamental facilitator. To explore the digital economy's potential to provide jobs, as part of the simulations undertaken using the E3ME model described in the introduction to Part II, macro-econometric estimates of the employment effects over the period 2022–30 of extending universal (that is, 90 per cent and above) broadband coverage to all countries were undertaken for this report. The expansion of broadband is an important precondition for the expansion of employment in the digital economy. Increased digitalization will increase labour productivity and output; it will also lead to increased consumption driven by higher real incomes.

The simulations performed by Cambridge Econometrics for the ILO suggest that achieving universal broadband coverage could lead to a net increase in employment of 24 million new jobs worldwide over the next eight years (table 3.3). At first, these employment gains accrue primarily to Africa and Asia owing to the current relatively low internet connectivity in these regions, and hence the greater investment in infrastructure required to reach universal coverage. By 2030, the gains are expected to be more evenly spread and to extend to the Americas as well, largely as a result of employment expansion in Latin America as consumption effects start to be felt. The Europe and Central Asia region and the Arab States would experience the lowest employment gains – in the former case mainly because of the extensive internet connectivity that is already present,[17] in the latter because of the region's relatively small overall population.

[17] That being said, there is considerable cross-country disparity in Europe and Central Asia with regard to internet connectivity.

▶ Table 3.3 Employment effects of extending broadband coverage, world and by region and country income group, 2022–30 (thousands)

ILO region	2022	2025	2030
Africa	2 042	3 489	6 138
Americas	391	1 549	6 224
Arab States	140	458	869
Asia and the Pacific	3 170	4 658	8 853
Europe and Central Asia	123	178	681
World	**5 904**	**10 681**	**23 977**
High income	201	816	1 993
Upper middle income	886	2 611	8 656
Lower middle income	3 921	5 249	9 338
Low income	858	1 655	2 778

Note: See Appendix A for the classification of regions.

Source: E3ME model of Cambridge Econometrics.

Young people are expected to take 6.4 million of these 24 million new jobs (table 3.4). Initially the youth employment gains would be concentrated in construction and the ICT sector, but as the consumption effects spread, the largest employment impacts by 2030 would occur in the distribution and retail sectors.

Unfortunately, there is a strong gender disparity in the projected employment gains (table 3.5). This is based on the assumption of no change in the existing gender structure of employment in general and across sectors. In other words, the increase in employment is expected to occur mainly in sectors that currently predominantly employ men. Action could, therefore, clearly be taken to promote female youth employment in sectors benefiting from the expansion of internet connectivity, not least by enhancing the enrolment of girls and young women in STEM subjects at school and university (ILO and UNICEF 2018).

Overall, the projected employment effects of achieving universal broadband coverage appear rather modest compared with, for example, the much larger employment effects arising in the "care scenario" discussed in Chapter 4. However, these outcomes should be viewed in relation to the volume of the initial investment required to achieve them. The investment in connectivity in the model is below 0.1 per cent of GDP initially and tends to fall over time. In comparison, expenditure on expanding employment in the care sector is much more substantial, rising to well over 1 per cent of GDP during the period considered. Although the digital scenario takes no account of expenditures required to design and implement the enabling policy structure, to finance the expansion of the electricity supply, where necessary, or indeed, to pay for the costs of enhancing digital skills development, these projections are necessarily conservative with regard to the potential benefits of expanding internet connectivity. This is because of the uncertainty over the impact on production processes and supply chains arising from digitally linked technological development, which is proceeding at an ever-increasing speed and whose effects are inherently difficult to predict.

Investments in both internet access and care employment clearly produce positive economic returns. However, the (conservative) projected effects presented here suggest that the economic and employment benefits of the specific envisaged investments are a little under three times as high in the care economy scenario as they are in the corresponding simulation for broadband infrastructure development, whereas the costs are around 14 times higher. Although some caution is in order when interpreting these numerical projections, the simulations do suggest that the economic and employment benefits from investing in internet connectivity are likely to be substantial.

▶ Table 3.4 Employment effects of extending broadband coverage, by sector and age group, 2022–30 (thousands)

Sectors	2022		2025		2030	
	Youth (15–29)	Adult (30+)	Youth (15–29)	Adult (30+)	Youth (15–29)	Adult (30+)
Agriculture and forestry	129	343	345	983	427	1 458
Extractive industries	0	2	1	9	4	25
Manufacture of electronic and related products	156	347	168	398	227	568
Manufacture of chemicals, metallic, non-metallic and related products	53	117	81	202	215	485
Other manufacturing	54	136	145	406	481	1 269
Energy and utilities	0	1	2	6	5	19
Construction	782	1 905	633	1 562	597	1 542
Distribution, retail, hotels and catering	290	581	809	1 711	2 021	5 111
Transport and storage	91	243	221	608	493	1 374
Information and communication	189	326	212	393	383	743
Other services	32	124	213	765	965	2 962
Education	–15	–65	19	62	74	298
Health and social care	21	69	151	526	433	1 538
Public administration and defence	–1	–3	9	38	47	212
Whole economy	**1 780**	**4 126**	**3 008**	**7 670**	**6 372**	**17 605**

Source: E3ME model of Cambridge Econometrics.

▶ Table 3.5 Youth employment effects of extending broadband coverage, world and by region and sex, 2022–30 (thousands)

ILO region	2022		2030	
	Youth male	Youth female	Youth male	Youth female
Africa	510	170	1 256	761
Americas	98	28	922	685
Arab States	30	4	188	32
Asia and the Pacific	761	149	1 473	630
Europe and Central Asia	16	5	68	54
World	**1 421**	**359**	**4 094**	**2 278**

Note: See Appendix A for the classification of regions. "Youth" refers to ages 15–29.

Source: E3ME model of Cambridge Econometrics.

3.3.2 Young people and crowdwork

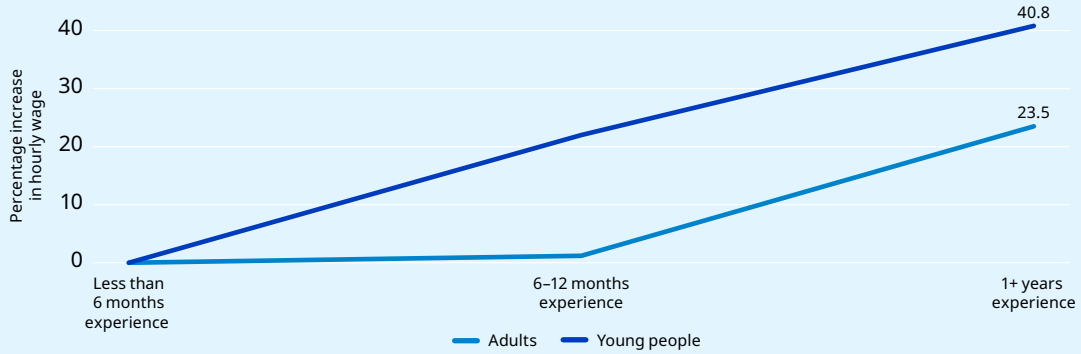
One area that has attracted a lot of attention in recent years is the availability of job opportunities for young people in the gig economy and, in particular, in platform-based or platform-facilitated work. The COVID-19 crisis accelerated an already rising trend: companies utilized the potential of a digital labour force and workers affected by curfews and lockdowns saw online crowdwork as an opportunity to earn a living. Even before the crisis, digital labour platforms were expanding rapidly. Thus, in the decade starting in 2010, the number of digital labour platforms operating globally increased fivefold (ILO 2021d).

Young people tend to be concentrated in such forms of work, especially in higher-income countries. The share of young workers undertaking task-based (or gig) work is around twice as large as that of older workers across a range of European countries, and they are more likely than older workers to be doing full-time (as opposed to part-time) task-based work (Pinedo Caro, O'Higgins and Berg 2021).

Indeed, young people find platform-based work attractive for a number of reasons. Analysis of an ILO survey of online crowdworkers shows that, when allowance is made for other factors, young people earn hourly wages which are actually higher than those of their older counterparts (O'Higgins and Pinedo Caro 2022).[18] This is due to the greater speed at which young people "learn by doing" in such tasks. Pay rates are task-based and although, other things being equal, workers of different ages without experience earn similar wage rates, as they accumulate job experience, the time it takes for young people to complete specific tasks decreases more quickly than it does for older workers. In other words, in crowdwork the returns to experience – that is, the extent to which wages increase with each extra month spent on the job – are significantly larger for those aged under 30 years (figure 3.13). Young people also welcome the flexibility brought by such employment, which also makes this type of work especially attractive for young (and older) workers facing constraints on their movement or time owing, for example, to care responsibilities or indeed to disability.

The global nature of these online labour markets means that online crowdwork is especially attractive for young people in low- and middle-income countries – if they are able to access it. Hourly earnings from

▶ **Figure 3.13 Returns to experience for young people and adults in the ILO global survey of crowdwork, 2017**



Note: Young people are defined here as those aged 15–29 years.

Source: Pinedo Caro, O'Higgins and Berg (2021).

[18] There is an important distinction to be made here between two types of work organized through digital labour platforms: (a) online web-based work, or online crowdwork which includes tasks such as translation and processing of data, involves tasks which are also completed online; and (b) location-based crowdwork, such as taxi and delivery services, where the work is coordinated through a platform, but the work itself is performed offline (ILO 2021d). The ILO survey and the results of the analyses reported here focus on online crowdworkers, among whom young people predominate.

> One area that has attracted a lot of attention in recent years is the availability of job opportunities for young people in the gig economy and, in particular, in platform-based or platform-facilitated work. The COVID-19 crisis accelerated an already rising trend: companies utilized the potential of a digital labour force and workers affected by curfews and lockdowns saw online crowdwork as an opportunity to earn a living.

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online crowdwork are on average significantly lower for young people based in developing and emerging countries than they are for their peers in advanced economies; however, there is an even greater disparity in local (location-based) earnings opportunities between lower- and higher-income countries. In other words, compared to what a young person living in a developing or emerging country would be able to earn locally, crowdwork can be a relatively well-paid alternative. All in all, this translates into relatively high levels of job satisfaction among young online crowdworkers, especially in lower-income countries, which are directly related to the aforementioned factors (O'Higgins and Pinedo Caro 2022).

However, some caveats need to be made. As in other areas of the digital economy, young online crowdworkers are relatively well educated: almost all the crowdworkers in the ILO survey had completed at least secondary education. At the same time, the returns to education in crowdwork – in stark contrast to the substantial returns to experience on the job – are zero. Young online crowdworkers with tertiary or post-tertiary qualifications earn no more than their colleagues with just secondary education. This is a type of work where what counts is learning by doing.

There are clear gender disparities in earnings – for both younger and older crowdworkers. When allowance is made for other factors, young women's wage rates are around 20 per cent lower than those of young men. Since access to tasks is anonymous, this is not due to labour market discrimination. Further ILO analysis has shown, somewhat paradoxically, that young women are willing to work for, on average, lower wage rates on digital platforms than equally qualified men because of the relative attractiveness of crowdwork for those facing additional constraints such as care responsibilities, and also because other employment opportunities available to young women in local labour markets offer lower remuneration than crowdwork. This highlights an ambivalent aspect of the opportunities available to young female crowdworkers. On the one hand, the flexibility of this type of work provides opportunities for young women facing constraints on their availability to work outside the home and/or on the specific hours that they are able to work. On the other hand, the greater attractiveness of this type of employment for young women pushes down the average wages that they earn on digital platforms, precisely because there is such a large pool of available workers (O'Higgins and Pinedo Caro 2022). Similar considerations apply in the case of young people who are constrained in the work that they can do by physical and/or mental disabilities. In both cases, interventions to enforce minimum remuneration rates could help to redress these imbalances to some extent. However, given that the disparities have much to do with the additional barriers faced by young people possessing certain characteristics, it is necessary to tackle inequalities in the broader labour market as well.

A further challenge, more directly specific to the approaches adopted by digital labour platforms, has to do with young crowdworkers' ability to validate their experience so as to carve out a career path for themselves. While employment in jobs organized through platforms is typically short-term and unstable, a career path can conceivably be developed by young workers performing a succession of such tasks and/or applying the skills acquired in more traditional jobs. Changing firms has long been recognized as a major source of individual wage growth, especially early on in one's career (Topel and Ward 1992). Inter-firm job mobility is often a positive force for the acquisition of higher skills and remuneration in many types of employment. However, in order to benefit from this mobility, workers have to find ways of validating and/or certifying their experience and the consequent skills acquired. For obvious reasons, a firm may be reluctant to encourage its more productive workers to change employer, especially where the skills facilitating such a move were acquired while working for the firm – the classic situation of staff "poaching" studied by Becker (1964). In particular, although job performance metrics based primarily on customer satisfaction reports are routinely collected by digital labour platforms, it has proved harder to translate these into portable documentation that crowdworkers and gig workers can use to demonstrate their skills and experience, although in some areas of online work, such as in the rapidly growing field of competitive programming, opportunities to certify and validate abilities and skills acquired through micro-credentials are on the increase (ILO 2021d).

These challenges highlight the need to balance, on the one hand, the significant market power of digital labour platforms and, on the other, the highly competitive supply side of the crowdwork market, with many young people, especially in lower-income countries, being keen to work for such platforms owing

to the limited opportunities in their local labour markets. Collective bargaining mechanisms and/or regulatory intervention could play an important role here. Otherwise, the wholesale expansion of digital skills and, indeed, access to internet-based labour markets will tend to further drive down the wage rates of crowdworkers.

3.4 Opportunities, challenges and limits of the digital economy

A youth employment strategy which includes the development of employment in the digital economy clearly has much to recommend it. At the macro level, the digital economy provides a good return on investment and the quality of jobs there is relatively high. At the same time, there remain some significant challenges – notably with regard to ensuring that all young people have equal opportunities to access digital employment. In many low- and middle-income countries, internet connectivity is still a problem, especially in rural areas. The extension of broadband access to rural areas requires time and substantial investment. Nevertheless, where such efforts have been made, they have proved to be cost-effective. For example, it is estimated that a rural connectivity project in the Republic of Korea produced net economic benefits of around US$24 million (OECD 2021).

In low- and middle-income countries, the quality of employment available to the more highly skilled participants in the digital economy is particularly pronounced. At the same time, in lower-income countries, the quality of jobs in digitally intensive sectors – as measured by job stability and wage employment – is distributed somewhat unequally across the various levels of educational attainment.

Many types of employment in the digital economy, such as platform-based work, entail a high degree of job instability and uncertainty as regards future earnings. Platform-based gig work can be particularly attractive for young people in low- and middle-income countries: it pays well and the lack of job security is perceived as less problematic by young people given their lack of alternatives. Nevertheless, job instability and the lack of social protection coverage for young digital gig workers continue to give cause for concern (Behrendt, Nguyen and Rani 2019). Moreover, as already noted, access to digital employment requires education and skills. In low- and middle-income countries, this remains a significant barrier preventing many young people from seizing the opportunities to work in higher-quality jobs in the digital economy. Strategies to support the development of digital employment for young people should therefore be based on a comprehensive and long-term approach. It is important to find ways of ensuring that opportunities in the digital economy are inclusive and support the broader goal of providing good-quality employment for all young people.

3.5 The creative economy

The creative, or orange, economy is like the digital economy in at least two respects. First, it presents substantial opportunities for young people and, second, it cannot be pinned down by a single definition. This is because it is an evolving concept that builds on the interaction between several different elements, including human creativity, ideas, intellectual property, knowledge and technology. The creative economy encompasses a range of activities, some of which are among the oldest in history while others only came into existence with the advent of digital technology (UNESCO 2021b).

Many activities in the creative economy are deeply cultural and the term “cultural industries” has long been used to describe several of the expressive arts – such as theatre, dance, music, film, painting and sculpture – and the heritage sector. Other activities falling into the creative economy include advertising, architecture, design, fashion, publishing, R&D, software development, computer games, electronic publishing, and television and radio broadcasting. The creative economy may therefore be defined broadly as the aggregation of individuals and businesses that produce cultural, artistic and innovative products and services (Ramli, Mayana and Santika 2020). It is an umbrella term that spans the narrowly defined cultural industries on the one hand, and the much wider range of creative industries on the other (see box 3.3 for a more precise definition).

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▶ Box 3.3 Estimating employment in the creative economy

Measuring the size of the creative economy in terms of output and employment presents several conceptual and statistical challenges. In particular, it is difficult to assess the economic value of creative and cultural products, and to identify workers who are employed in the orange economy. There is no universally accepted approach for estimating the size of the creative economy, which encompasses a broad range of activities, including some that are difficult to capture without causing statistical bias.

Arguably the most promising approach would be to identify:

1. all workers who have a creative job, irrespective of whether their establishments are engaged in creative activities; and
2. all workers who have a non-creative job inside establishments that are engaged in creative activities.

However, the overlap between data for workers who have creative or cultural occupations based on ISCO-08 selected codes and data for workers who work in establishments engaged in creative or cultural activities based on ISIC Rev.4 selected codes inevitably leads to double counting.

In view of the difficulty of combining the ISIC Rev.4 and ISCO-08 classifications so as to cover both groups of employment while avoiding double counting, and seeking to maximize the number of countries in the harmonized data set underlying this section of the report, the ILO adopted a pragmatic approach which involves using ISIC Rev.4 codes to measure employment only in establishments engaged in creative or cultural activities (table 3.6). The data set covers 28 countries at varying levels of economic development that have been tracked over three years (2013, 2018 and 2020), which provides a unique opportunity to investigate the size and employment characteristics of the orange economy.

▶ Table 3.6 Correspondence between activities in the orange economy and ISIC Rev.4 classification of sectors

ISIC Rev.4 broad grouping	ISIC Rev.4 two-digit division	ISIC Rev.4 two-digit code
Manufacturing	Printing and reproduction of recorded media	18
Information and communication	Publishing activities	58
	Motion picture, video and television programme production, sound recording and music publishing activities	59
	Programming and broadcasting activities	60
	Telecommunications	61
Professional, scientific and technical activities	Other professional, scientific and technical activities	74
Arts, entertainment and recreation	Creative, arts and entertainment activities	90
	Libraries, archives, museums and other cultural activities	91

The following caveats should be mentioned:

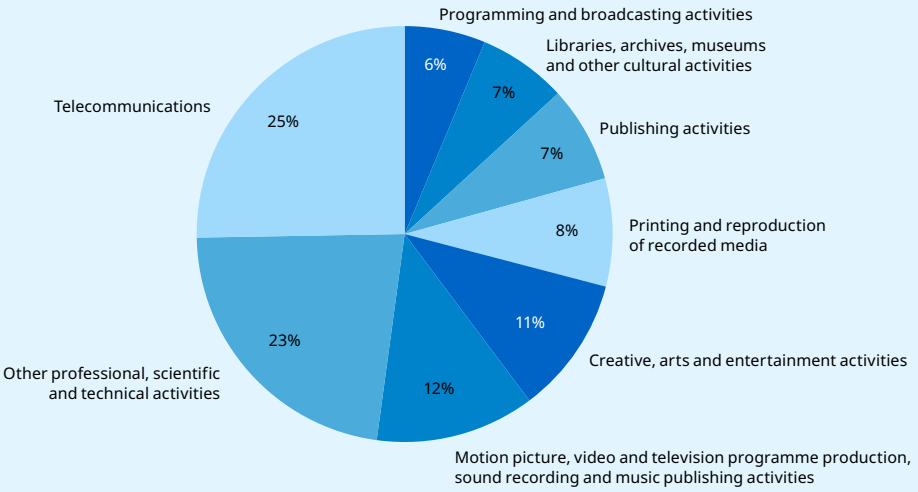
1. Although the results of the analysis shed light on characteristics of the orange economy, the sample is by no means representative of the global economy. The sample comprises all countries for which there are data from comparable surveys that enable creative sectors to be identified, and which published annual labour force surveys for the three years covered by the analysis.
2. The estimates of employment shares in the orange economy should be regarded as lower-bound values, since the taxonomy used allows only creative and non-creative occupations within creative establishments to be captured: it does not include creative occupations outside creative establishments.

3.6 The orange economy and employment

The creative economy has grown significantly in recent times, as reflected in the way that the value of the global market for creative goods more than doubled from US$208 billion in 2002 to US$509 billion in 2015 (UNESCO 2021a). Creative economy sectors are also beginning to use the digital economy to achieve even more rapid growth. Indeed, digital technology has become an essential tool in the production and distribution of creative content, which means that creative careers will become even more relevant to young digitally literate entrepreneurs in the years to come. Although the COVID-19 pandemic and associated lockdowns had a dramatic effect on employment in most industries, they hit the cultural and creative industries particularly hard, since many of the activities in question rely on close physical proximity. Workers engaged in these activities experienced a steep decline in their earnings as a result of the loss of revenue from live events (see box 3.4).

Among the 28 countries in the sample, the orange economy employed around 2.2 per cent of young workers aged 15–29 years in 2020, most of whom were concentrated in telecommunications (25 per cent), other professional, scientific and technical activities (23 per cent), and motion picture, video and television programme production, sound recording and music publishing activities (12 per cent) (figure 3.14). Within those industries, occupations with the largest youth employment shares included science and engineering professionals and legal, social, cultural and related associated professionals. Fewer jobs, by contrast, were available to young people in creative, arts and entertainment activities (11 per cent), publishing activities (7 per cent), and programming and broadcasting activities (6 per cent).

▶ **Figure 3.14 Youth employment in the creative economy, by sector, 2020** (percentage)



Note: "Youth" refers to ages 15–29.

Source: ILO calculations based on the ILO Digital and Creative micro-database.

Young people (aged 15–29 years) are slightly more likely than adults (aged 30+) to be employed in the creative economy, which accounted for around 2.1 per cent of adult employment in 2020. Within the orange economy, moreover, young people made up 25 per cent of total employment (figure 3.15), whereas they accounted for 23 per cent of employment in non-creative sectors, indicating that they are slightly over-represented in the orange economy.

Although the COVID-19 pandemic and associated lockdowns had a dramatic effect on employment in most industries, they hit the cultural and creative industries particularly hard, since many of the activities in question rely on close physical proximity. Workers engaged in these activities experienced a steep decline in their earnings as a result of the loss of revenue from live events.

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▶ Box 3.4 Orange jobs and policy responses during the COVID-19 crisis

The COVID-19 crisis highlighted how many workers in cultural and creative sectors face precarious working conditions and lack adequate labour and social protection. In particular, social distancing and other COVID-19-related containment measures led to an unprecedented number of cancelled events and performances, and to the widespread closure of heritage sites, resulting in a sudden loss of earnings and unemployment for millions of workers around the world (Galian, Licata and Stern-Plaza 2021). In May 2020, around 90 per cent of museums worldwide were closed, while 64 per cent of world heritage sites were closed either totally or partially. This had a grave impact on orange economy workers, particularly non-salaried workers and those employed on an informal basis. Cultural and creative workers were especially vulnerable not only because of the restrictions imposed on their ability to work, but also because a significant proportion are not covered by social protection (Montalto et al. 2020).

To mitigate the negative impact of the COVID-19 crisis, governments, international agencies and non-profit organizations launched initiatives aimed at protecting the cultural and creative sectors. Policy responses consisted of direct and indirect financial support, including income transfers, wage subsidies, grants, low-interest loans, tax subsidies and debt relief.

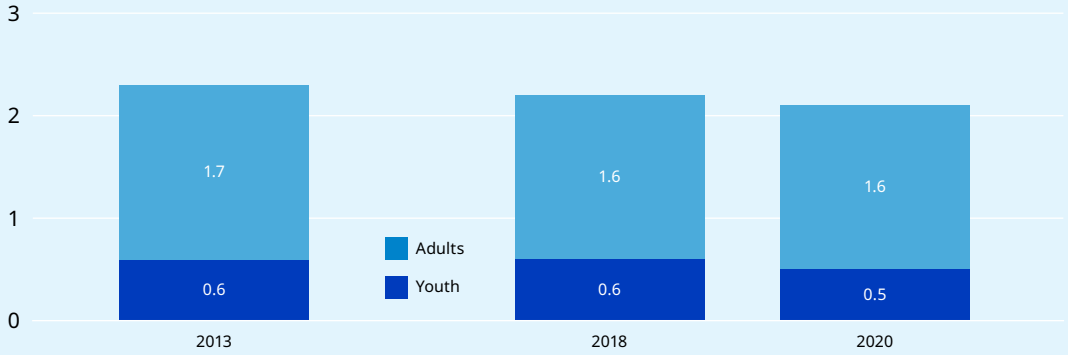
Some governments introduced emergency financial funds specifically targeting creative and cultural workers. In Cabo Verde, for example, the Ministry of Culture launched the "EnPalco 100 Artistas" programme, which offered a cash transfer of around US$100 to support 100 artists working in the visual arts, dance, music, theatre and literature. The Republic of Korea introduced social protection measures for workers in the performing arts industry, which was designated as a special employment support category by the Ministry of Employment and Labour. Over 18,000 workers and 4,000 firms in the performing arts sector received paid leave and employment guarantees for the period after the COVID-19 crisis.

Some governments extended their support to those working in the informal or gig economy. For example, the Colombian Government launched a new cash transfer programme called the "Ingreso Solidario" (solidarity income), which offered a one-off payment of around US$100 for informal workers and their families, including those operating in creative industries, who were not eligible for benefits under other national social programmes. The programme reached over 2.6 million households through deposits into their bank account or electronic payments via mobile phones. The Bulgarian Government introduced a financial support scheme whereby a minimum wage was to be provided for all freelancers in the cultural sector, such as actors, artists, musicians and writers, whose earnings were below US$558 per month in the year before the crisis (Sofia Globe 2020).

These interventions were facilitated by digital technology and stable access to electricity and the internet, in addition to the digital literacy and skills of creative workers. The importance of investing in digital infrastructure and skills, particularly in developing countries, to help creative workers to flourish in the medium and long term should not be overlooked. Another significant effect of the crisis was that it underlined the contribution made by cultural and creative workers to the well-being of communities.

Employment in the orange economy is highly digitally intensive. Among young creative workers in high-income countries, 47.5 per cent were employed in HDI sectors in 2020. In low- and middle-income countries this share was even higher, at 51 per cent. Similarly, creative employment makes up a disproportionately large share of all HDI employment among young people – for instance, 6.6 per cent of digital (HDI) youth employment was in the creative economy, which, as already mentioned, accounts for 2.2 per cent of youth employment as a whole.

▶ **Figure 3.15 Prevalence of youth and adult employment in the creative economy, 2013, 2018 and 2020** (percentage)



Note: "Youth" refers to ages 15–29.

Source: ILO calculations based on the ILO Digital and Creative micro-database.

Young women are more likely to be employed in the orange economy than young men, their respective employment rates being 2.3 per cent and 2.1 per cent. While both sexes in high-income countries have similar youth employment shares in the orange economy, standing at around 3 per cent in 2020, creative employment is more important for women than for men in low- and middle-income countries, where the respective shares are around 2 per cent and 1 per cent (table 3.7).

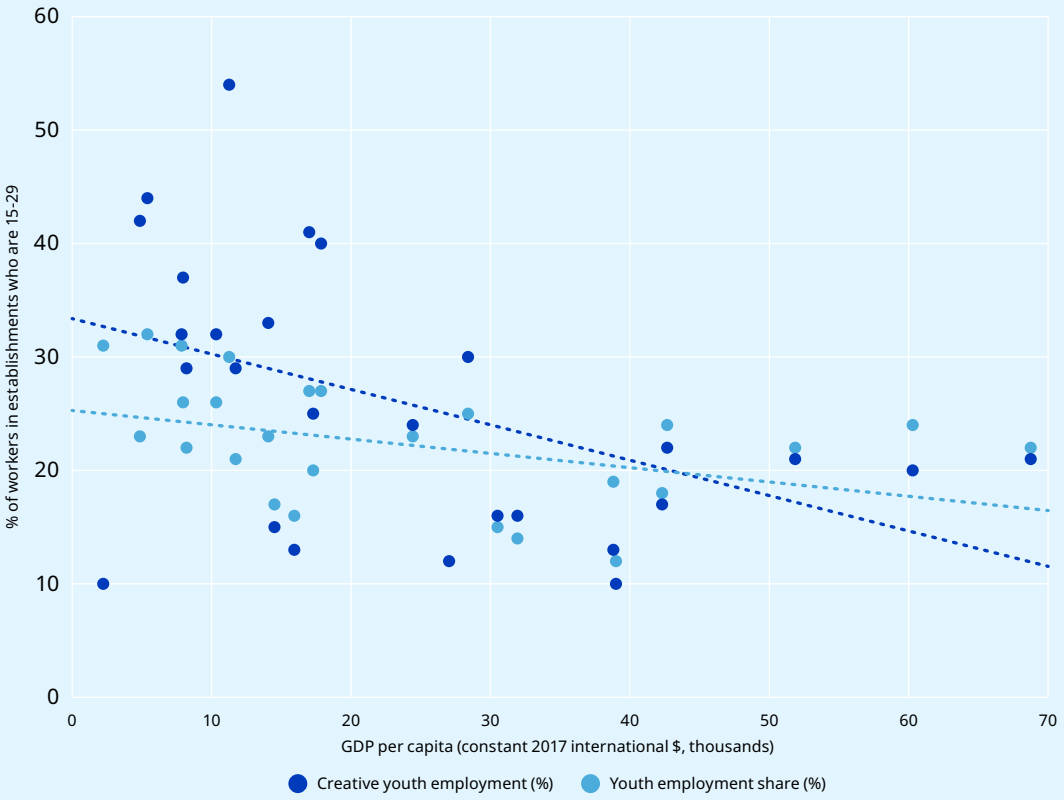
▶ **Table 3.7 Employment shares in creative sectors by demographic characteristics and country income group, 2013, 2018 and 2020 (percentage)**

		2013–20 (All)	All			High-income countries			Low- and middle-income countries		
			2013	2018	2020	2013	2018	2020	2013	2018	2020
Age	15+		2.2	2.2	2.1	3.5	3.3	3.3	1.7	1.7	1.7
	15–29		2.2	2.3	2.2	3.2	3.2	3.0	1.8	1.8	1.8
	30+		2.2	2.1	2.1	3.6	3.3	3.4	1.6	1.6	1.6
Sex	Women (15–29)		2.1	2.3	2.3	2.9	3.1	3.1	1.6	1.7	1.7
	Men (15–29)		2.4	2.3	2.1	3.5	3.3	3.0	1.8	1.8	1.6
Geography	Urban (15–29)		2.9	2.7	2.5	3.8	3.5	3.5	2.1	2.0	1.8
	Rural (15–29)		0.7	0.7	0.7	2.2	2.0	2.0	0.3	0.4	0.4

Source: ILO calculations based on the ILO Digital and Creative micro-database.

There are some other noticeable differences in the size and composition of employment across countries at different stages of development. In particular, the orange economy accounted for a larger proportion of youth employment in high-income countries (3 per cent) than in low- and middle-income countries (1.8 per cent) in 2020. While young people generally made up a larger share of workers in the orange

▶ Figure 3.16 Youth shares of creative sector employment and total employment against GDP per capita, 2020



Note: "Youth" refers to ages 15–29.

Source: ILO calculations based on the ILO Digital and Creative micro-database.

economy than their share of total employment, the difference diminished – and in some cases was reversed – in countries at higher levels of economic development (figure 3.16). In other words, as a country's income level increases, the creative economy expands, but at the same time, the share of young workers, compared to those aged 30 and above, in creative employment within countries tends to fall (figure 3.16; dotted dark blue line).

As in the case of the digital economy, this relationship can partly be attributed to differences in the age structure of labour markets across different stages of development, with lower LFPRs and smaller youth population cohorts being the norm in high-income countries. This tendency is reflected in the light blue trend line in figure 3.16, which shows how the share of young people in employment tends to fall as country income increases. However, the fact that the dark blue trend line is more steeply sloped than the light blue one shows that young people's share of creative employment falls faster with country income than does young people's share in employment as a whole. The pattern of creative youth employment by country income thus reflects more than just demographic and institutional trends. At lower levels of country income, young people are relatively more likely to be working in creative sectors than older workers, even when allowance is made for the smaller relative size of youth labour forces in higher-income countries. This suggests that young people are particularly well placed to take advantage of the opportunities offered by the orange economy.

Youth employment in the creative economy is mostly concentrated in urban areas, especially in low- and middle-income countries. Across all the countries in the sample, the orange economy accounted for 0.7 per cent of rural youth employment in 2020; the share in low- and middle-income countries was lower, at 0.4 per cent, than that in high-income countries, at 2 per cent. Although still small, the creative economy's share of urban youth employment is notably larger for the entire sample (2.5 per cent), in high-income countries (3.5 per cent) and in low- and middle-income countries (1.8 per cent).

3.6.1 Job characteristics in the orange economy

An important feature of the creative economy is that it is largely composed of high-skilled workers (figure 3.17).[19] Although the orange economy accounts for just a small share of employment, workers engaged in it are significantly more likely to be high-skilled and to have a university degree than their counterparts in non-creative sectors. As can be seen in figure 3.17, almost 70 per cent of creative workers in high-income countries were high-skilled in 2020, which is 3.2 times higher than the average for non-creative sectors. Similarly, in low- and middle-income countries, creative workers were 2.7 times more likely to be high-skilled than those employed in other sectors of the labour market. Interestingly, gender differences in relation to skills are most pronounced in non-creative sectors, especially in low- and middle-income countries, with young women (21 per cent) having higher rates of high-skilled employment than men (12 per cent).

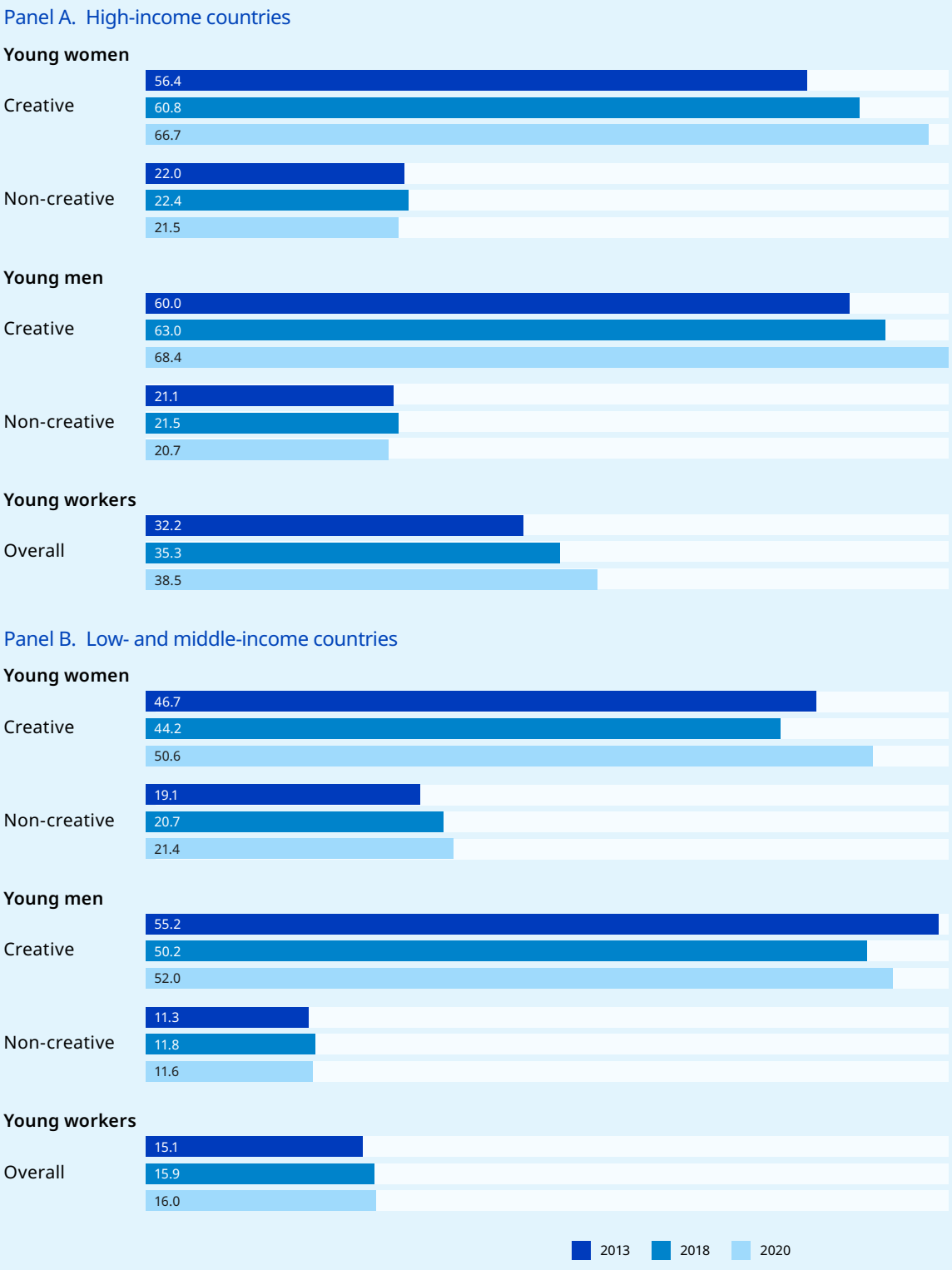
Orange employment is more stable than that in other sectors in developing countries but less so in advanced economies (figure 3.18). In high-income countries, 60 per cent of employees in creative sectors had a permanent contract, compared with 70 per cent in non-creative sectors. In low- and middle-income countries, by contrast, 48 per cent and 32 per cent of orange and non-orange employees, respectively, had a permanent contract. This pattern is most noticeable among young women, with creative female employees being 26 per cent more likely to have a permanent contract than their non-creative counterparts. This can partly be attributed to the fact that orange workers are relatively high-skilled, especially in developing countries, which gives them a preferential bargaining position compared to workers in other sectors. However, the bargaining power of orange workers diminishes in high-income countries, since average educational attainment levels are higher.

There is a similar pattern with regard to wage and salaried employment versus self-employment in the creative economy. Whereas the prevalence of self-employment is lower in the orange economy industries than in other industries in low- and middle-income countries, the opposite is true in high-income countries. In addition, women are generally more likely to be in salaried employment arrangements in the creative economy compared with other industries (figure 3.19).

> Although the orange economy accounts for just a small share of employment, workers engaged in it are significantly more likely to be high-skilled and to have a university degree than their counterparts in non-creative sectors.

[19] High-skilled workers are defined as those who work in occupations at ISCO-08 skill levels 3 or 4. For more details, see the ILOSTAT web page on the ISCO classification, https://ilostat.ilo.org/resources/concepts-and-definitions/classification-occupation/.

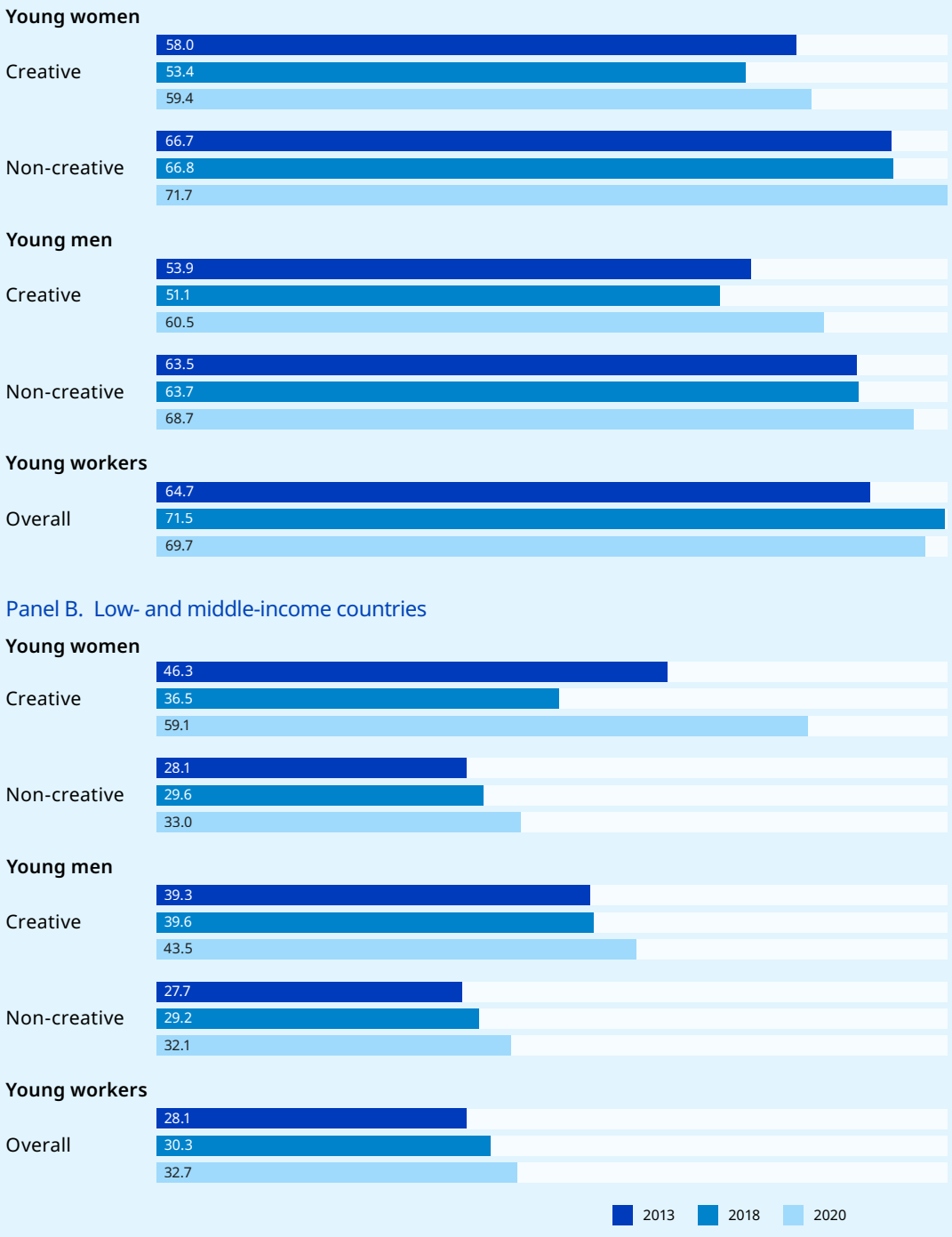
▶ **Figure 3.17 High-skilled youth employment in creative and non-creative sectors, by sex and country income level, 2013, 2018 and 2020** (percentage)



Note: "Youth" refers to ages 15–29.

Source: ILO calculations based on the ILO Digital and Creative micro-database.

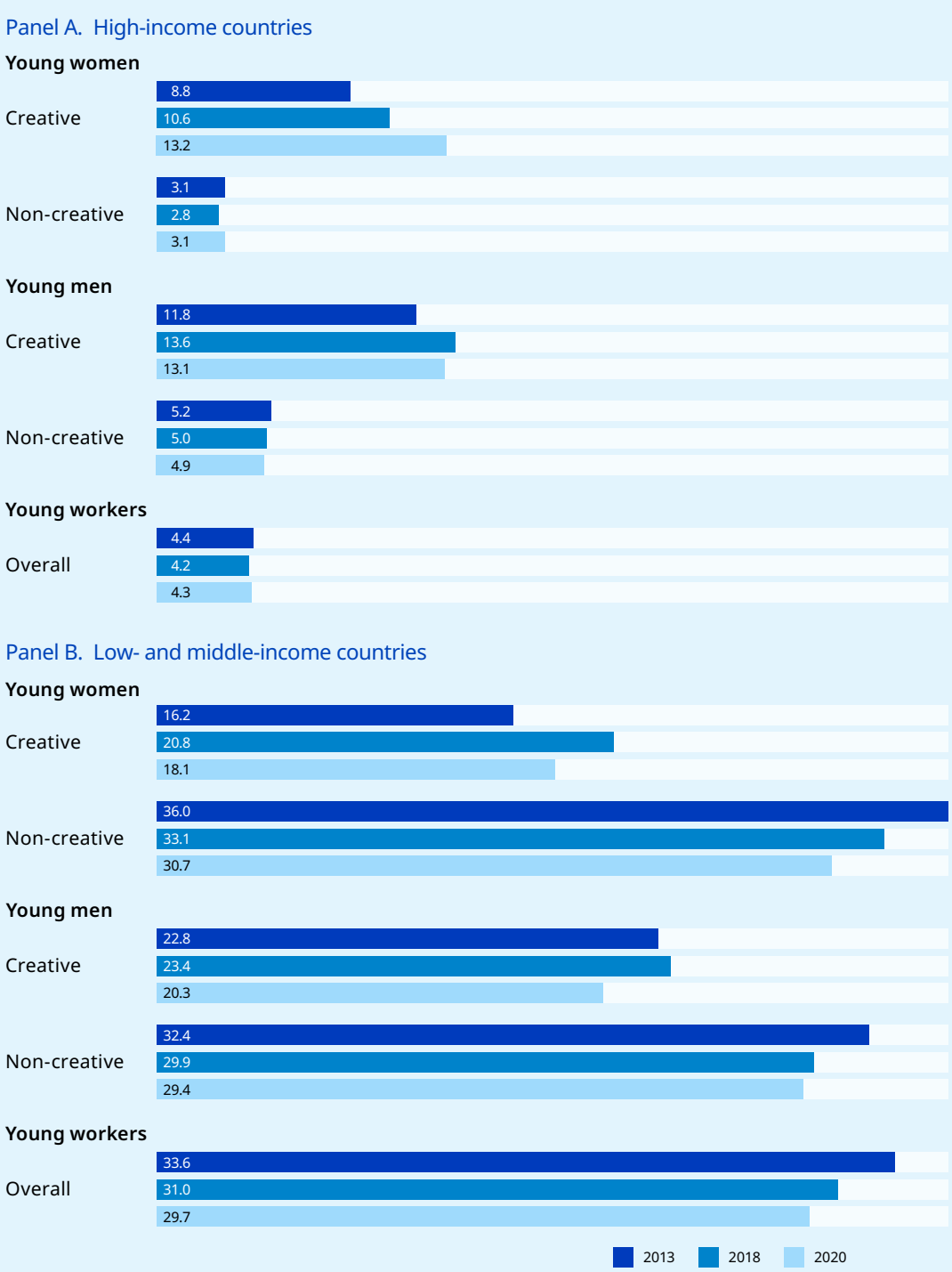
▶ Figure 3.18 Share of young employees with permanent employment contracts in creative and non-creative economies, by sex and country income group, 2013, 2018 and 2020 (percentage)



Note: Young workers are defined here as those aged 15–29 years.

Source: ILO calculations based on the ILO Digital and Creative micro-database.

▶ **Figure 3.19 Share of young workers in self-employment in creative and non-creative sectors, by sex and country income level, 2013, 2018 and 2020** (percentage)



Note: "Youth" refers to ages 15–29.

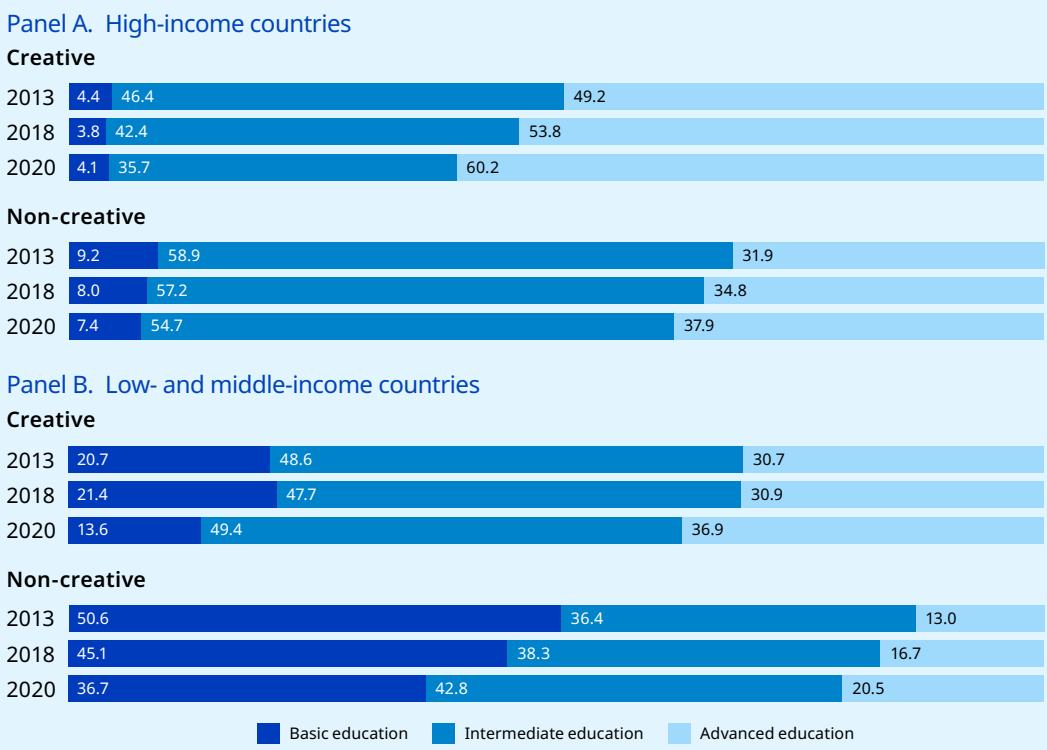
Source: ILO calculations based on the ILO Digital and Creative micro-database.

In low- and middle-income countries, orange economy workers, especially young women, are more widely protected by social security than workers outside the creative economy. In such countries in the sample, 74 per cent of young women in the creative economy had access to social security in 2020, compared with 49 per cent in non-creative sectors. Similarly, 64 per cent of young men in orange employment had access to some form of social security, compared with just 45 per cent in other sectors.

3.6.2 The creative economy and education

Differences between the orange economy and non-creative sectors in terms of workers' skill levels are also reflected in the distribution of educational attainment (figure 3.20).[20] In high-income countries, most workers in the orange economy have an advanced level of education, while intermediate levels are most common in non-creative sectors. In low- and middle-income countries, meanwhile, most orange economy workers have intermediate education, which compares favourably with the preponderance of workers with basic education in non-creative sectors. Irrespective of country income classification, the creative economy has a higher share of workers with advanced levels of educational attainment.

▶ **Figure 3.20 Educational attainment of young workers in creative and non-creative sectors, by country income group, 2013, 2018 and 2020** (percentage)

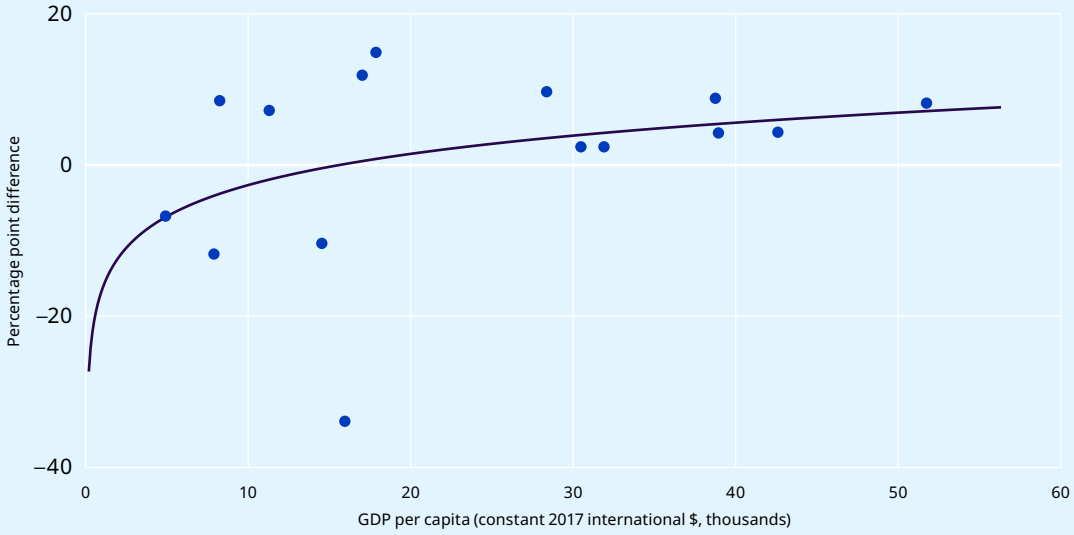


Note: Young workers are defined here as those aged 15–29 years.

Source: ILO calculations based on the ILO Digital and Creative micro-database.

[20] Figure 3.20 subdivides educational attainment into "basic", "intermediate" and "advanced" following the standard distinctions used by the ILO. Specifically, basic education corresponds to ISCED-11 levels 1 and 2; intermediate education corresponds to ISCED-11 levels 3 and 4; and advanced education corresponds to ISCED-11 levels 5–8. For more details, see the ILOSTAT web page on employment by education, https://ilostat.ilo.org/resources/concepts-and-definitions/description-employment-by-education/.

▶ Figure 3.21 Intragroup differences in the prevalence of permanent contracts by level of education among young employees in creative and non-creative sectors against GDP per capita, 2020



Note: The horizontal axis shows GDP per capita, while the vertical axis represents the percentage point difference between (a) the difference in prevalence of permanent contracts among those with advanced and basic educational attainment in creative sectors; and (b) the corresponding difference for non-creative sectors. Positive values indicate that inequality is lower in the orange economy than in non-creative sectors, and vice versa for negative values. Young employees are defined here as those aged 15–29 years.

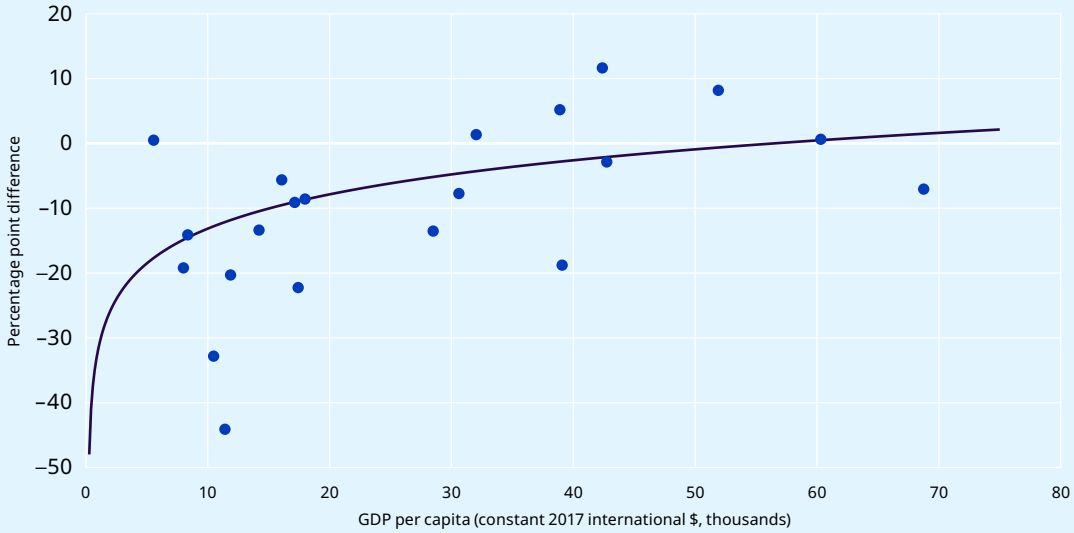
Source: ILO calculations based on the ILO Digital and Creative micro-database.

Overall, workers in creative sectors tend to exhibit higher levels of educational attainment than their counterparts in non-creative sectors.

A pertinent question to ask at this point is how much do working conditions vary within creative and non-creative sectors by education level? The differences in the likelihood of acquiring a permanent contract depending on whether workers have basic, intermediate or advanced education are smaller in the orange economy than in non-creative sectors, suggesting less intragroup inequality (figure 3.21). Most countries exhibit values above 0, which implies that the gap between the prevalence of permanent contracts among young workers with advanced education and the prevalence among those with basic education is narrower in creative sectors. However, any such differences are larger in countries at lower income levels: they become less significant as countries develop, labour market institutions are strengthened and living standards rise.

In contrast, if one looks at differences in self-employment by education level, most countries exhibit values below 0, which implies greater intragroup inequality in the orange economy than in non-creative sectors (figure 3.22). In particular, the gap between the share of non-salaried employment among workers with advanced education and the corresponding share for workers with basic education is generally wider in the orange economy. These inequalities, as in the case of those reflected in figure 3.21, become less pronounced with rising level of economic development.

▶ Figure 3.22 Intragroup differences in the prevalence of self-employment by level of education among young workers in creative and non-creative sectors against GDP per capita, 2020



Note: The horizontal axis shows GDP per capita, while the vertical axis represents the percentage point difference between (a) the difference in prevalence of self-employment among those with advanced and basic educational attainment in creative sectors; and (b) the corresponding difference for non-creative sectors. Positive values indicate that inequality is lower in the orange economy than in non-creative sectors, and vice versa for negative values. Young workers are defined here as those aged 15–29 years.

Source: ILO calculations based on the ILO Digital and Creative micro-database.

3.7 The creative economy as a source of job opportunities for young people

The orange economy is one of the fastest-growing sectors around the world that continues to create employment opportunities for young people. These opportunities encompass many diverse areas, including architecture, visual and performing arts, crafts and videogames. Beyond their contribution to employment, creative, cultural and artistic activities are vital to people's sense of well-being and heritage. Five key points emerge from analysis of the data collected for this report:

1. The orange economy is small: in 2020, it accounted for around 2.2 per cent and 2.1 per cent of total employment among young workers (aged 15–29 years) and older workers (aged 30+ years), respectively.
2. Young people are (slightly) over-represented in the orange economy compared with other sectors, irrespective of a country's stage of development.
3. The orange economy tends to generate a greater number of high-skilled jobs compared with the average for non-creative sectors, especially in high-income countries.
4. Depending on the level of economic development, the orange economy can provide better or worse working conditions compared with non-creative sectors. Overall, the creative economy generates (relatively) better jobs in low- and middle-income countries.
   (a) Orange economy workers in developing countries are more likely to hold permanent contracts than their counterparts in non-creative sectors, while the reverse is true in high-income countries.

(b) Non-salaried employment is significantly more likely in the orange economy than in non-creative sectors in high-income countries, while the reverse is true in low- and middle-income countries.

5. With regard to inequality, there are significant differences in workers' likelihood of having a permanent contract or being hired as a salaried employee depending on the level of educational attainment.

(a) Put simply, workers with low levels of educational attainment in low- and middle-income countries are more likely to have a permanent contract in creative sectors than in non-creative ones (the opposite is true in high-income countries).

(b) Conversely, workers with low levels of educational attainment in low- and middle-income countries have a lower probability of being in salaried employment in creative sectors (or a higher probability of being in non-salaried employment) than in non-creative ones.

3.8 Policy implications: Creating opportunities for young people in the digital and creative economies

The COVID-19 pandemic and the associated economic and employment shock reinforced a pre-existing trend towards greater digitalization of employment, particularly in areas such as platform-based work, and especially among young people. The crisis also widened gaps in employment outcomes between different groups of workers (for example, younger versus older workers, workers in low- and middle-income countries versus those in high-income countries).

As countries recover from the crisis, it is clear that investing in both the digital and creative economies can help to increase the availability of good-quality employment opportunities for young people. In one sense, the expansion of digitalization is more a necessity than a choice. The digital transformation of production and employment is ever more pervasive in the world of work and, indeed, underlies current technological progress. Digital technologies can increase productivity and have the potential to improve the quality of job opportunities, especially for young people. However, it is important to ensure that such technologies promote inclusive employment, rather than exacerbating existing inequalities. Not for nothing did the previous edition of *Global Employment Trends for Youth* (ILO 2020) warn about the risk that technological change could drive an increase in wage inequality.

It is clear that investing in both the digital and creative economies can help to increase the availability of good-quality employment opportunities for young people.

This chapter has examined trends in the digital and creative economies, seeking to shed light on some of the relevant issues. The macro-econometric simulation conducted for the report clearly established that investments to expand broadband networks are likely to bring significant benefits in terms of employment for young people over the coming years. The simulation was limited in scope and considered the employment effects of expanding broadband infrastructure. Under such a scenario, around 24 million new jobs could be created overall, above all in low- and middle-income countries, where broadband penetration is relatively low. The projections suggest that 6.4 million of these new jobs would be taken by young people. These projections are conservative by virtue of the nature of technological transformation and its pervasive yet unpredictable impact on production and employment in the future. They do not take into account, for example, the effects of digital transformation on supply chains, which would tend to amplify the employment effects.

> It is important to ensure that such technologies promote inclusive employment, rather than exacerbating existing inequalities.

Achieving universal broadband access can by no means be taken for granted. As is well recognized (see, for example, ITU 2020), in addition to investment in infrastructure, this goal also requires concerted and coordinated efforts by governments to establish appropriate policy and regulatory frameworks (Fox and Signé 2021). These efforts should be accompanied by a comprehensive strategy on digital literacy, including the development of technical and digital skills among young people so that these are able to take full advantage of the emerging opportunities. Moreover, in many poorer and/or remote areas, access to electricity remains problematic, which makes internet access, even where feasible, considerably more expensive. The International Telecommunication Union has emphasized the need for the development of accessible internet to facilitate digitalization.

The analyses undertaken for this chapter suggest that employment in the digital and creative economies can indeed be of relatively high quality. In low- and middle-income countries in particular, digital and orange employment is characterized by a higher degree of job stability and prevalence of wage employment than is the case in other sectors. At the same time, there is considerable variation across countries. Inequalities within the digital economy are especially pronounced in low- and middle-income countries. Digital employment as a whole accounts for a much smaller share of youth employment in lower-income countries. This gap can be reduced by expanding access to digital infrastructure. However, it is worth bearing in mind that the sectoral pattern of digital employment is quite different in countries at different stages of development. In high-income countries, the more remunerative and higher-quality communications and financial services sector is better developed, while in lower-income countries digital employment is driven by the expansion of digitally intensive employment in non-market services. As countries seek to expand the digital economy, they need to focus their attention on how to promote good-quality employment. For example, the flexibility of digital employment and the relatively high remuneration available to skilled crowdworkers from low- and middle-income countries make such work especially attractive, although it also entails challenges related to the lack of job and income stability.

The orange economy, though modest in size, can and does provide relatively stable employment, especially in low- and middle-income countries, where the stability of jobs in the sector is comparatively high. However, as in the case of the digital economy, the higher skill levels and educational attainment levels characterizing youth employment in the sector highlight its potential to act as a driver of inequality in youth labour markets. There are also challenges related to access to social protection for workers in creative sectors (Galian, Licata and Stern-Plaza 2021).

Beyond the creation of job opportunities in the digital and creative economies, it is necessary to promote the development of digital skills in a manner that is both focused and inclusive. The dangers of indiscriminate expansion of tertiary education were already emphasized in the previous *Global Employment Trends for Youth* report (ILO 2020). Policymakers should consider carefully the direction that skills development policies need to take so that all people in their countries, and young people in particular, are able to reap the benefits of a rapidly evolving digital (and orange) employment landscape. Additionally, implementing adequate labour and social protection is essential to ensure decent work in both the digital and creative economies.

> It is necessary to promote the development of digital skills in a manner that is both focused and inclusive.

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Chapter references

Becker, Gary S. 1964. *Human Capital: A Theoretical and Empirical Analysis, with Special Reference to Education*. Chicago: University of Chicago Press.

Behrendt, Christina, Quynh Anh Nguyen, and Uma Rani. 2019. "Social Protection Systems and the Future of Work: Ensuring Social Security for Digital Platform Workers". *International Social Security Review* 72 (3): 17–41.

Calvino, Flavio, Chiara Criscuolo, Luca Marcolin and Mariagrazia Squicciarini. 2018. "A Taxonomy of Digital-Intensive Sectors", OECD Science, Technology and Industry Working Paper No. 2018/14.

Ernst & Young. 2015. *Cultural Times: The First Global Map of Cultural and Creative Industries*.

Fox, Louise, and Landry Signé. 2021. "The Fourth Industrial Revolution (4IR) and the Future of Work: Could This Bring Good Jobs to Africa?", Evidence Synthesis Paper No. 06/2021. INCLUDE Knowledge Platform on Inclusive Development Policies.

Galian, Carlos, Margherita Licata, and Maya Stern-Plaza. 2021. "Social Protection in the Cultural and Creative Sector: Country Practices and Innovations", ILO Working Paper No. 28.

ILO. 2018. "Paid Employment vs Vulnerable Employment: A Brief Study of Employment Patterns by Status in Employment", ILOSTAT Spotlight on Work Statistics No. 3, June 2018.

———. 2019. *Work for a Brighter Future – Global Commission on the Future of Work*.

———. 2020. *Global Employment Trends for Youth 2020: Technology and the Future of Jobs*.

———. 2021a. "An Update on the Youth Labour Market Impact of the COVID-19 Crisis", ILO Statistical Brief, June 2021.

———. 2021b. "ILO Monitor: COVID-19 and the World of Work. Eighth Edition", 27 October 2021.

———. 2021c. *Informal Employment in Viet Nam: Trends and Determinants*.

———. 2021d. *World Employment and Social Outlook 2021: The Role of Digital Labour Platforms in Transforming the World of Work*.

ILO and UNICEF (United Nations Children's Fund). 2018. *GirlForce: Skills, Education and Training for Girls Now*.

ITU (International Telecommunication Union). 2020. *How Broadband, Digitization and ICT Regulation Impact the Global Economy: Global Econometric Modelling*.

Montalto, Valentina, Pier Luigi Sacco, Valentina Alberti, Francesco Panella, and Michaela Saisana. 2020. *European Cultural and Creative Cities in COVID-19 Times: Jobs at Risk and the Policy Response*. Publications Office of the European Union.

OECD (Organisation for Economic Co-operation and Development). 2021. "Bridging Connectivity Divides", OECD Digital Economy Paper No. 315.

O'Higgins, Niall. 2017. *Rising to the Youth Employment Challenge: New Evidence on Key Policy Challenges.* ILO.

O'Higgins, Niall, and Luis Pinedo Caro. 2022. "Crowdwork for Young People: Risks and Opportunities", ILO Working Paper No. 50.

O'Higgins, Niall, Sher Verick, and Adam Elsheikhi. 2021. "On the Nature of the Impact of the COVID-19 Pandemic on Youth Labour Markets: A Cross-Country Analysis". Paper presented at the Seventh Regulating for Decent Work Conference, Geneva, 6–9 July 2021.

Pinedo Caro, Luis, Niall O'Higgins, and Janine Berg. 2021. "Young People and the Gig Economy." In *Is the Future Ready for Youth? Youth Employment Policies for Evolving Labour Markets*, edited by Juan Chacaltana and Sukti Dasgupta, 38–52. Geneva: ILO.

Ramli, H. Ahmad M., Ranti Fauza Mayana, and Tisni Santika. 2020. "Fostering a Creative Economy with Copyright Protection: 'Weightless Economy' and Creativity-Based Sustainable Development". *International Journal of Innovation, Creativity and Change* 10 (10): 432–443.

Sofia Globe. 2020. "Covid-19: Bulgaria Announces Support Scheme for Lowest-Earners in Cultural Field". The Sofia Globe, 10 April 2020.

Topel, Robert H., and Michael P. Ward. 1992. "Job Mobility and the Careers of Young Men". *The Quarterly Journal of Economics* 107 (2): 439–479.

UN (United Nations). 2008. *International Standard Industrial Classification of All Economic Activities: Revision 4.* Department of Economic and Social Affairs, Statistical Papers, Series M, No. 4, Rev.4.

UNESCO (United Nations Educational, Scientific and Cultural Organization). 2021a. *Cultural and Creative Industries in the Face of COVID-19: An Economic Impact Outlook*.

———. 2021b. "The Creative Economy: Moving in from the Sidelines", 28 January 2021.

World Bank. 2020. "Orange Economy: As a Driver of Jobs for Youth", Solutions for Youth Employment Thematic Note No. 1.

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4

Young workers in the care economy

▶ Chapter 4. Young workers in the care economy

4.1 Introduction

As the world recovers from the COVID-19 health crisis, if not yet completely from the employment crisis that ensued (ILO 2022a), one lesson learned from all the lockdowns, school closures, the isolation of long-term care facilities and the stretching of health systems to their limits is that care work, both paid and unpaid, is key to well-functioning economies and societies. The crisis highlighted the long hours involved in unpaid care work, most of which is performed by women; the crucial role of schools and childcare facilities in allowing parents to work for a living; the understaffing and under-resourcing of health services; the neglect of long-term care workers; and the extent to which households rely on domestic workers to provide for their care needs. During the pandemic, health workers were confronted with additional heavy workloads and long working hours, often risking their own lives to keep others safe and healthy. Although schools were closed, teachers continued to provide education and training in difficult circumstances. On the other hand, large numbers of domestic workers, most of whom were in informal employment, were left without a job.

Young people were concerned about their prospects as workers in the care economy – in education, health and social work, and as domestic workers – even before the pandemic. The Global Youth Employment Forum that took place in Abuja, Nigeria, in 2019 drew attention to the critical role of the care economy in absorbing young workers, and called for decent work to be provided for care workers, who in general were undervalued, underpaid and not sufficiently protected (ILO 2019a). The participants emphasized that there was "a need for more and better care everywhere" – a need subsequently exacerbated by the COVID-19 pandemic, which broke out just a few months after the Forum.

This was echoed in the ILO's Global Call to Action for a Human-Centred Recovery from the COVID-19 Crisis That Is Inclusive, Sustainable and Resilient (ILO 2021a), which called for "appropriate public and private investment in … those [sectors] with strong potential to expand decent work opportunities, such as the care economy, education and infrastructure development". Similarly, it emphasized the need to address understaffing and to improve working conditions for care workers. Large-scale investments in the care economy are also a cornerstone of the Global Accelerator for Jobs and Social Protection launched by the Secretary-General of the United Nations to expedite implementation of the SDGs through the creation of decent jobs, primarily in the green and care economies.

However, very little is known about the role of young women and men (aged 15–29 years) as workers in the care economy. The present chapter seeks to fill this knowledge gap. It also examines the employment- and decent work-related impacts that the COVID-19 crisis had on these young workers, and makes the case for investments in care services from the perspective of young people.

Figure 4.1 illustrates the conceptual framework for this chapter. The starting point is young workers in the care economy: they work in education, health and social work, and in or for households as domestic workers (see box 4.1 for definitions). The challenges faced by this young workforce are similar to those that older workers in care sectors have to contend with, including overwork, relatively low wages, precarious working conditions, inadequate or no labour and social protection, and violence and harassment (ILO 2018). As this chapter makes clear, these challenges are sometimes aggravated by young workers' lower qualifications and relatively limited experience.

> During the pandemic, health workers faced heavy workloads as they risked their lives to keep others safe and healthy.

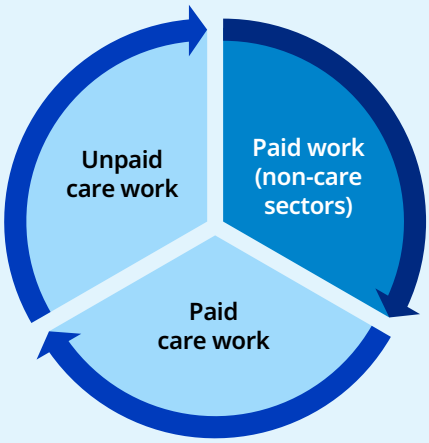
Figure 4.1 also shows that young women and men are recipients of care services – directly when they are in education and when they receive healthcare, and indirectly when those for whom they are responsible (most frequently young children) have access to care services.

Young women and men are also involved in the unpaid care economy, both as providers of unpaid care and as recipients of such care. Providing care is the main reason why some young people, especially young women, are not in employment, education or training (NEET) (ILO 2019b).

This chapter argues that investments in care sectors benefit young people in four key respects: (a) by creating decent work opportunities, they improve young people's employment prospects, particularly those of young women, since care sectors are heavily feminized; (b) by providing care services, particularly for young children, they make it easier for young women and men with family responsibilities to enter and remain in the labour force; (c) by expanding education and training opportunities, and by catering to young people's healthcare needs, they promote the well-being of young people; and (d) as a result of all the above, they help to lower youth NEET rates, especially among young women.

▶ Figure 4.1 Conceptual framework: Young women and men in the care economy

Young people are recipients and providers of unpaid care work within families and communities. Providing care is the main reason why some young people, especially young women, are not in employment, education or training (NEET).



The working conditions of young workers are relatively worse than those of older workers. Gender inequalities in working conditions are exacerbated by the lack of care services.

The care economy: Unpaid care work + paid care work

Young people are recipients and providers of paid care work. Young workers in the care economy face the same general challenges that care workers as a whole have to contend with, notably overwork, low pay, precarious working conditions, and insufficient or no labour and social protection. These challenges are sometimes exacerbated by young people's lower qualifications and relatively limited experience.

Young people are the main recipients of secondary and tertiary/university education and vocational training services. They need access to specific health services such as sexual and reproductive health. As young parents, they benefit from care policies, including policies to ensure the provision of early childhood care and education services.

Source: Adapted from ILO (2018).

▶ Box 4.1 Defining the care workforce

The present chapter follows the approach of the ILO report *Care Work and Care Jobs for the Future of Decent Work* (ILO 2018, 412) to define the care workforce. This approach is based on both the International Standard Classification of All Economic Activities (ISIC), Revision 4, and the International Standard Classification of Occupations (ISCO) 2008. In ISIC Rev.4, the care sectors are education (division 85), human health activities (86), residential care activities (87) and social work activities without accommodation (88). Care occupations ("core" care workers) can be identified on the basis of ISCO-08. Domestic workers, on the other hand, can be identified by using ISIC Rev.4 division 97, "activities of households as employers of domestic personnel", as a proxy for domestic work.[1]

The care workforce can accordingly be defined as the sum of the following four categories of workers: (a) care workers employed in care sectors; (b) domestic workers (employed by households); (c) care workers employed in non-care sectors; and (d) non-care workers in care sectors.

This chapter does not differentiate between care occupations within care sectors on the basis of ISCO-08, as for the purposes of the report it is necessary to disaggregate workers by sex and age. This means that information on care workers such as health professionals, teachers and personal care workers is aggregated with information on workers not directly providing care in care sectors, such as janitors or administrative employees in a hospital. For the sake of consistency, and to capture the total care workforce, care workers in non-care sectors (category (c) above) have been distributed across the sectoral groups as follows: (i) all workers in ISCO-08 sub-major group 23 (teaching professionals) have been added to "education"; (ii) all workers in ISCO-08 sub-major groups 22 (health professionals) and 32 (health associate professionals), except for those working in ISIC Rev.4 division 75 (veterinary activities), have been added to "health and social work"; and (iii) all workers in ISCO-08 sub-major group 53 (personal care workers) have been added to "domestic work". In this way, all care occupations are included in the analysis.

[1] This classification includes only those domestic workers hired directly by households.

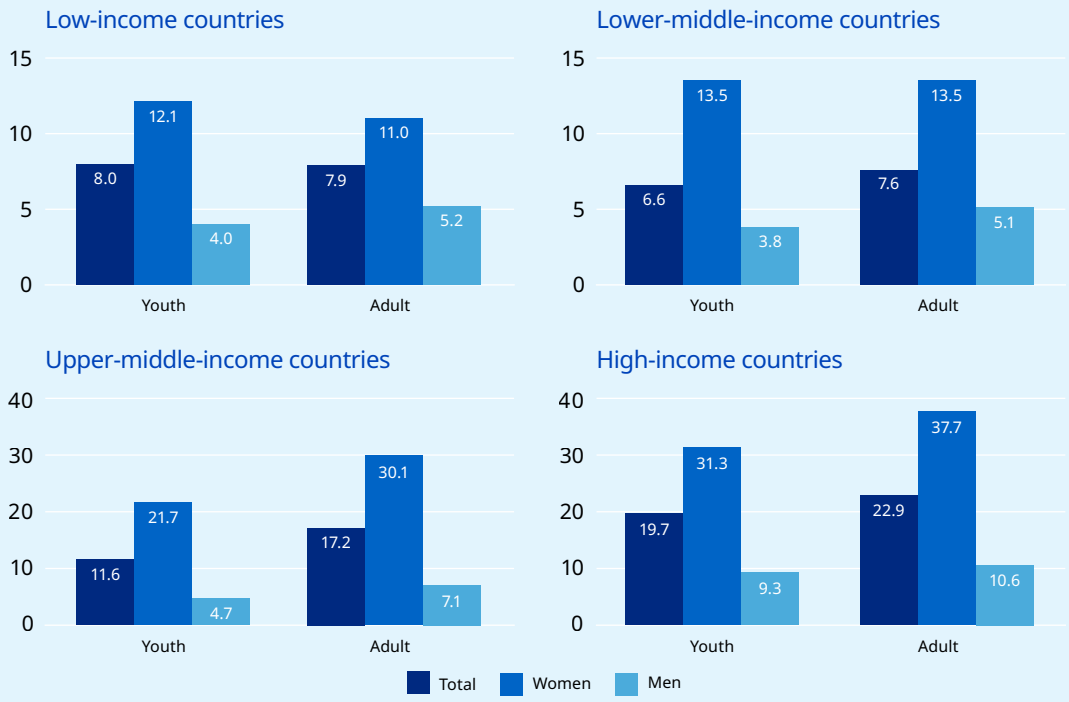
Source: ILO (2018, Appendix A.4.1).

4.2 The care economy as a major employer of young workers

The care economy is a major employer of young workers, particularly young women. On average, 10.7 per cent of all young workers (aged 15–29 years) were working in health and social work, in education or as domestic workers just before the onset of the COVID-19 pandemic. In absolute numbers, this translates into 47.8 million young workers. Applying sex disaggregation, the care economy at the time employed 33.6 million young women, or 20.2 per cent of all young female workers, and 14.2 million young men, or 5.1 per cent of all young male workers. These shares mask great variations in youth employment in the care economy depending on countries' income levels. As figure 4.2 shows, the higher a country's income level, the higher the share of young care workers in total youth employment. This pattern is driven by young women's employment in care sectors, since young men's employment in these sectors is less than 5 per cent of total male youth employment in low-, lower-middle- and upper-middle-income countries, and less than 10 per cent of total male youth employment in high-income countries.

In low-income and lower-middle-income countries, the share of young women (15–29 years) employed in the care economy is approximately the same as the share of adult women (30+ years) employed in these sectors, the female youth share standing at 12.1 per cent in low-income countries and at 13.5 per cent in lower-middle-income countries. As the country income level rises, though, adult women's employment in care sectors becomes proportionally higher than young women's. Nevertheless, the care economy accounted for one fifth (21.7 per cent) and almost one third (31.3 per cent) of all female youth employment in upper-middle-income countries and high-income countries, respectively.

▶ Figure 4.2 Care employment as a share of youth and adult employment, by sex and country income group, latest year before the COVID-19 crisis (percentage)



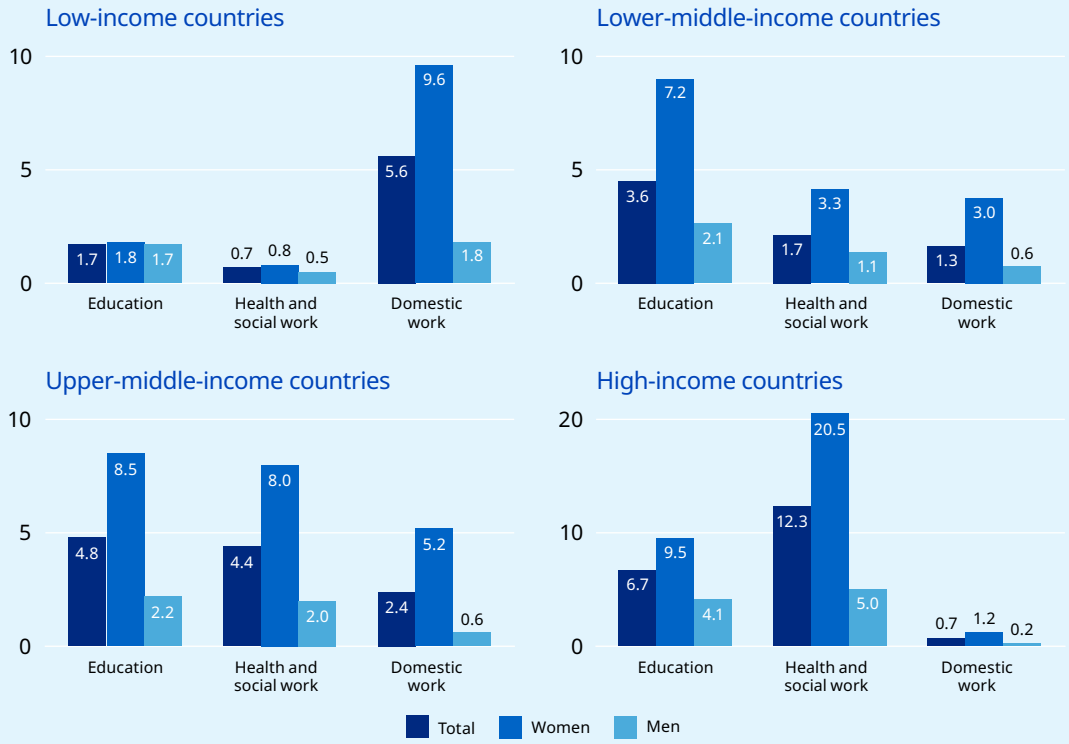
Note: The calculations are based on microdata from labour force surveys for 132 countries, comprising 15 low-income, 37 lower-middle-income, 39 upper-middle-income and 41 high-income countries. Each chart shows pooled averages estimated by pooling data for all the countries in the reference income group. "Youth" refers to ages 15–29; "adult" to ages 30+.

Source: ILO calculations.

Figure 4.3 shows the sectoral composition of youth employment in the care economy. The share of youth employment in education grows with country income level, from 1.7 per cent in low-income countries to 6.7 per cent in high-income countries. The corresponding difference between low- and high-income countries is much higher for youth employment in health and social work. In low-income countries, fewer than 1 per cent of all young people work in that sector, a share that rises to 1.7 per cent in lower-middle-income countries and to 4.4 per cent in upper-middle-income countries. In high-income countries, in contrast, health and social work accounts for over 12 per cent of total youth employment and over 20 per cent of female youth employment. In countries such as Belgium, Finland and Switzerland, this sector accounts for more than a quarter of all young women employed; in Norway it is even over a third (35 per cent).

The pattern in employment as domestic workers goes, broadly speaking, in the opposite direction. Such employment makes up 5.6 per cent of youth employment in low-income countries (and almost 10 per cent of female youth employment) but less than 1 per cent in high-income countries (1.2 per cent of female youth employment). Except for low-income countries, where the overall workforce tends to be young, domestic work is a sector dominated by adult women (ILO 2021b).

▶ **Figure 4.3 Youth employment in education, in health and social work, and in households as a share of total youth employment, by sex and country income group, latest year before the COVID-19 crisis** (percentage)



Note: Calculations based on microdata from labour force surveys for 132 countries, comprising 15 low-income, 37 lower-middle-income, 39 upper-middle-income and 41 high-income countries. Each chart shows pooled averages estimated by pooling data for all the countries in the reference income group. "Youth" refers to ages 15–29.

Source: ILO calculations.

In short, as countries climb the income ladder (and go through their demographic transitions) and the provision of care services expands, the care economy workforce increases its share of youth and adult employment and becomes increasingly feminized. Its average age also rises. While, on average, 39.9 per cent of workers in the care economy are young in low-income countries, that proportion is down to less than a quarter (24.2 per cent) in lower-middle-income countries, falling further to 17.7 per cent in upper-middle-income countries and 18.4 per cent in high-income countries.

As countries climb the income ladder, the care economy workforce increases its share of youth and adult employment and becomes increasingly feminized.

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4.2.1 Young workers in the education sector

Employment in education as a share of young women's and men's employment is very low and roughly the same for both sexes (around 1.7 per cent) in low-income countries (figure 4.3). This equality masks two distinct characteristics which are affected differently by development. Men dominate employment in the sector in rural areas, whereas female teachers predominate in towns and cities (ILO, 2018, 237). As country income increases, so too does urbanization, and consequently, the sector becomes female-dominated: employment in education accounts for 7.2 per cent of young women's employment in lower-middle-income countries, for 8.5 per cent in upper-middle-income countries and for 9.5 per cent in high-income countries. With regard to education's share of young men's employment, it is around 2 per cent in all but high-income countries, where it reaches 4.1 per cent.

As with the care economy as a whole, the education sector's workforce becomes feminized and older as countries' incomes rise. There are differences between young and adult workers within the sector. For example, across OECD countries, the share of young teachers in the teaching workforce decreases with rising level of educational establishment: 12 per cent in primary, 11 per cent in lower secondary and 8 per cent in upper secondary education (OECD 2021a).

Educational attainment of young workers in education

The educational credentials of young workers in the education sector are higher than in the other two care sectors. Although there is some variation, the higher a country's income level, the higher these workers' credentials (proxied by the proportion of university graduates working in the sector). In upper-middle-income and high-income countries, the proportion of university graduates in the education workforce is similar among young women and men, at approximately 60 per cent. This correlates with the high shares of young workers having professional or managerial occupations, particularly in the case of young women in high-income countries (figure 4.4).

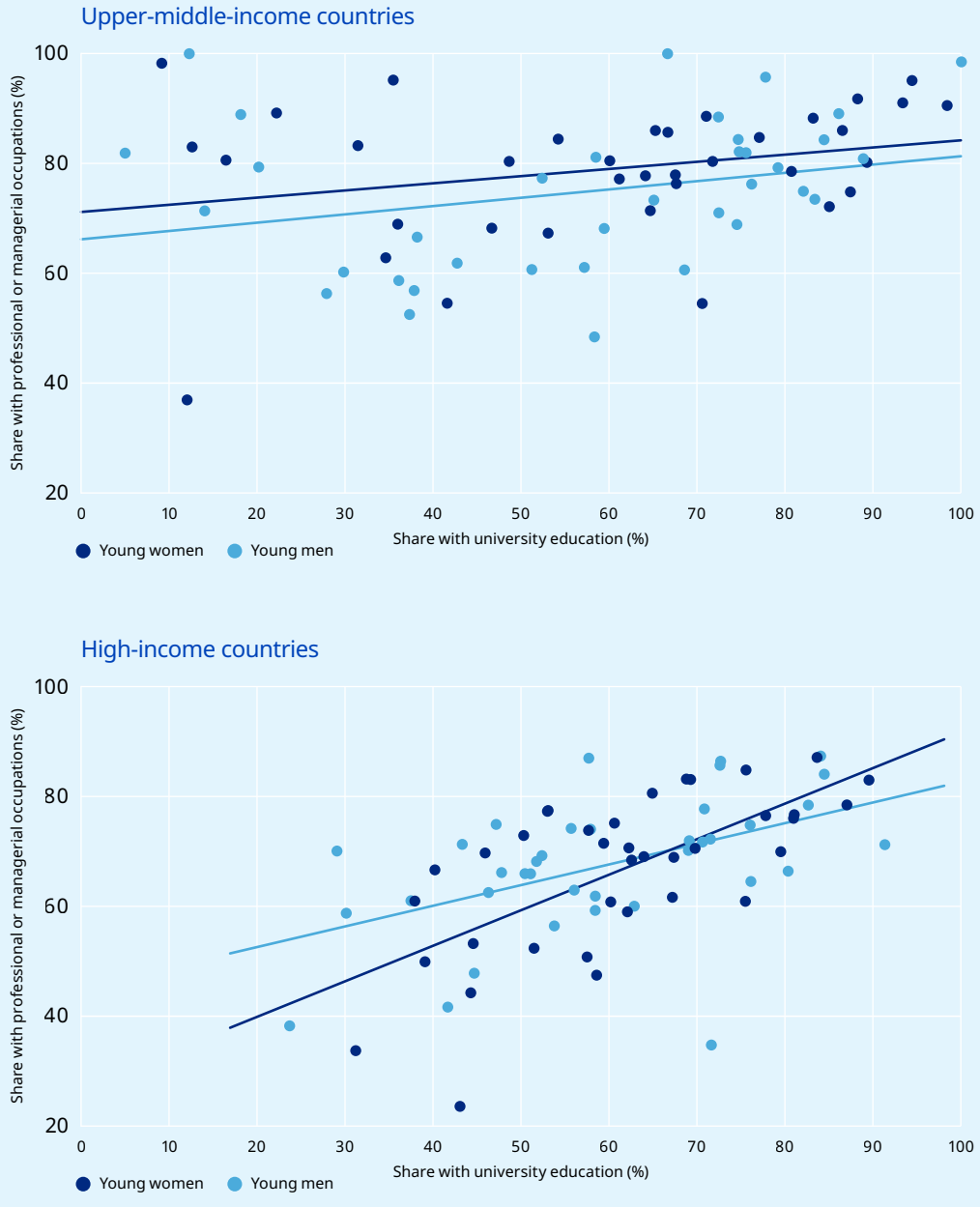
In contrast, in low-income countries and in some lower-middle-income countries, young workers with a secondary education or vocational training are prevalent in the education sector, sometimes making up for the absence of qualified teachers. Approximately half of young female workers in the sector in low- and lower-middle-income countries have vocational training, as do half of young male workers in low-income countries. In many cases, workers with vocational qualifications are recruited as contract teachers or community teachers, undergoing a brief training period before being sent to schools in remote areas (ILO 2018, 189). Professional development programmes are required to support them in their work (Acheampong and Gyasi 2019).

Working conditions of young workers in education

Teaching at all levels is widely perceived to have high social relevance, and in some countries the profession of teacher is among the most respected. However, many teachers end up leaving the profession because of high stress levels, overwork, a negative working environment, job insecurity and increased job expectations (with regard to assessments, student behaviour, administrative tasks, and dealing with the social and emotional needs of students), among other reasons. Young teachers reported high levels of burnout, even before the pandemic (ILO 2021c).

> The educational credentials of young workers in the education sector are higher than in the other two care sectors – and rise along with country income level.

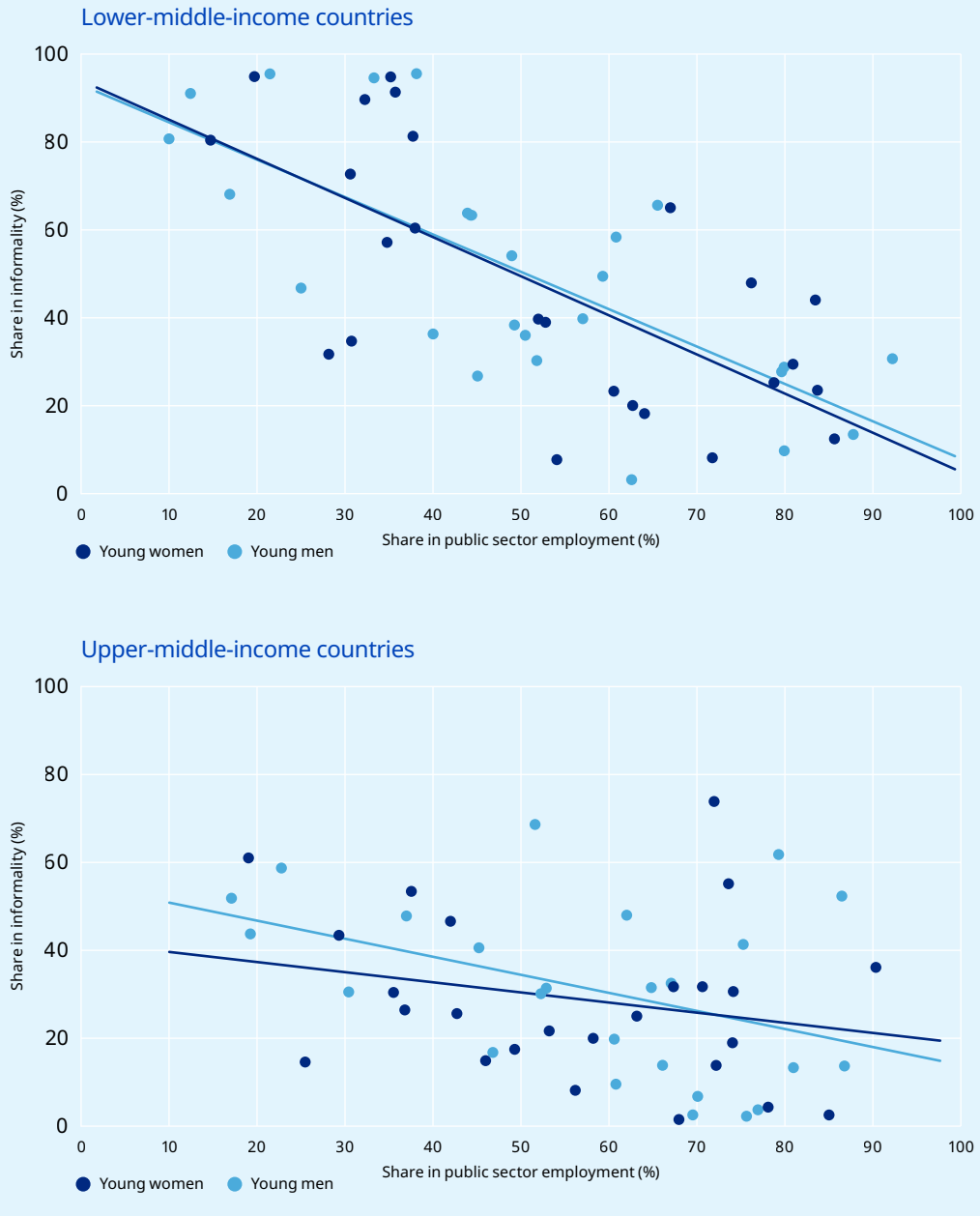
▶ **Figure 4.4 Correlation between the share of young workers who are university graduates and the share of young workers in professional and managerial occupations in the education sector, by sex, upper-middle-income and high-income countries, latest year before the COVID-19 crisis** (percentage)



Note: Young workers are defined here as those aged 15–29 years.

Source: ILO calculations based on microdata from labour force surveys covering 118 countries.

▶ **Figure 4.5 Correlation between public sector employment and informality of young workers in education, by sex, lower-middle-income and upper-middle-income countries, latest year before the COVID-19 crisis** (percentage)



Note: Young workers are defined here as those aged 15–29 years.

Source: ILO calculations based on microdata from labour force surveys covering 50 countries.

Informality[1] **among young education workers is very high in several countries:** approximately 80 per cent for men and 70 per cent for women in low-income countries; 50 and 40 per cent, respectively, in lower-middle-income countries; and 30 and 25 per cent, respectively, in upper-middle-income countries, though there is significant variation across countries. Apart from a few exceptions, the informality rate among young education workers is higher than among their adult counterparts. Figure 4.5 indicates that this is associated with young workers' lower levels of public sector employment, particularly in lower-middle-income countries. In these countries, non-state educational providers seeking to reduce their costs may resort to hiring young or unqualified workers as voluntary or community teachers or as contract teachers. Voluntary or community teachers tend to have salaries below the minimum wage and no social security or medical insurance (UNESCO 2021, 86).

At non-state schools there is also a lower prevalence of workers with permanent contracts, particularly at the early stages of a teacher's career (ILO 2021c). In Türkiye, 96 per cent of state schoolteachers but only 27 per cent of those in private schools are permanently employed. In the Sudan, 50 per cent of teachers at private schools are on contract. In Uganda, all teachers working at private schools have contracts, but these are most often of an oral type. Private schoolteachers on temporary contracts tend to be less qualified, to have less teaching experience and to be less well trained than their counterparts at state schools. They sometimes have to work under pressure to ensure that their students perform better than those at state schools and feel themselves to be at greater risk of losing their jobs. In Guinea, for example, while state schoolteachers complain about poor infrastructure and overcrowded classrooms, private schoolteachers report a lack of job security as their most pressing concern (UNESCO 2021, 46).

Furthermore, teachers in non-state schools are often paid significantly less than those in state schools. Teachers in low-fee private schools in India, Kenya, Nigeria and Pakistan are paid between one eighth and one half of what their counterparts in the state sector receive. In the Philippines and Uganda, corporate chain schools pay teachers around half as much as public schools (UNESCO 2021, 46). A review of 15 sub-Saharan African countries found that fixed-term contract teachers had median monthly wages corresponding to about 71 per cent of those of permanent teachers (Evans, Yuan and Filmer 2022). Young, undertrained and inexperienced teachers earning lower salaries and enjoying fewer benefits are more prone to losing their motivation, which in turn impairs the quality of their teaching (Chudgar, Chandra and Razzaque 2014).

4.2.2 Young workers in the health and social work sector

As mentioned above, youth employment in health and social work as a share of total youth employment increases with rising country income level (see figure 4.3). Economic development is associated with broader health protection coverage and, in high-income countries, also with the provision of long-term care services (ILO 2018). As countries' income levels rise and sectoral employment accounts for an increasing proportion of total employment, it is also the case that overall youth employment as a share of total employment decreases. This is due to demographic trends (fewer young people in the total population), longer educational trajectories and lower NEET rates (ILO 2019b). Therefore, although young workers find more jobs in health and social work than in other sectors, they are proportionally fewer relative to the total employed population and make up a smaller share of sectoral employment in health and social work. Young workers account for 28 per cent of sectoral employment in low-income countries, for 27.3 per cent in lower-middle-income countries, for 19.2 per cent in upper-middle-income countries and for 19.3 per cent in high-income countries. The ageing of the health and social workforce is problematic, as it can lead to shortages in the numbers of young professionals, particularly in high-income countries. The International Council of Nurses, for example, has estimated that 4.7 million

[1] Informal employment is defined in terms of the nature of workers' employment conditions, rather than the type of the employer or unit of production. Specifically, a worker's employment is defined as informal if he or she is in employment (working for pay or profit – that is, as a wage worker or an independent worker) but is not registered with the social security system of the jurisdiction in which he or she works.

Youth employment in health and social work as a share of total youth employment increases with rising country income level.

additional nurses will need to be trained and employed by 2030 just to maintain current workforce numbers in developed countries (ICN 2021).

Another notable trend is the feminization of employment in the health and social work sector, often associated with the fact that caring roles are traditionally performed by women (see box 4.2; ILO 2018). While young women make up around 16.5 per cent of sectoral employment in low-income countries, 15.0 per cent in lower-middle-income countries, 14.0 per cent in upper-middle-income countries and 15.2 per cent in high-income countries, the corresponding shares for young men are 11.5 per cent in low-income countries, 12.2 per cent in lower-middle-income countries, 5.1 per cent in upper-middle-income countries and a mere 4.1 per cent in high-income countries.

▶ Box 4.2 The challenges of being a young female medical resident

"I am a medical resident at a public hospital in Lebanon. I chose to be a doctor because I am a compassionate person. Ever since I was little, I was curious about my surroundings and wanted to find out such things as what was inside the ear of my cat, what was inside the thermometer and what would happen if we took the fish out of their tank. But at the same time, I grew up in a culture where women are regarded as more caring than men. We were raised in a way that made us feel we should love caring, and we are expected to care. So I think that is something else that pushed me to pursue a medical career and look after patients. ... What I like most about the healthcare profession is that we provide care in critical situations. And for people who are vulnerable. In ten years' time, I hope that I will have managed to complete my residency programme. On a professional level, I think I'll be able to solve people's medical problems both directly through patient care, and indirectly through research. And on a social level, I hope I will be able to be a mother and give my children every possible care and affection. And I hope that I'll be able to balance being a mother, a wife and a doctor, which is not that easy.

"... We currently provide care services for the population of southern Lebanon, which is a huge population. We're working around 96 hours a week. And we only have four weeks of annual leave, which is divided into two weeks in the first six months and two weeks in the other six months because we're not allowed to take it all at once. Other unfavourable conditions are that we don't have access to canteen food and we don't have transport subsidies. I don't know if everybody is aware of the current situation in Lebanon, but we're going through an economic crisis and petrol prices are soaring, so we're not even able to fill our car with petrol. That's another big problem we're facing. And we don't even have childcare services. Some medical residents have had to withdraw from the training just to take care of their children; some delay having a child just to finish the residency. In other cases, residents are able to have children during the residency, but only because their parents are available to provide childcare. Sometimes one spouse is not a physician and they can help the one who is, but that's not always the case. We don't really have labour protection as medical residents. We are exposed to physical abuse, emotional abuse and even the risk of sexual assault, without any protection whatsoever.

"All these unfavourable working conditions lead to the migration of doctors to other countries. And this has resulted in a deterioration of the quality of care provided."

Source: Testimony collected as part of the interviews with young people conducted for this report, October 2021.

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Educational attainment of young workers in health and social work

The educational attainment levels of young workers in health and social work tend to improve with rising country income. The proportion of young men with university qualifications is greater than that of young women in low-income countries (34.3 per cent versus 28.4 per cent) and in high-income countries (43.7 per cent versus 39.0 per cent). In middle-income countries, however, the shares of young women and men are similar – approximately 37.3 per cent or young workers in lower-middle-income countries and 45.3 per cent in upper-middle-income countries are university graduates.

Around 34.7 per cent of young female workers in the sector in low-income countries have vocational training; this proportion is 46.5 per cent in lower-middle-income countries, 47.6 per cent in upper-middle-income countries and 56.7 per cent in high-income countries. The corresponding shares for young male workers are 34.8 per cent in low-income countries, 42.3 per cent in lower-middle-income countries, 43.8 per cent in upper-middle-income countries and 50.9 per cent in high-income countries. The prevalence of secondary and vocational training among young workers in the sector increases with countries' income, reflecting the higher levels of education overall.

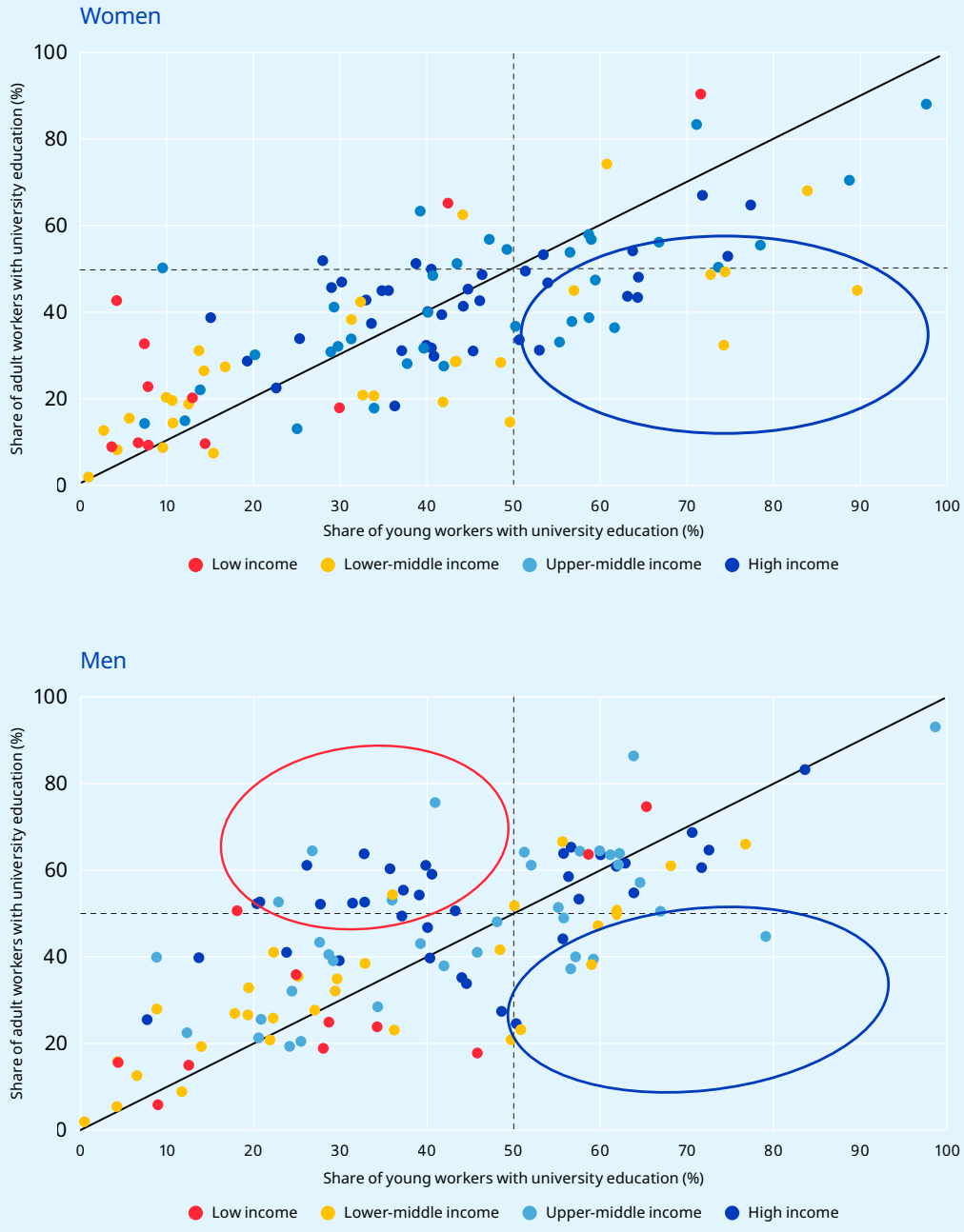
In low-income countries, young workers in the sector without university, secondary or vocational qualifications are typically community health workers. In sub-Saharan Africa, for example, the vast majority (68 per cent) of community health workers are young women. With the exception of Zambia, community health workers in most of these countries do not receive any salary: they are employed on a voluntary basis (though they may periodically receive monetary or non-monetary incentives) and so are left outside the purview of labour and social protections (Cattaneo, Licata and Montefiori 2019).

The levels of educational attainment in this sector's workforce are influenced by the regulations governing the registration and certification of health professionals and by the organization of the health system. Another factor is the relative expansion or absence of institutional long-term care, since the educational requirements for working at a care home are different from those of a hospital facility. The variation observed between countries in this respect can therefore stem from such organizational aspects, which would affect young and adult workers similarly. This is confirmed by figure 4.6, which plots the shares of young and adult workers in the sector with a university education, with disaggregation, by sex. Most countries appear in the south-west and north-east quadrants and are concentrated around the values noted earlier (higher levels of university education may be observed for upper-middle-income countries, for both young women and men). Moreover, most countries lie roughly along the 45° line, which means that low or high levels of university education are similar in the youth and adult workforces. Women, both young and adult, appear to be more concentrated in the south-west quadrant than men – an indication that they tend to have lower-skilled jobs offering less pay and situated at the bottom end of the professional hierarchy compared with men (ILO 2017a).

Nevertheless, some upper-middle-income countries and a handful of lower-middle-income countries are to be found in the south-east quadrant, particularly in the case of women (circled in blue). In these countries, younger cohorts of female workers in health and social work have higher educational credentials, possibly as a result of the "academization" of health professions, particularly nursing (Friedrichs and Schaub 2011).[2] The opposite can be observed in a group of upper-middle- and high-income countries in which young men with a university education are proportionally fewer than their older counterparts (north-west quadrant, circled in red). In other words, young medical doctors and professional nurses are increasingly women, while men are taking up less qualified jobs. This implies that the health and social work sector in these countries is being feminized among its university-educated workforce and de-feminized among the remainder of the workforce.

[2] Since it affects the skill levels, education and qualifications required for the various occupations in the health and social work sector, academization also has implications for the recognition of migrant health workers' skills.

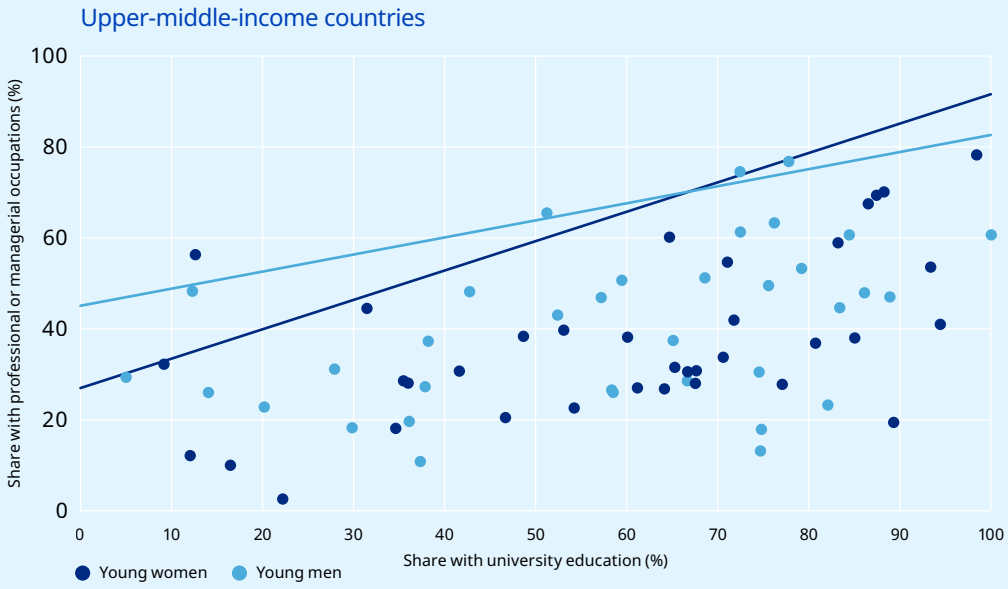
▶ Figure 4.6 Comparison of the shares of young and adult workers in health and social work with a university education, by sex and country income level, latest year before the COVID-19 crisis (percentage)

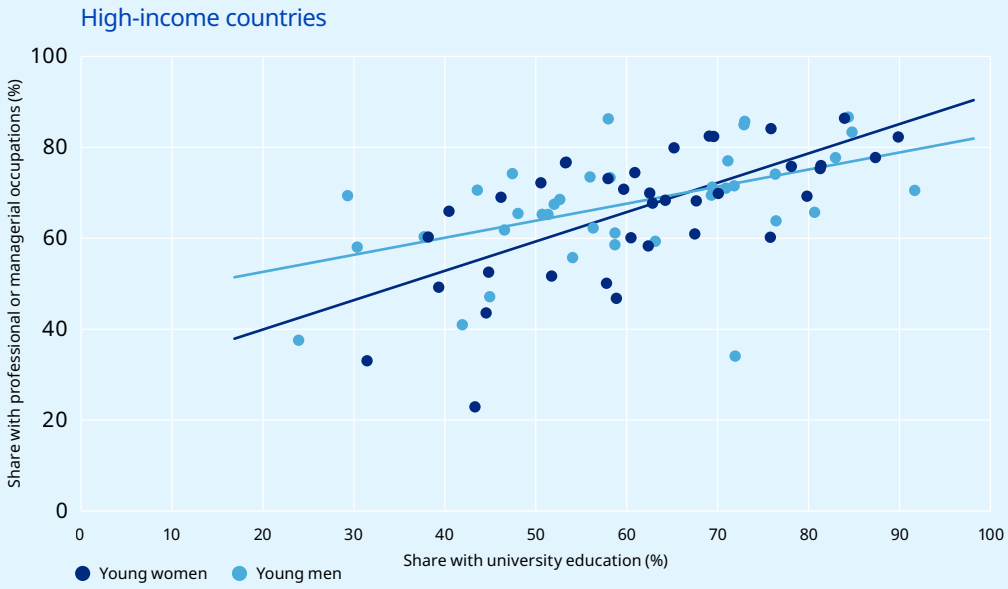


Note: Young workers are defined here as those aged 15–29 years, adult workers as those aged 30 years and older.

Source: ILO calculations based on microdata from labour force surveys covering 118 countries.

▶ Figure 4.7 Correlation between the share of young workers who are university graduates and the share of young workers in professional and managerial occupations in the health and social work sector, by sex, upper-middle-income and high-income countries, latest year before the COVID-19 crisis (percentage)





Note: Young workers are defined here as those aged 15–29 years.

Source: ILO calculations based on microdata from labour force surveys covering 118 countries.

University education is also correlated with professional and managerial occupations. Figure 4.7 shows a higher correlation for women than for men in both upper-middle- and high-income countries, which means that women are, to a greater extent than men, required to hold university qualifications to access senior positions. Indeed, women make up 70 per cent of the health workforce worldwide but occupy only up to 25 per cent of senior roles. Women in the health sector often report that lack of recognition and respect is a barrier to their career advancement and entry into leadership roles, regardless of their credentials. Female managers in the sector often feel that their voices are not as respected as those of their male colleagues, and they face discrimination, in particular if they are young (WHO 2019).

Working conditions of young workers in health and social work

Informality, with all its associated deficits in labour and social protection, is less prevalent in the health and social work sector than in the overall youth workforce, but it is a cause for concern all the same (ILO 2018). The informality rate is systematically higher for young workers (aged 15–29 years) than for adult workers (30+ years) in sectoral employment. A significant proportion of young workers – approximately 53.8 per cent of young women and 55.5 per cent of young men – are informally employed in low-income countries. Informality also affects a considerable share of young workers in lower-middle-income countries (around 33.7 and 46.0 per cent of young women and young men, respectively) and even in upper-middle-income countries (21.0 and 18.6 per cent of young women and young men, respectively).

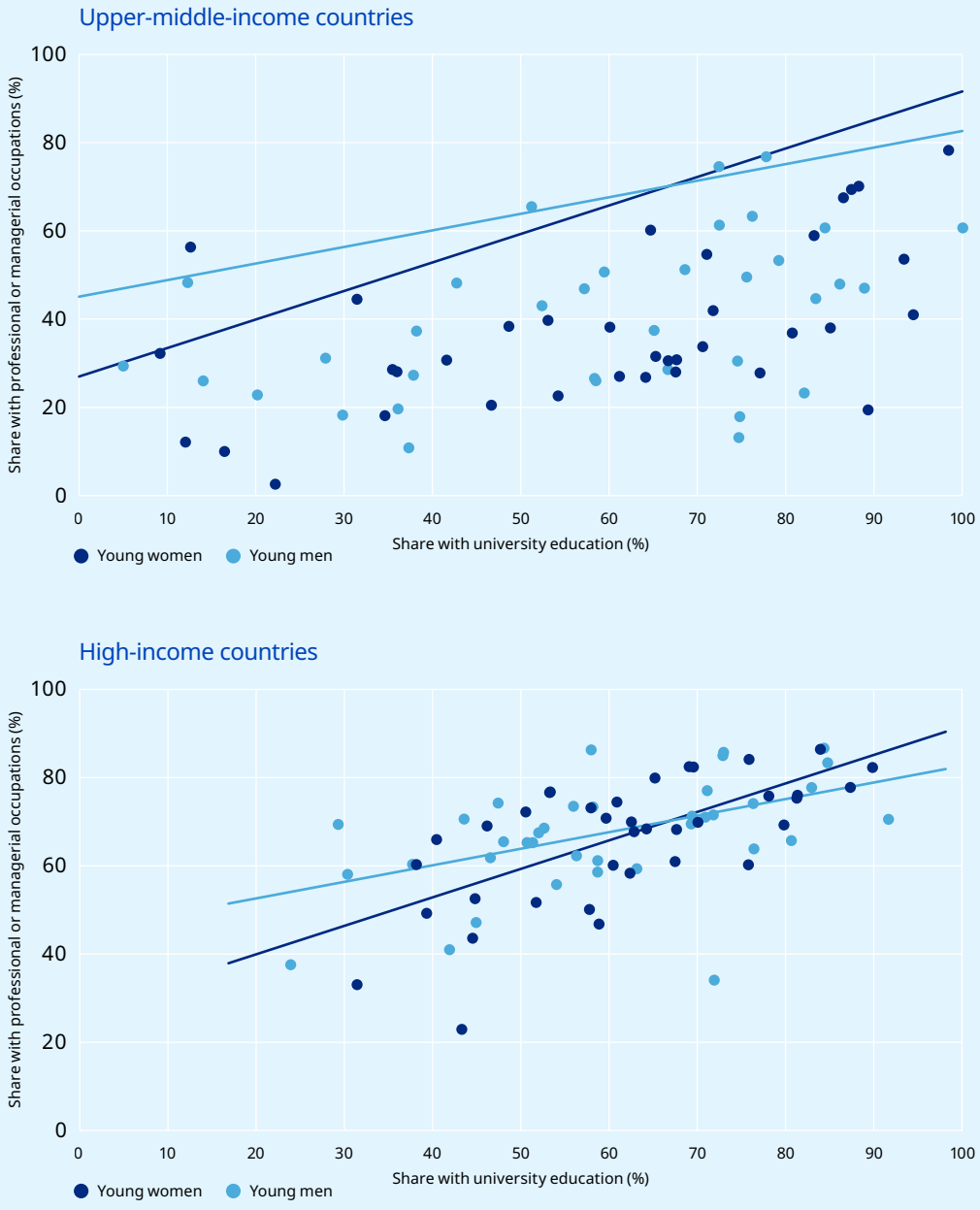
One of the reasons behind the higher incidence of informality among young workers in health and social work is their more limited access to public employment, which typically offers formal working conditions. Figure 4.8 confirms this for low-income and lower-middle-income countries, where the aforementioned negative correlation is stronger for young women than for young men. Irrespective of the mix of public and private employment in health and social work, the shares of young female and male workers in the public sector are systematically lower than those of their adult counterparts.

Young workers in health and social work also experience lower job stability than their adult counterparts, as fewer of them have permanent contracts. The gaps are significant in low- and lower-middle-income countries, which is in line with the incidence of informality in these countries. However, the same phenomenon can be observed in some high-income countries (most of them in Europe, together with Canada and Chile), where over 80 per cent of adult workers in the sector have permanent contracts, yet the corresponding share for young workers ranges from 40 to 60 per cent (it appears to be higher for young women than for young men). This is particularly concerning, since temporary contracts often do not provide for adequate social protection, especially unemployment protection.

Young health professionals naturally prefer the financial stability associated with permanent contracts, in particular those who have to repay student loans (GHWN Youth Hub 2020). Contractual arrangements can have a long-term impact on young health graduates through the remuneration and incentives that they provide. While they can be designed to encourage nurses and other healthcare professionals to work in rural areas, as has been done in Australia, Canada and Mozambique, they can also have unintended consequences if they provide the wrong incentives. In the United Kingdom, for example, the contractual agreements for junior doctors introduced by the National Health Service put in place a new payment scheme that increased their working hours and included weekend work. A survey among junior doctors in their second year indicated that more than 20 per cent had changed their chosen specialty, mostly shifting from community-based to hospital-based practice; and 30 per cent of those who had originally intended to pursue the general practitioner track reported changing to different specialties. Such trends are contrary to the principles of a community-based primary healthcare system (GHWN Youth Hub 2020).

Pay gaps between different occupations in the health workforce, along with gender gaps within occupations and international disparities, make it difficult to develop a professionalized health workforce in the requisite numbers (ILO 2018). Young health workers identify low salaries as a key challenge in going about their work and as an incentive to migrate (see also box 4.3).

▶ **Figure 4.8 Correlation between public sector employment and informality of young workers in health and social work, by sex, low-income and lower-middle-income countries, latest year before the COVID-19 crisis** (percentage)



Note: Young workers are defined here as those aged 15–29 years.

Source: ILO calculations based on microdata from labour force surveys covering 37 countries.

▶ Box 4.3 The challenges faced at work by young health and social workers

Young and newly qualified health and social care workers face alarmingly high rates of verbal, psychological, physical and sexual violence in the workplace across the globe. Young women, in particular, are often more likely to be exposed to harassment or violence. Furthermore, gender stereotyping, bias and discrimination often occur in both training and work environments.

Higher burnout rates are observed among younger workers, including students and new graduates, than among older and more experienced workers.

Other issues such as the difficulty of maintaining a good work–life balance, inadequate mentorship, occupational segregation and patriarchal working environments influence students' and early career professionals' occupational decisions.

Source: GHWN Youth Hub (2020).

Young social care workers caring for adults in residential care facilities or providing domiciliary care face specific challenges as regards their working conditions and pay. In general, it is difficult for the social care sector in high-income countries to attract and retain workers. This is due partly to budgetary constraints in the public sector, which limit the payments that can be made to private providers for the services provided; and partly to the increased marketization of care, which includes the need to generate profits, resulting in unstable, low-paid jobs that offer few training opportunities for young workers. The entry of young, unskilled workers into the sector is thus seen as a way of putting downward pressure on sectoral wages (Müller 2019). To retain a young care workforce, it is necessary to focus on the quality of employment provided (see box 4.4). This is the opposite of shifting the risks on to individual workers, who are frequently offered flexible but precarious working conditions (Montgomery et al. 2017).

▶ Box 4.4 Young social care workers in England and Finland

Young social care workers in England have a hard time getting recognized and accepted – by managers, home residents and their families alike. The widespread notion that social care workers must have sufficient "life experience" to be able to do a good job, and that empathy, common sense and reliability come with age (rather than with training) puts young social care workers at a disadvantage. However, caring can be learned and taught. Older social care workers acknowledge that younger people may find it emotionally challenging to undertake care work and recognize the difficulties that the latter may experience in dealing with personal care tasks and managing "difficult" service users or families, but there are no structures in place to support them. In general, young social care workers in England are provided with inadequate guidance and training, and very low pay is the norm for most of them.

On the other hand, many young social care workers are enthusiastic and flexible; they are often able to pick up new ideas and practices more readily than older workers. Young practical nurses in Finland undergo vocational training, which instils in them a patient-oriented, rehabilitating approach to care. This approach sometimes clashes with institutional practices that prioritize "time efficiency" and routinized tasks, leading to poor-quality care.

Source: Fisher (2021); Lamberg (2020); Lipman, Manthorpe and Harris (2018).

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4.2.3 Young workers in domestic work

As already mentioned, domestic work in which young people are hired directly by households is the smallest contributor to youth employment in the care economy: on average, 5.6 per cent of young workers are employed in this sector in low-income countries, and the share is as low as 0.7 per cent in high-income countries.[3] However, such domestic work makes up a significant proportion of young women's employment, particularly in low-income countries (9.6 per cent) and in lower-middle- and upper-middle-income countries (3.0 and 5.2 per cent, respectively) (see figure 4.3 above). The sector is dominated by adult women in all countries, but young women in low-income countries still account for 39.9 per cent of total sectoral employment. If young men are included (7.4 per cent), it turns out that 47.3 per cent of all employment in domestic work is accounted for by young people in low-income countries. This share is approximately 25.3 per cent in lower-middle-income countries, and 16.5 per cent in both upper-middle- and high-income countries.

> Domestic work in which young people are hired directly by households is the smallest contributor to youth employment in the care economy.

Young domestic workers are frequently migrants from rural areas.[4] The prospect of a job that could lift them out of poverty and enable them to continue their education lures many girls and young women to the cities, either of their own accord or prompted by their families, although these hopes frequently go unfulfilled (Alaluusua 2017; Kerega 2019). The lack of childcare services in urban areas creates the demand, while the low wages of young female domestic workers make them the affordable "solution" for middle-income households seeking help in meeting their care needs. The undervaluation of domestic work, assumed to be a "natural" occupation for young women, the sheer numbers of young women who have few other employment options, and the difficulties in organizing due to the privacy and isolation of paid domestic work all contribute to this unfavourable situation. Whether "house girls" in Uganda (Irumba 2020), or *criadas* [maidservants] in Lima, Peru, or "housemaids" in India (see box 4.5), these girls and young women find their way into the labour market through domestic work, frequently facing very poor working conditions.

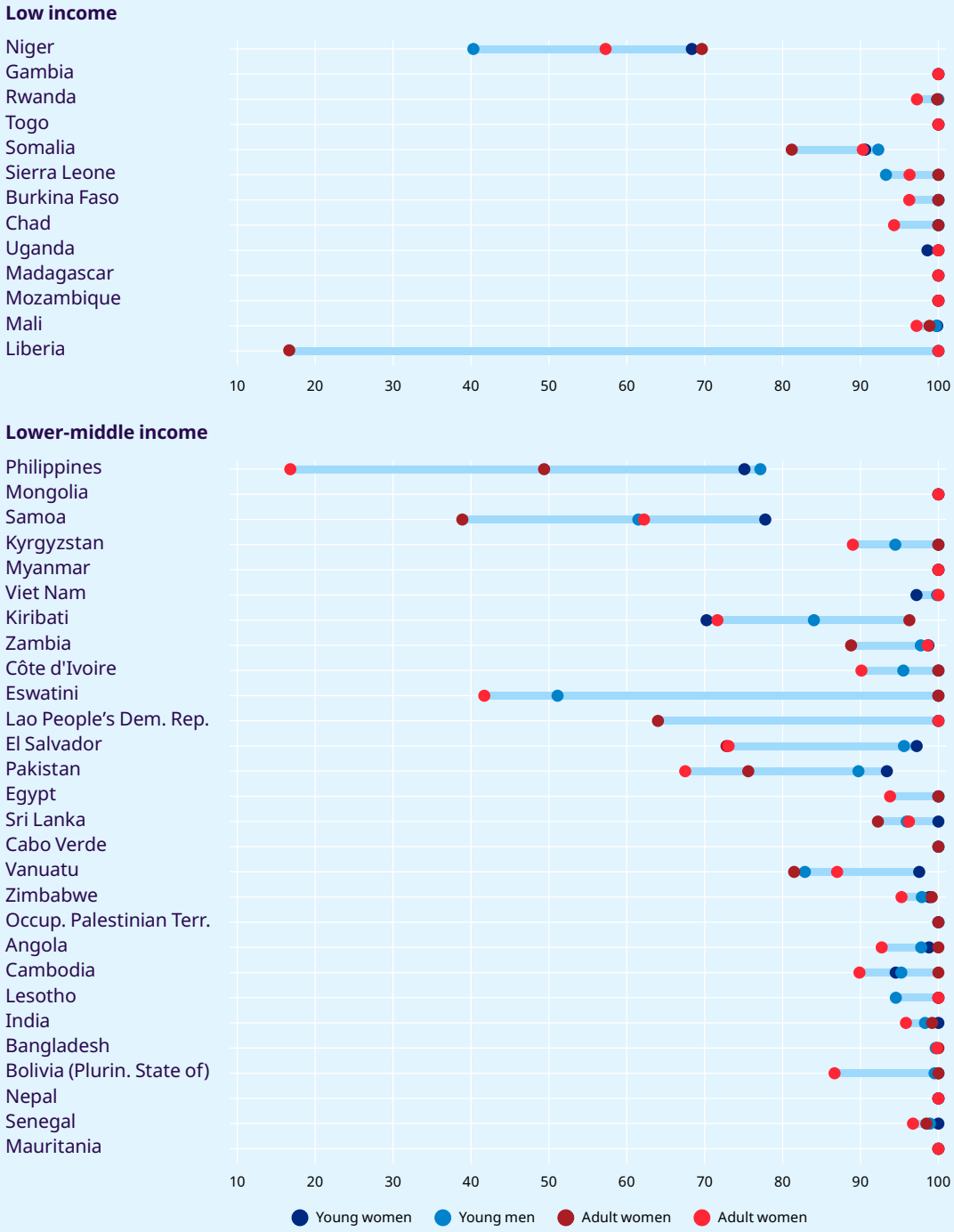
Educational attainment of young domestic workers

Young domestic workers have lower educational credentials than their counterparts in education and in health and social work. In low-income countries, 74.5 per cent of them have primary education as their highest level of educational attainment; this share is approximately 42 per cent in lower-middle-income countries and 27.8 per cent in upper-middle-income countries. In high-income countries, 63.1 per cent of young domestic workers have secondary or vocational qualifications, reflecting the higher overall level of education in these countries.

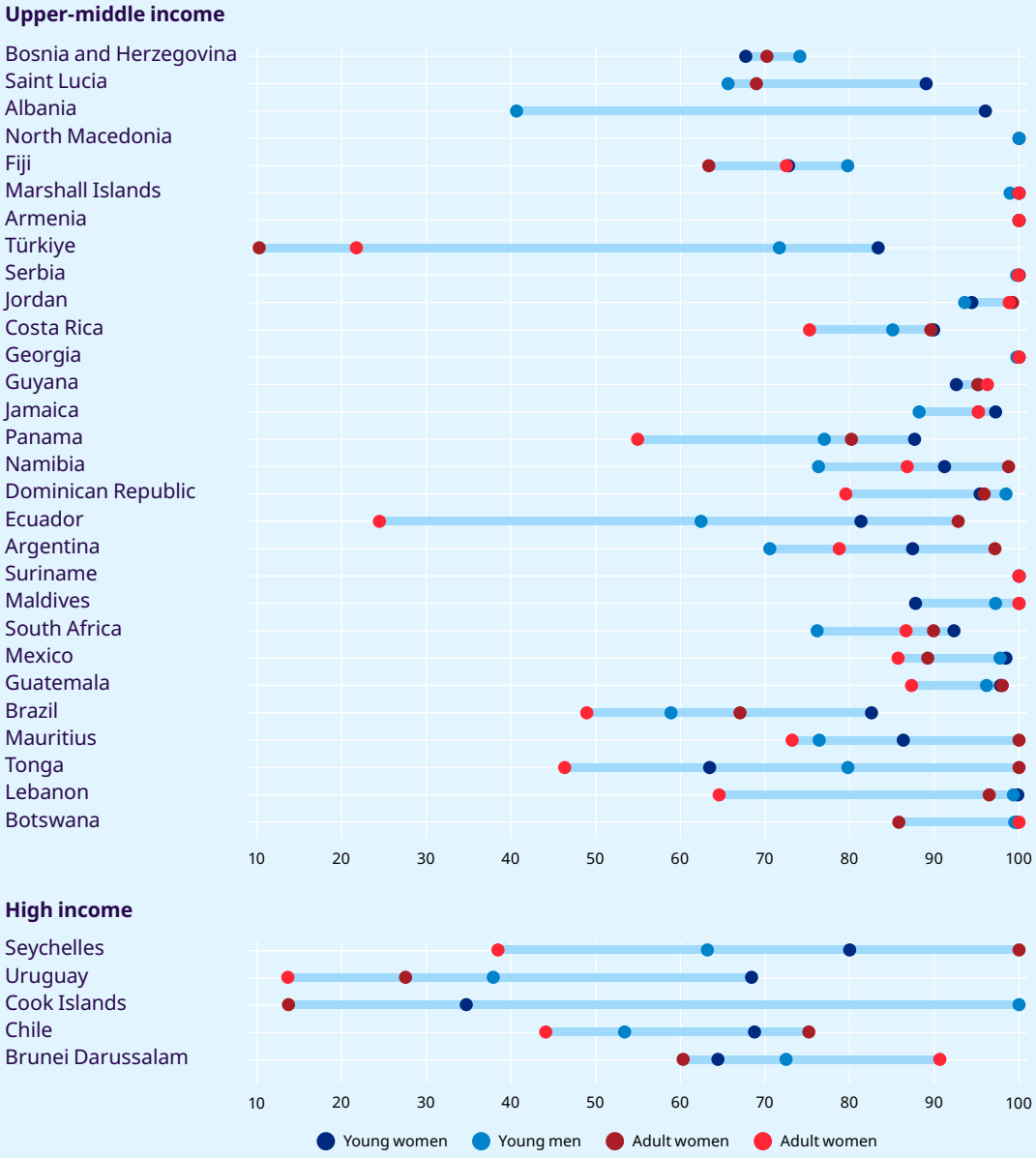
[3] It should be noted that domestic workers hired through or by a service provider, and therefore falling into some of the other categories within the care workforce (box 4.1), can make up the majority of the sector's workforce in some cases (ILO 2021b, Annex 7).

[4] Although international migration is frequent among domestic workers, migrant domestic workers are generally not young: the median age worldwide in 2015 was 39 years (King-Dejardin 2019, 11).

▶ **Figure 4.9 Shares of informal youth and adult employment in domestic work, by sex, selected countries/territories, latest year before the COVID-19 crisis** (percentage)



▶ **Figure 4.9** ***(cont'd)***



Note: "Youth" refers to ages 15–29; "adult" to ages 30+.

Source: ILO calculations based on microdata from labour force surveys covering 75 countries.

▶ Box 4.5 Young female domestic workers in India

The increasing demand for domestic workers in India has been linked to the expansion of the middle class. As more women from urban middle-class households enter the workforce, household chores are increasingly delegated to less privileged women. The substantial demand for young female domestic workers is, in part, driven by perceptions that girls provide cheaper labour, are easier to control and less likely to complain, and do not pose a physical or sexual threat to the household. Moreover, domestic workers are generally young women or girls because of their lower social status in Indian family and society.

Domestic work is a highly informal sector in India, and wages are extremely low. The informal nature of domestic work creates opportunities for potentially exploitative recruitment channels. Workers, especially young workers, are at a disadvantage when it comes to negotiating fair employment terms and safe working conditions with recruitment agents or directly with employers. In such a context, young women and girls are particularly vulnerable to abuse. Reports of abuse suffered by young domestic workers are common, including verbal and physical abuse and sexual exploitation.

Source: Svensson (2018).

Working conditions of young domestic workers

Figure 4.9 confirms domestic workers' dire situation with regard to their working conditions, and of young domestic workers in particular, proxied by their informality rate.[5] In 52 of the 75 countries covered by the figure, 90 per cent or more of young female domestic workers are informal, and in 48 of them 90 per cent or more of their male counterparts are informal. Moreover, the informality rate is 100 per cent among young women in this sector in 29 countries, compared with 20 countries for adult women. In the case of young men in the sector, informality reaches 100 per cent in 32 countries, compared with 22 countries for adult men. Even in some high-income countries where the situation is relatively better, such as Chile and Uruguay, the informality rate of young female domestic workers is close to 70 per cent.

4.3 Youth employment in care sectors and the COVID-19 crisis

The seismic impacts of the COVID-19 crisis on employment did not spare the care economy, but the effects were in many directions and of differing strengths. To capture these nuances, this section looks at the median and the dispersion of the country-level values, rather than their weighted averages, since the latter can hide the aforementioned differences. Among a subset of 40 countries with available data from before and after the onset of the pandemic, median employment in the care economy as a share of total employment contracted in the lower-middle-income countries in the sample (from 12.1 to 10.4 per cent), increased in upper-middle-income countries (from 15.3 to 16.2 per cent) and remained similar in high-income countries (from 19 to 19.3 per cent). Median female employment in the care economy as a share of women's employment contracted in high-income countries in particular (from 34.4 to 31.3 per cent), while remaining approximately equal in the other country income groups. Median male employment in the care economy increased in high-income countries (from 8.0 to 9.0 per cent) and in upper-middle-income countries (from 6.2 to 6.9 per cent), but decreased in lower-middle-income countries (from 5.7 to 5.1 per cent). These changes reflect both changes in the numbers of those employed in the sector (the numerator of these proportions) and overall changes in employment (the denominator).

In a context in which youth employment contracted by approximately 4.5 per cent (in median terms) in these 40 countries, the share of young women working in care sectors out of total female youth

[5] See footnote 1 above for the definition of informality.

> The share of young women working in care sectors out of total female youth employment remained similar to the pre-crisis value in lower-middle- and upper-middle-income countries but increased in high-income countries.

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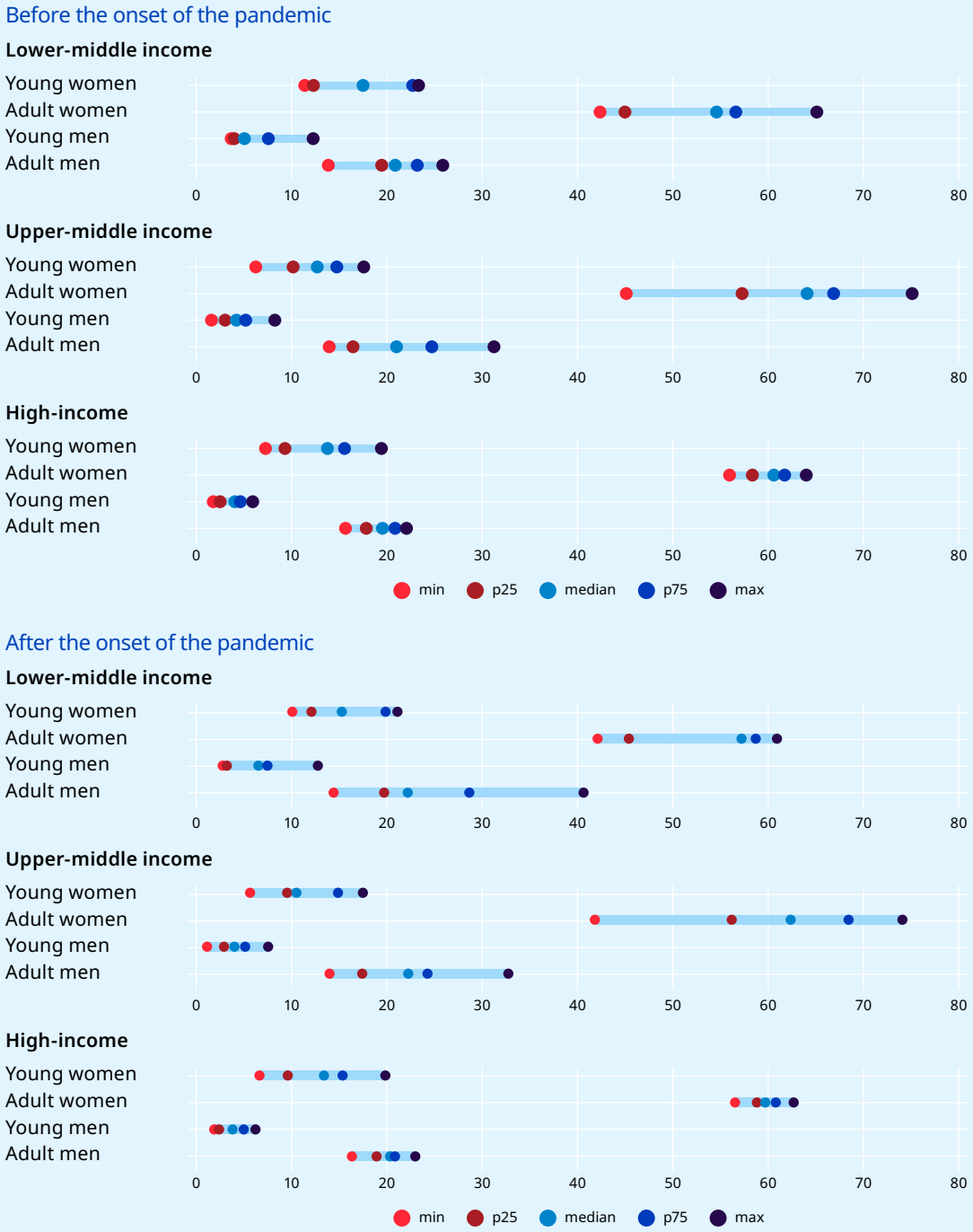
▶ Figure 4.10 Composition of care employment by age, sex and country income group, selected countries, before and after the onset of the COVID-19 pandemic (percentage)



Note: The chart shows, for each group, the minimum and maximum values as well as the 25th, 50th (median) and 75th percentiles of the distribution for each group. "Youth" refers to ages 15–29; "adult" to ages 30+.

Source: ILO calculations based on microdata from labour force surveys covering 40 countries.

▶ **Table 4.1 Care employment as a share of youth and adult employment, by sex and country income group, before and after the onset of the COVID-19 pandemic** (percentage)

	Young people (15–29 years)				Adults (30+ years)			
	Pre-pandemic		Post-pandemic		Pre-pandemic		Post-pandemic	
	Women	Men	Women	Men	Women	Men	Women	Men
Lower-middle income	18.0	3.4	18.2	4.1	21.7	6.7	22.4	6.1
Upper-middle income	20.5	4.6	19.7	5.3	27.0	7.0	27.5	7.3
High income	27.1	6.7	29.0	7.6	35.7	9.4	33.3	9.3

Note: The table reports median values for 40 countries (7 lower-middle-income, 20 upper-middle-income and 13 high-income countries), based on the latest observations before March 2020 and the most recent available observations.

Source: ILO calculations based on microdata from labour force surveys covering 40 countries.

employment remained similar to the pre-crisis value in lower-middle- and upper-middle-income countries but increased in high-income countries. This finding is even more striking given that adult female employment in the care economy as a share of total female adult employment contracted. In all country income groups, proportionally more young men had jobs in care sectors after the onset of the pandemic than they had previously held (table 4.1).

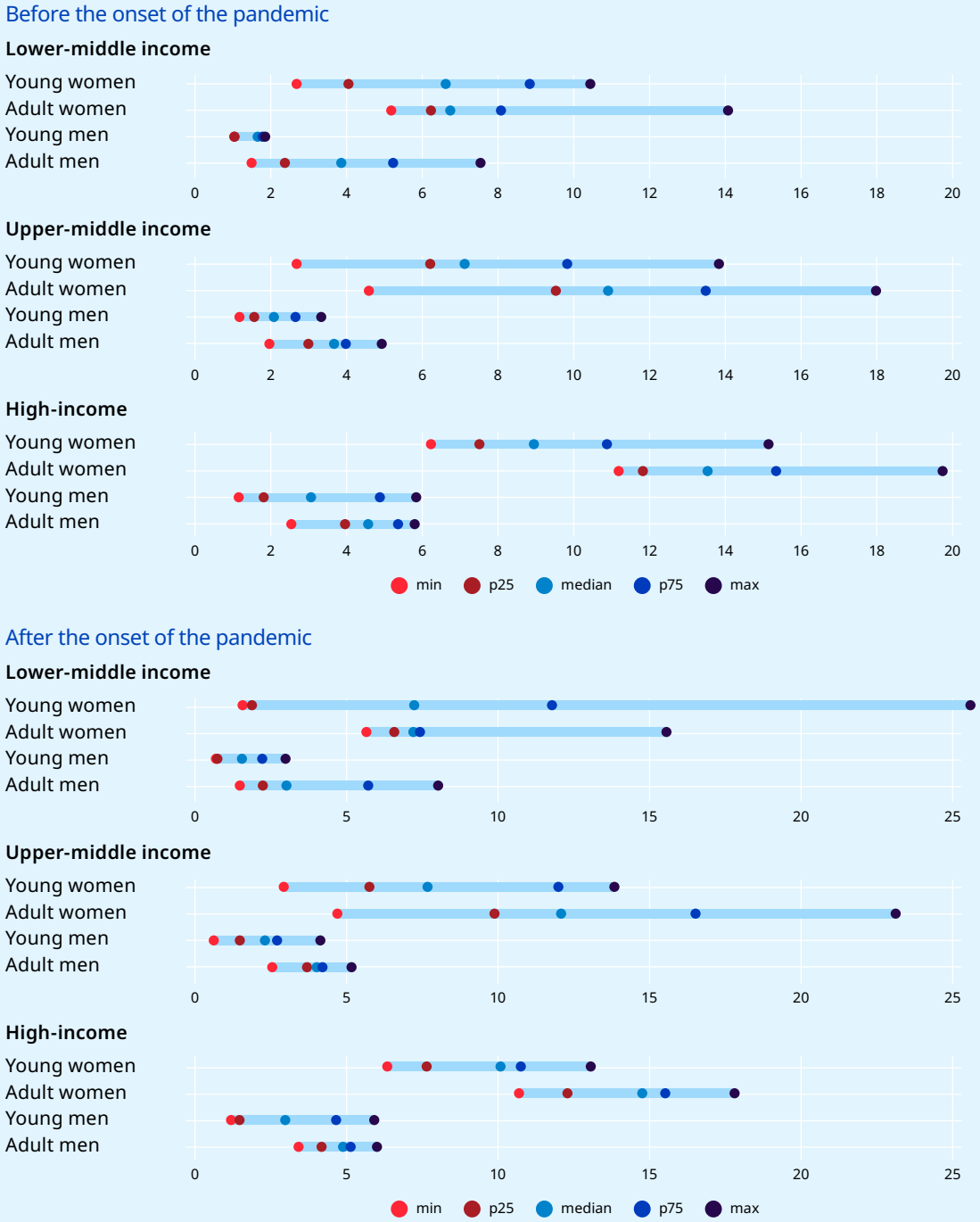
However, these effects could be explained by a relatively greater contraction of young women's and men's employment (the denominator for the subtable on the left in table 4.1) compared with adult employment (the denominator for the subtable on the right). Figure 4.10, in which the shares of each of the categories (young women, adult women, young men, adult men) add up to 100 per cent, presents a different picture. First, the composition of the care workforce before and after the onset of the pandemic shows great variability. In lower-middle-income countries, the share of total care employment accounted for by adult women increased slightly in median terms, while the share decreased for young women. In upper-middle- and high-income countries, the shares of care employment accounted for by both adult and young women decreased. The share remained roughly equal for young women in high-income countries, and decreased slightly for adult women, with much less variability. The share of care employment accounted for by young men increased in lower-middle-income countries, while the corresponding share for adult men increased in all country groupings.

4.3.1 Youth employment in education: The challenges of school closures and online teaching

The variability in employment in education as a proportion of youth and adult employment increased as a result of the COVID-19 crisis in the three country income groups (figure 4.11). In several lower-middle-income countries, female youth employment in the sector increased as a proportion of total young women's employment, even if the median proportion for all these countries (7.2 per cent) was slightly lower than before the crisis (7.7 per cent). In upper-middle-income countries, employment in education increased as a proportion of total employment for all demographic groups, and except for young men, the same was true of high-income countries.

However, these findings seem to be the result of a contraction of youth and adult employment overall, rather than of actual increases in employment in education. It is clear from figure 4.12 that young workers' participation in sectoral employment fell in both lower-middle- and upper-middle-income countries, indicating that they bore the brunt of employment contraction in education. The continuation of this trend would reverse long-standing efforts to attract young women and men into the teaching profession (da Silva 2019). In contrast, the sectoral composition of employment remained stable in high-income countries. Among OECD countries in particular, there was an expansion of sectoral employment

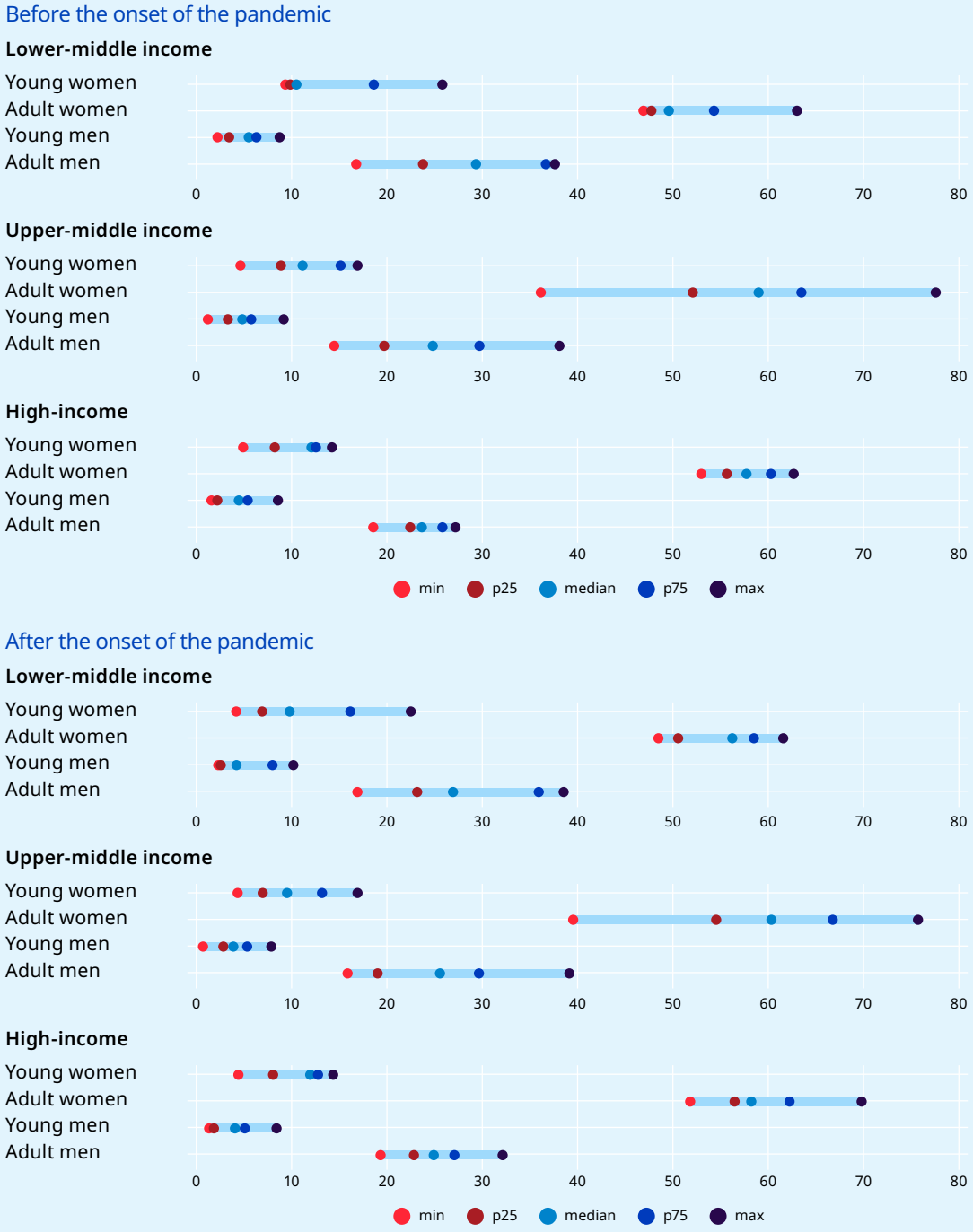
▶ Figure 4.11 Youth and adult employment in education as a share of total group employment, by sex and country income group, selected countries, before and after the onset of the COVID-19 pandemic (percentage)



Note: The chart shows, for each group, the minimum and maximum values as well as the 25th, 50th (median) and 75th percentiles of the distribution for each group. "Youth" refers to ages 15–29; "adult" to ages 30+.

Source: ILO calculations based on microdata from labour force surveys covering 40 countries.

▶ Figure 4.12 Composition of employment in education by age, sex and country income group, selected countries, before and after the onset of the COVID-19 pandemic (percentage)



Note: The chart shows, for each group, the minimum and maximum values as well as the 25th, 50th (median) and 75th percentiles of the distribution for each group. "Youth" refers to ages 15–29; "adult" to ages 30+.

Source: ILO calculations based on microdata from labour force surveys covering 40 countries.

> Young workers' participation in sectoral employment fell in both lower-middle- and upper-middle-income countries, indicating that they bore the brunt of employment contraction in education.

in absolute terms, as countries recruited temporary teachers and/or other staff in 2021 to minimize the impact of school closures on students' learning outcomes (OECD 2021b).

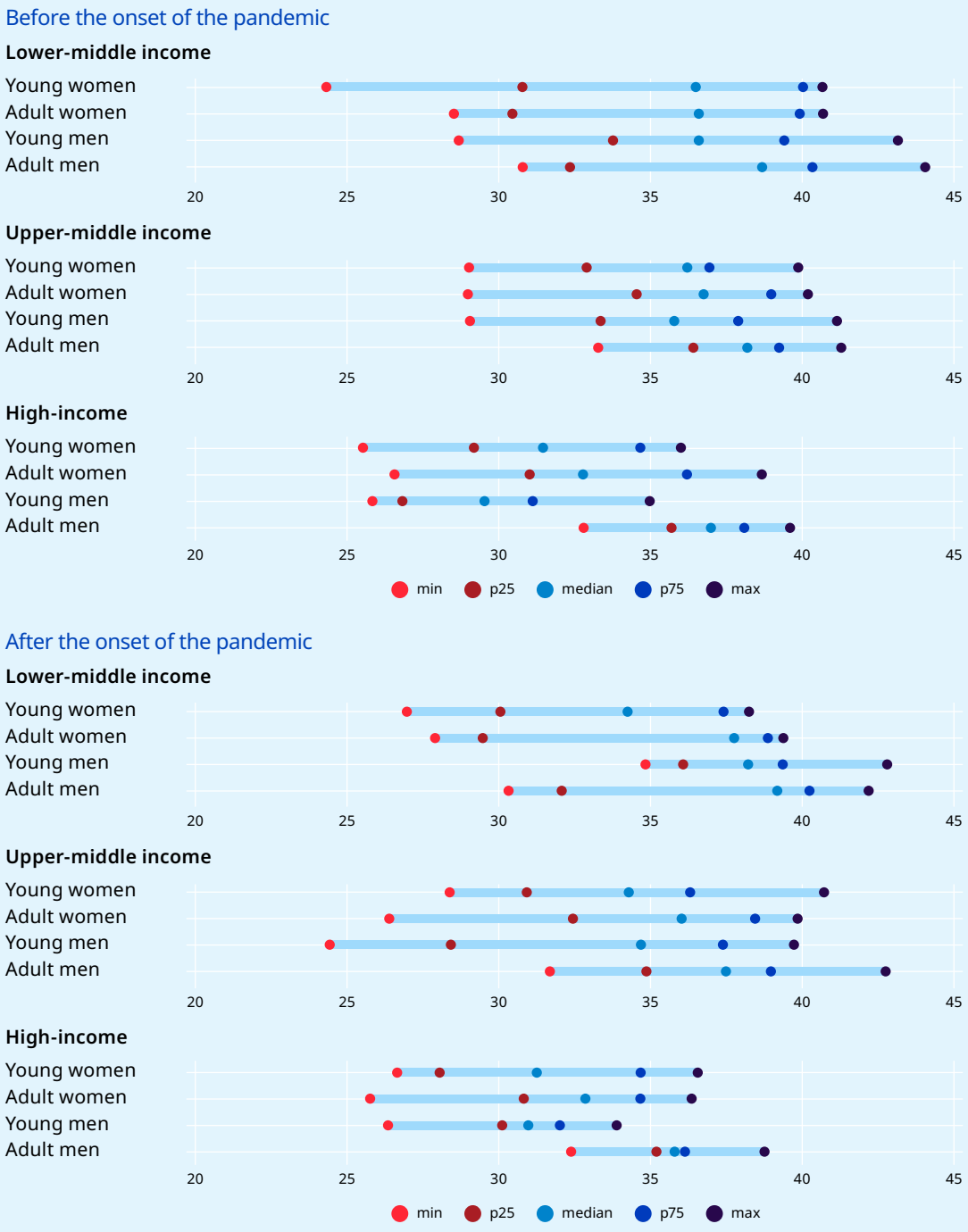
The number of hours worked decreased for young education workers, particularly women, after the onset of the crisis. As shown in figure 4.13, hours worked in the education sector before the pandemic were higher in lower-middle- and upper-middle-income countries than in high-income countries. The median number of hours worked decreased markedly for young women in all country groupings owing to the pandemic. Moreover, in upper-middle-income countries, the number of hours worked decreased for the four demographic groups, possibly as a result of school closures, which often lasted longer there than in high-income countries. In middle-income countries, students had less access, if any at all, to suitable technology for remote learning during school closures, and there was a lower degree of adaptation to the challenges of the crisis (GEEAP 2022). Young and adult women's hours of work did not vary substantially in high-income countries, but young men's hours increased and adult men's decreased in median terms as a result of the pandemic. Young men's hours of work increased in half of the countries in this group (6 out of 13), in some cases considerably. One can only speculate as to whether these young male workers had fewer care responsibilities than their female counterparts and so were able to step up their working hours during lockdowns.

> The number of hours worked decreased for young education workers, particularly women, after the onset of the crisis.

Teachers faced enormous challenges during the COVID-19 crisis. Most countries in the world closed schools and higher education institutions as part of their strategies to combat the pandemic, and everywhere attempts were made to transition to remote learning (OECD 2021b). However, teachers in many low- and middle-income countries received limited professional development support to guide them during this transition, leaving them unprepared to engage effectively with learners. For example, while nine in ten countries in Eastern Asia and South-Eastern Asia offered teachers additional support, fewer than three in ten countries in sub-Saharan Africa did so. Professional development support was generally not provided to teachers in low-income countries (World Bank, UNESCO and UNICEF 2021).

Teachers also experienced additional stress as a result of the pandemic and needed support and resources to manage their mental health and well-being. Teachers' psychosocial well-being is important not only in itself but also as a means to support the well-being of students and other teachers (World Bank, UNESCO and UNICEF 2021). As schools reopen, teachers and schools continue to be at the centre of student learning. Teachers' working conditions and professional development need to be fit for purpose to help them go about their work properly in the recovery phase (ILO 2021d; OECD 2021b; see also box 4.6).

▶ Figure 4.13 Average weekly working hours of young and adult workers in education, by sex and country income group, before and after the onset of the COVID-19 pandemic



Note: The chart shows, for each group, the minimum and maximum values as well as the 25th, 50th (median) and 75th percentiles of the distribution for each group. "Youth" refers to ages 15–29; "adult" to ages 30+.

Source: ILO calculations based on microdata from labour force surveys covering 40 countries.

> Teachers faced enormous challenges during the COVID-19 crisis in most countries, with schools and higher education institutions closed and attempts made to move to remote learning.

▶ Box 4.6 A conversation with young workers in education

The effects of the COVID-19 crisis were felt sharply among young teachers: "*I am very lucky to be still employed. Because, you know, because of COVID-19 a lot of schools, especially private schools, have closed, as parents can't afford to send their kids to private institutions. … But regarding the working conditions, since I am employed in a private institution, my salary is not as competitive as the salaries at public or state universities and colleges.*"

The issue of teachers' salaries was brought up several times during the conversation: "*I think good teachers need to be compensated well for their work because they are the backbone of an economy. I think we can all agree that when people are happier, they are more committed, and when they are treated with respect by society, they are also more likely to do well in their jobs and to give their best.*"

Source: Testimonies collected as part of the interviews with young people conducted for this report, October 2021.

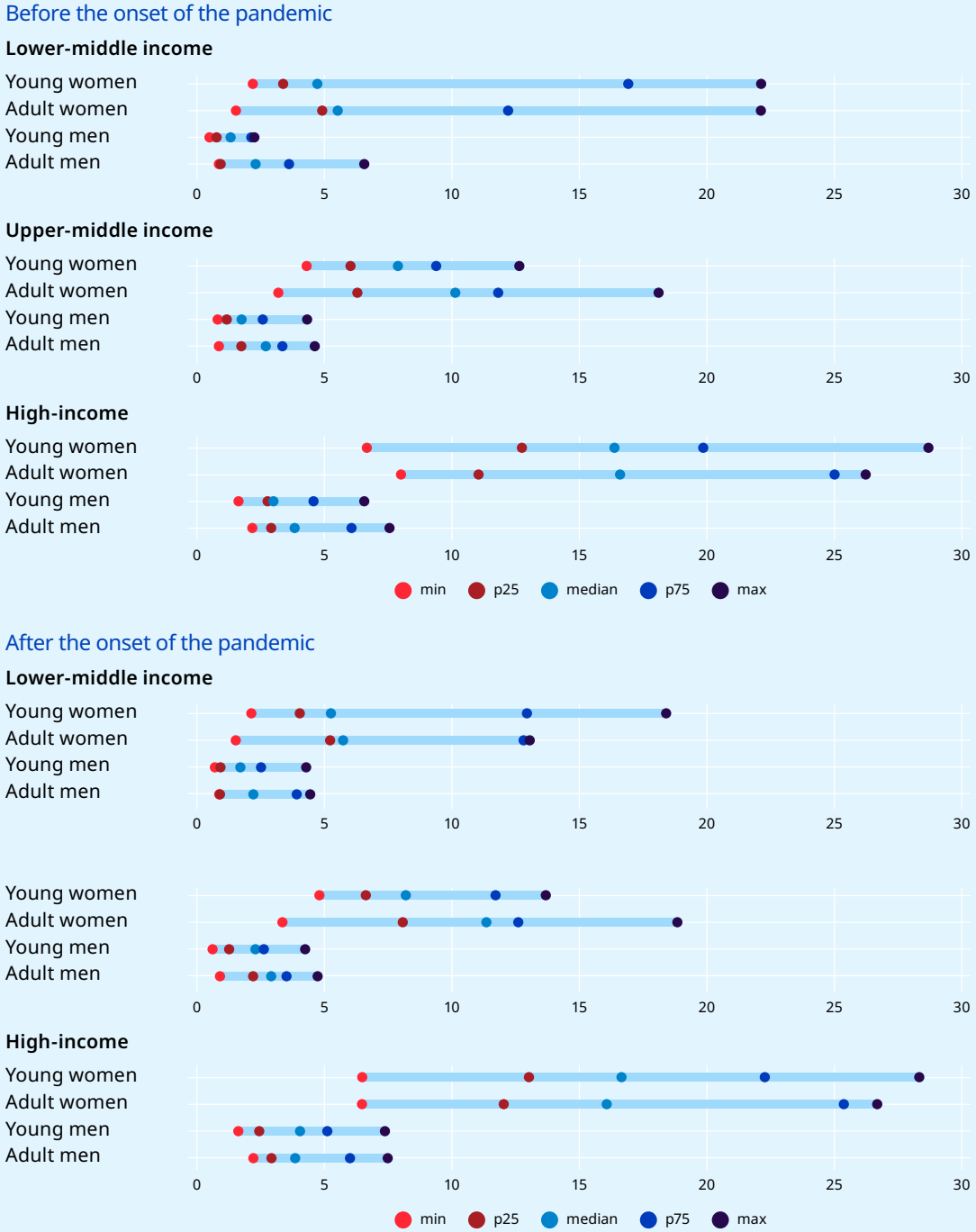
Most countries prioritized teachers in their vaccination efforts. Globally, 71 per cent of countries included teachers among several priority groups for vaccination, but only 10 per cent of countries put teachers in the highest-priority group. Teachers were not allocated to any priority group in 29 per cent of countries. In almost one in two countries in sub-Saharan Africa, teachers were not included in any priority group. High-income countries that prioritized teachers in the first phase tend to have a very high proportion of vaccinated teachers, while some developing countries that did not prioritize teachers have very low rates, which made the reopening of schools more challenging (World Bank, UNESCO and UNICEF 2021).

4.3.2 Youth employment in health and social work: Front-line workers responding to the pandemic

In a context of overall contraction of employment and as a response to the health crisis, employment in health and social work expanded its share of total employment in median terms. Figure 4.14 shows in detail the variations across different groups. The first thing to note, even before looking at median values, is the high variability of the employment shares within country income groups, both before and after the onset of the pandemic. This reflects the different ways in which the health and social work sectors are organized across countries, as discussed earlier in the chapter. It also reflects how employment changes after the onset of the pandemic varied in both magnitude and sign. Contrary to what one would expect, sectoral employment contracted in some countries.[6] The reasons for this include the retirement of health workers and limited numbers of young workers to fill the gaps left behind (ICN 2021).

[6] Among these countries in the sample are Belize, Botswana, Brunei Darussalam, Ecuador, Panama and Viet Nam.

▶ Figure 4.14 Youth and adult employment in health and social work as a share of total group employment, by sex and country income group, selected countries, before and after the onset of the COVID-19 pandemic (percentage)



Note: The chart shows, for each group, the minimum and maximum values as well as the 25th, 50th (median) and 75th percentiles of the distribution for each group. "Youth" refers to ages 15–29; "adult" to ages 30+.

Source: ILO calculations based on microdata from labour force surveys covering 40 countries.

> In a context of overall contraction of employment and as a response to the health crisis, employment in health and social work expanded its share of total employment in median terms.

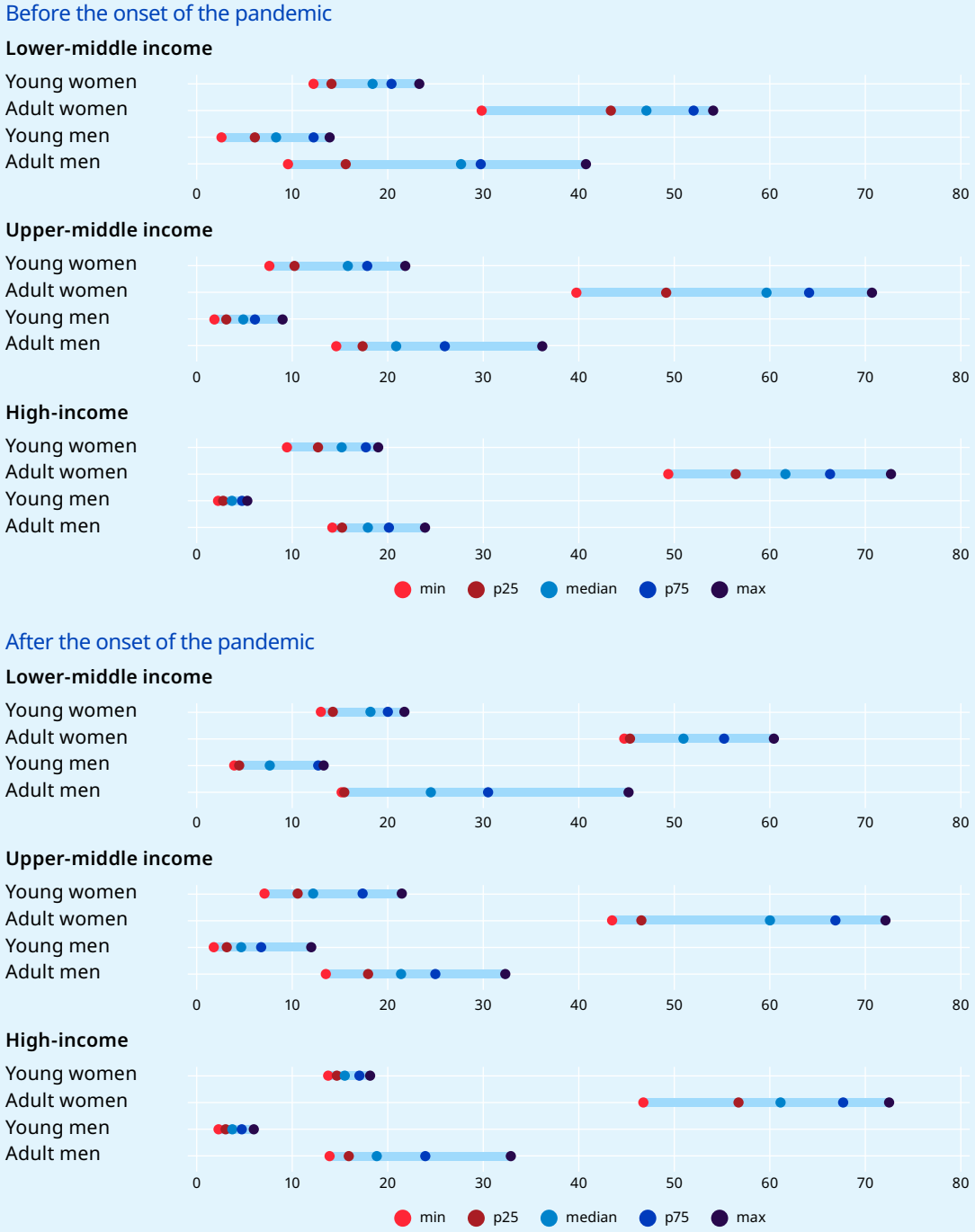
Figure 4.14 shows that in lower-middle-income and upper-middle-income countries both women and men, young and adult alike, experienced an increase in employment in health and social work in median terms as a proportion of total group employment. In high-income countries, however, young women slightly increased their shares (in median terms), while those of adult women decreased slightly.

As in the case of education, these findings are linked to the greater contraction of total youth employment and not necessarily to an expansion of youth employment in the sector. As figure 4.15 shows, in lower-middle-income countries, adult women gained and adult men lost, in median terms, in the composition of sectoral employment, while young women and men maintained their shares. In upper-middle-income countries the participation of young women and men in sectoral employment decreased in median terms. Combined with the findings shown in the previous figure, this suggests that young women and men may well have lost jobs in the health and social work sector (or that they did not gain such jobs at the same rate as adult workers), but those losses are minor compared with other sectors in which there was a massive reduction of youth employment. Proportions remained stable in high-income countries, indicating that employment gains were experienced equally by all workers.

In many countries, medical students, young volunteers and early career professionals were brought in to support the COVID-19 response. Medical students were recruited to join front-line health workers in fighting the pandemic, with numerous countries accelerating their graduation for that purpose. Young volunteers, including medical and nursing students, took on roles in call centres, testing sites and social assistance activities. In Italy and the United Kingdom, thousands of final-year medical students were fast-tracked through their last exams to help the healthcare workforce manage the pandemic. In Slovakia, the mandatory hospital testing of incoming patients would not have been possible without hundreds of medical student volunteers, who promptly offered their assistance to healthcare institutions. Harvard Medical School asked medical students to provide voluntary support to clinicians so as to relieve the pressure on front-line workers. However, medical students volunteering without appropriate compensation should not be used as a cheap alternative to make up for poor organization or planning of healthcare systems (Sedlák and Al-Wahdani 2020). More generally, volunteers and short-term recruits must be afforded the same protection as other workers. This includes not only appropriate occupational safety and health measures but also social protection, remuneration, rest periods and working-time arrangements. Young health professionals were on the whole not included in decision-making even before the pandemic, leading to a loss of potential healthcare staff and a non-representative workforce and, as a result, reinforcing the systemic exclusion of young people with various backgrounds (Wong et al. 2021).

> In many countries, medical students, young volunteers and early career professionals were brought in to support the COVID-19 response.

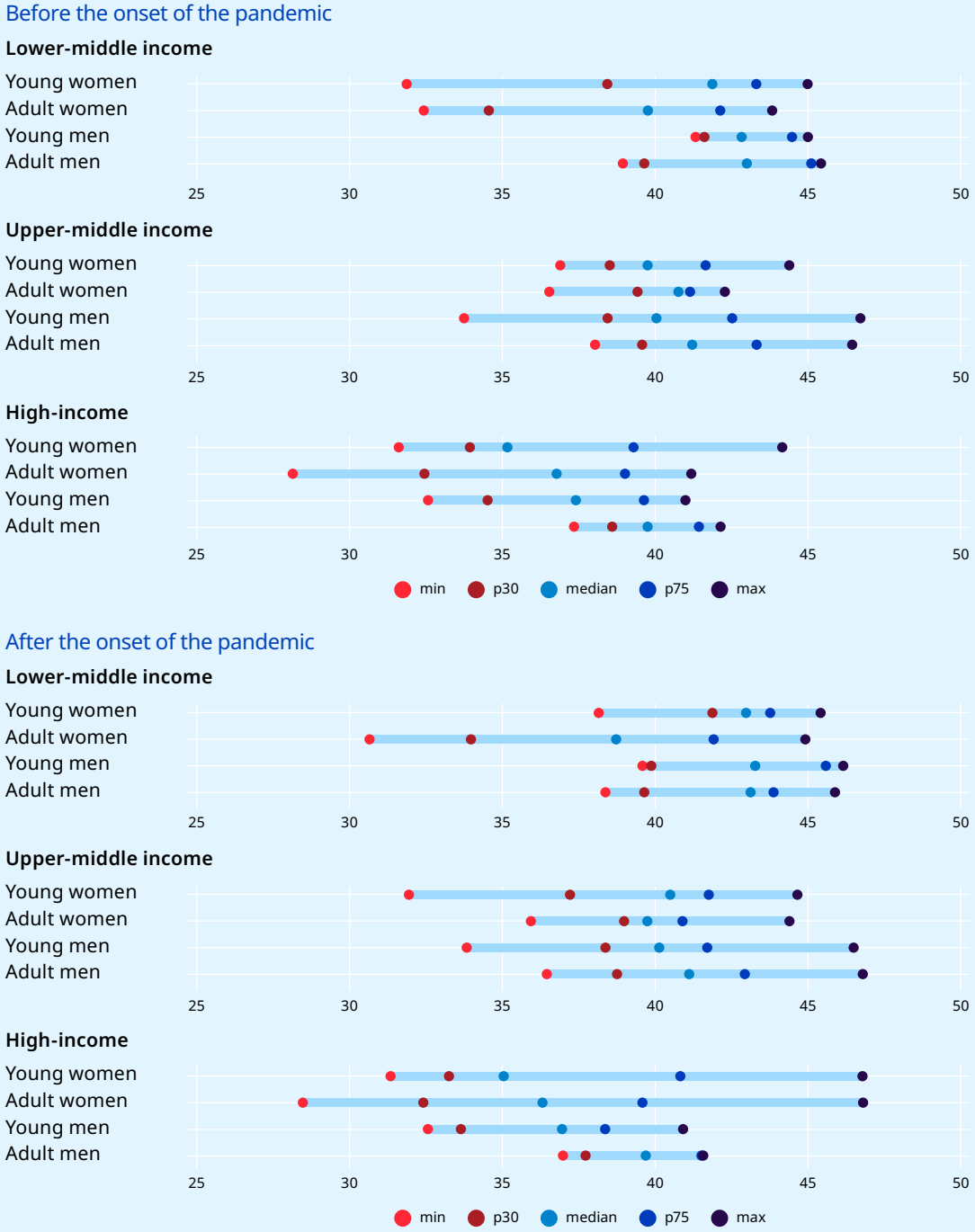
▶ Figure 4.15 Composition of employment in health and social work by age, sex and country income group, selected countries, before and after the onset of the COVID-19 pandemic (percentage)



Note: The chart shows, for each group, the minimum and maximum values as well as the 25th, 50th (median) and 75th percentiles of the distribution for each group. "Youth" refers to ages 15–29; "adult" to ages 30+.

Source: ILO calculations based on microdata from labour force surveys covering 40 countries.

▶ Figure 4.16 Average weekly working hours of young and adult workers in health and social work, by sex and country income group, before and after the onset of the COVID-19 pandemic



Note: The chart shows, for each group, the minimum and maximum values as well as the 25th, 50th (median) and 75th percentiles of the distribution for each group. "Youth" refers to ages 15–29; "adult" to ages 30+.

Source: ILO calculations based on microdata from labour force surveys covering 40 countries.

Community health workers were on the front line of the national response to the COVID-19 pandemic. Community health workers conducted awareness-raising programmes, contact tracing and testing, and rendered assistance to individuals and communities, thereby playing a crucial role in the COVID-19 response. However, they were neglected in the distribution of personal protective equipment, and received minimal training on how to deal with the novel disease. In some countries, community health workers in extremely precarious employment situations were laid off (Alperstein, unpublished). In others, the rising unemployment caused by lockdowns and the unequal distribution of health workers prompted the authorities to train local residents to become community health workers who could help with the pandemic response (Panjabi 2020).

Responding to the pandemic increased the working hours of young female workers in the health and social work sector. Figure 4.16 shows how median working hours increased after the onset of the pandemic for young women in this sector in lower-middle- and upper-middle-income countries from an already high value of 40 hours a week. In these countries, young men's working hours became more variable, and there are countries in which they exceeded 45 hours a week despite a decrease in median hours worked. That averages are this high points to the arduous working hours in healthcare and social care. In high-income countries, median working hours decreased with the exception of those of adult men, but more countries reported long hours of work for women, as can be seen from the way in which the upper and lower limits of the distribution in figure 4.16 shift to the right after the onset of the pandemic.

▶ Box 4.7 A conversation with young workers in health and social work

Many young people are prompted to enter care occupations by a desire to change their communities for the better. "*I am studying pharmacy. I hope to become a pharmacist who is able to help provide for the needs of my community.*" – "*Seeing my frail grandparents made me want to become a doctor.*" – "*I am a fourth-year medical student. My inspiration to enter a care occupation is to serve humanity, to make a difference in people's lives*."

Young health and social workers typically take pride in and derive satisfaction from their work. "*I am a third-year nursing student. I entered this occupation for the fulfilment and the pride of being a healthcare worker.*" – "*I am a final-year social care student. Social work is a field where you can put what you learn into practice. When you do your fieldwork and you see a satisfied client, that is the greatest reward I can gain from this work.*"

The COVID-19 pandemic was a great challenge for those in hospital settings. "*As residents working during the pandemic, we had no personal protection equipment, no N95 masks, no coveralls, nothing. We put ourselves at risk and we get nothing in return. … We residents don't have a say when it comes to our working conditions, because we can be permanently buried under all this training… this is supposed to be training, right? You are not seen as an employee*." Moreover, the pandemic exacerbated long-standing issues: "*When you're caring for someone, you're emotionally attached to the job, you cannot really withdraw from your service. If there's someone who's been shot and who comes to the emergency department, I can't say: 'I won't treat this patient because I'm not receiving a good salary.' But as a care worker you're sometimes a vulnerable person as well, because of the unfavourable working conditions*."

Time and again, young health workers complained about their long working hours ("*96-hour weeks*" – "*16- to 24-hour days*") and low pay, pointing to low budgets and inadequate public investment in the health sector as the causes: "*It is so frustrating that they allocate the smallest budget to the health sector. The country's 'heroes' are still suffering*."

Source: Testimonies collected as part of the interviews with young people conducted for this report, October 2021.

Young health workers were affected the most by burnout from working during the global pandemic. Excessive working hours, heavy workloads and a lack of rest periods have a significant impact on the mental health of health and social workers. During the pandemic, these workers also had to cope with the fear of contracting the disease and spreading it to family members and colleagues (ILO 2020a). These are some of the reasons why increasing numbers of young workers in health and social work experienced burnout as a result of the pandemic. A study in the United States found that three quarters of younger front-line health workers reported that worry or stress related to COVID-19 had had a negative impact on their mental health, and seven in ten said that they felt burned out by their work. These feelings may reflect their experiences at work during the pandemic, since four in ten such workers were working in hospitals (which saw the most severe COVID-19 cases) and nearly half (45 per cent) reported assisting with patient care, such as bathing, cleaning and housekeeping. All in all, six in ten 18- to 29-year-old front-line health workers (61 per cent) said that they had worked directly with COVID-19 patients in 2020, including three in ten who had treated patients who died from the disease. Seven in ten 18- to 29-year-old front-line health workers said that they had had to work more hours or work harder as a result of the pandemic, compared with 59 per cent of 50- to 64-year-olds and 49 per cent of those aged 65 years and above (Kirzinger et al. 2021).

Similarly, a study in Ontario, Canada, concluded that recent graduates and trainees, nurses and intensive care unit and emergency department staff, particularly women, were those most at risk and affected by burnout during the pandemic (Maunder et al. 2021). A study in Belgium found that isolated young nurses with an increased workload were more likely to have worse mental health outcomes, although no difference was observed between health workers working in COVID-19 care units and those who were not (Tiete et al. 2021).

4.3.3 Young domestic workers losing their jobs owing to the pandemic

Domestic workers were among the workers most vulnerable to containment measures at the height of the pandemic (ILO 2021b) (box 4.8). The risk of losing their jobs and income was exacerbated by not being registered in the social security system (ILO 2020b) – a situation in which almost all young domestic workers were before the onset of the pandemic (ILO 2021e) (box 4.9).

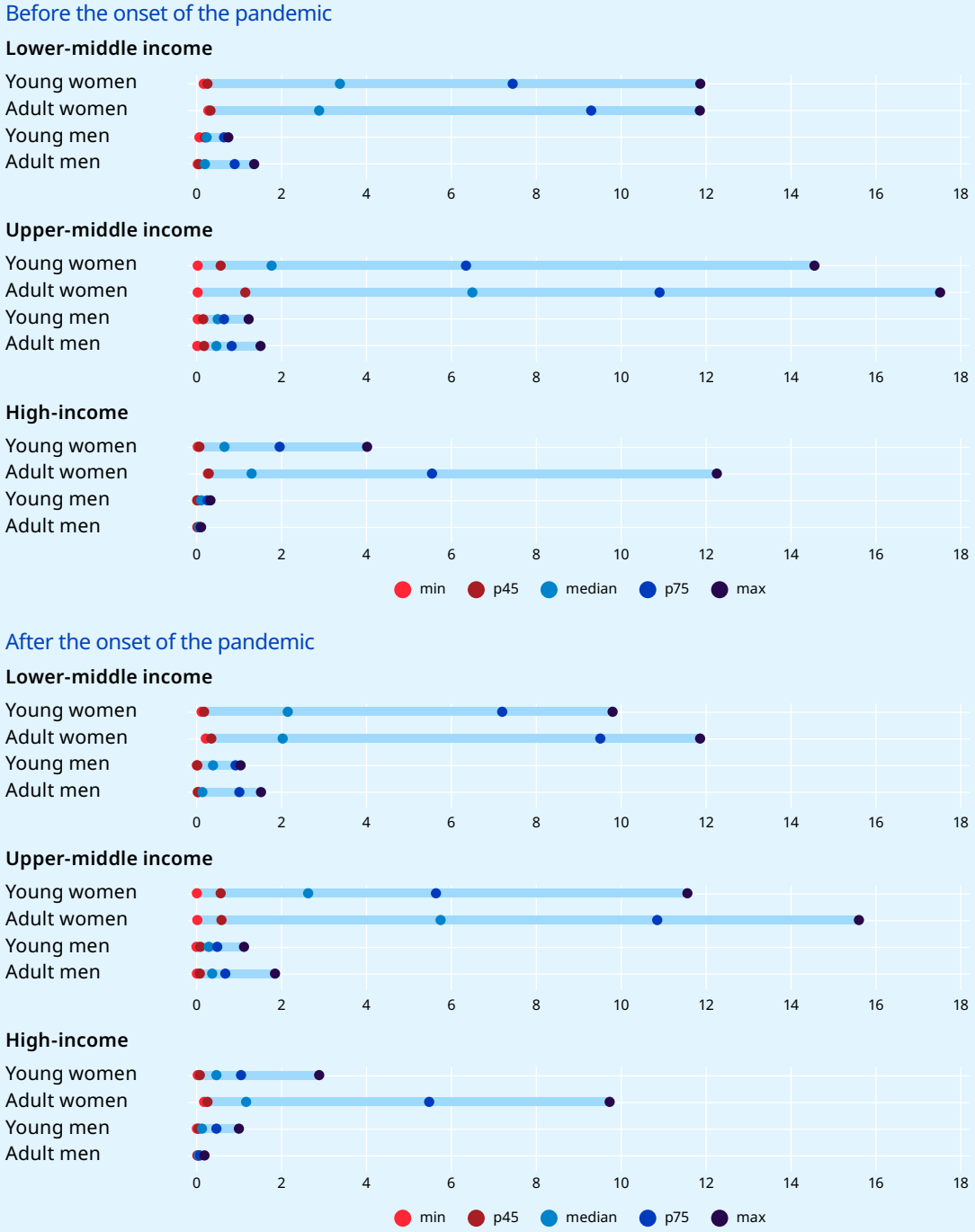
Figure 4.17 shows the contraction of female domestic workers' employment, particularly in lower-middle-income countries. Young women's employment in domestic work shrank from 3.2 to 2.1 per cent of total female youth employment. In upper-middle-income countries, the distribution contracted but the median share for young female domestic workers increased from 1.8 to 2.6 per cent. In high-income countries, there is less variability, but median employment shares did not change after the onset of the pandemic.

▶ Box 4.8 Young domestic workers in Ethiopia during the pandemic

In Ethiopia, nearly all domestic workers are girls, a large majority of them migrants from rural areas. Given that domestic work is not covered by Ethiopia's labour laws and takes place behind closed doors, young domestic workers are frequently faced with exploitative working conditions, which were exacerbated by the pandemic. Many, especially live-out domestic workers, lost their jobs and had trouble paying their rent. For those who kept their jobs, salaries went down. Live-in domestic workers feared for their health and felt isolated from their families. Some could not even visit their families because of the pandemic. School closures deprived them of the opportunity to continue their education and of vital interaction with peers and friends.

Source: Amdeselassie et al. (2020).

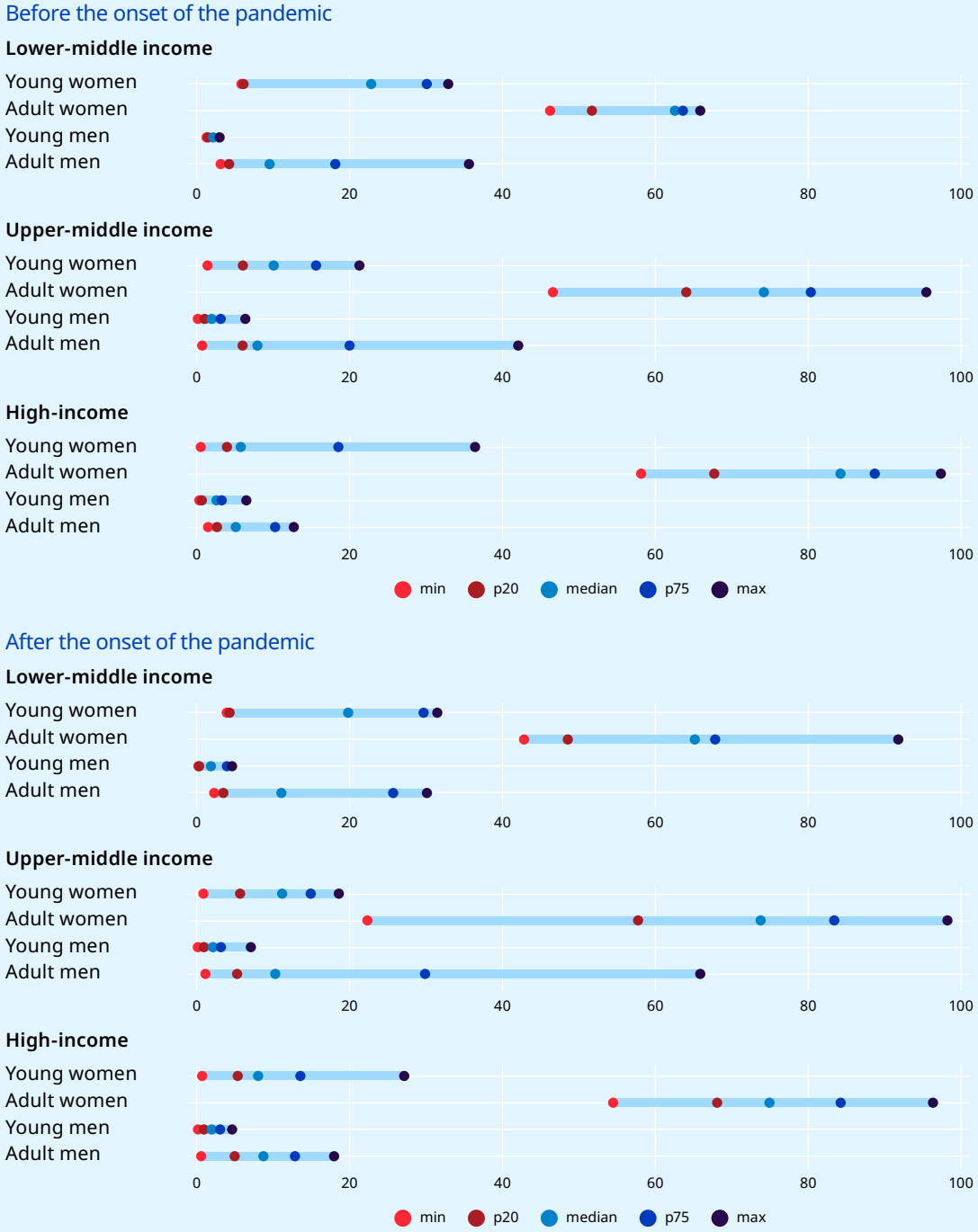
▶ **Figure 4.17 Youth and adult employment in domestic work as a share of total group employment, by sex and country income group, selected countries, before and after the onset of the COVID-19 pandemic** (percentage)



Note: The chart shows, for each group, the minimum and maximum values as well as the 25th, 50th (median) and 75th percentiles of the distribution for each group. "Youth" refers to ages 15–29; "adult" to ages 30+.

Source: ILO calculations based on microdata from labour force surveys covering 38 countries.

▶ Figure 4.18 Composition of employment in domestic work by age, sex and country income group, selected countries, before and after the onset of the COVID-19 pandemic (percentage)



Note: The chart shows, for each group, the minimum and maximum values as well as the 25th, 50th (median) and 75th percentiles of the distribution for each group. "Youth" refers to ages 15–29; "adult" to ages 30+.

Source: ILO calculations based on microdata from labour force surveys covering 38 countries.

▶ Box 4.9 Young domestic workers in Bangladesh during the pandemic

Salma, a young domestic worker in Bangladesh, used to work in five houses and earned 7,000 Bangladeshi taka (US$82.53) per month. With this income she was able to take care of her family, but because of the pandemic she was dismissed from two houses and her income dropped to 3,000 taka (US$35.40) per month, that is, to less than half of what she used to earn. The majority of young domestic workers in the country faced similar difficulties in meeting their basic needs from their income. In general, the lack of job security had rendered them vulnerable to abuse and exploitation before the health crisis. As in Ethiopia, many Bangladeshi domestic workers found their movements constrained by their employers and were unable to visit their families or access healthcare during the pandemic.

Since there are no laws on domestic work in Bangladesh, employers can terminate such workers' jobs without any notice or compensation. They have no guarantee of remuneration or fixed working hours. Sudden job losses were already common before the pandemic and were exacerbated by it. Fear of community transmission as well as economic turmoil prompted many Bangladeshi families to dismiss their domestic workers or to put them on furlough during lockdowns. Some workers were left without any income, or even without food and shelter. The absence of domestic workers' organizations in the country and the lack of effective monitoring and protection systems made their situation even more vulnerable during the pandemic.

Source: Afreen Latika et al. (2021).

These findings are consistent with those that emerge from figure 4.18, which shows the changes in the composition of sectoral employment before and after the onset of the pandemic. In lower-middle-income countries, young women's share of sectoral employment decreased, while those of adult women and adult men increased. In high-income countries it is the opposite: the employment share of young women increased, while that of adult women decreased in median terms. The composition of sectoral employment remained stable in upper-middle-income countries.

4.4 Modelling the impact of investments in the care economy on youth employment opportunities

Investments in the care economy can benefit young people in four key respects: (a) by creating decent job opportunities, they improve young people's employment prospects, particularly those of young women, since care sectors are heavily feminized; (b) by providing care services, particularly for young children, they make it easier for young women and men with family responsibilities to enter and remain in the labour force; (c) by expanding education and training opportunities, and by catering to young people's healthcare needs, they promote the well-being of young people; and (d) as a result of all the above, they help to lower youth NEET rates, especially among young women.

The macroeconometric model developed by Cambridge Econometrics already mentioned in previous chapters has been used here to model the impact of increasing the coverage of health and long-term care services and of education, in line with the implementation of SDGs 3, 4, 5 and 8.[7] Box 4.10 explains

[7] The assumptions used to model the care scenario are based on those presented in ILO (2018), with the baseline set in 2020 rather than 2015. However, the modelling exercise itself is different. While ILO (2018) and, more recently, ILO (2022b) have used input–output models, the E3ME model of Cambridge Econometrics used in this report is a heterodox general equilibrium model that allows for feedback effects and price adjustment.

Investments in the care economy can improve young people's employment prospects, make it easier for those with family responsibilities to enter and remain in the labour force, promote their well-being, and help lower their NEET rates.

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the key assumptions for the modelling exercise in detail. Three key elements should be emphasized from the outset. First, investments in care sectors are given priority in government expenditure and in financing (which, for countries other than high-income countries, includes development finance). This means that the investments are financed through long-term debt and that repayments are partly covered through increases in taxes (income tax and social security contributions). Second, the modelling exercise assumes improved working conditions for care workers (proxied by their wages) to create decent employment. This is costlier than simply creating jobs that resemble the current profiles, as shown above. It is also in line with the findings presented earlier in the chapter regarding the need to attract and retain young workers by offering better working conditions. Third, the expansion of employment in care sectors calls for skills planning and development. The modelling exercise assumes no bottlenecks that would prevent the creation of new jobs. The implicit premise is that investments in education will also foster the skills and qualifications that young people, in particular, will need to be able to benefit from the new job opportunities. As elaborated in box 4.10, this is a rather bold assumption.

▶ Box 4.10 Modelling the care scenario: Objectives and key assumptions

This box presents the specificities of the care scenario in the E3ME model of Cambridge Econometrics (see Appendix D for a detailed explanation).

Modelling objectives: The aim of this scenario is to assess the youth employment outcomes of expanding professional care services to support efforts to meet the health and education targets related to SDGs 3 ("Good health and well-being") and 4 ("Quality education") by 2030. Under SDG target 4.1, by 2030 all girls and boys are expected to be able to complete free, equitable and quality primary and secondary education, leading to relevant and effective learning outcomes. To achieve this target, the number of teachers and non-teachers in the education sector will need to increase, both to accommodate the higher number of students in the future and to lower the pupil-to-teacher ratio (used as a proxy for smaller class sizes and higher quality of education).

SDG target 3.8 calls for universal health coverage to be achieved by 2030. This implies increasing the number of healthcare workers and improving access to affordable long-term care for those aged 65+. Given the high degree of feminization of the care workforce, and the significance of employment in the care economy for young people, investments in care services can also help to achieve SDGs 8 ("Decent work and economic growth") and 5 ("Gender equality") by supporting a job-rich, youth- and gender-responsive recovery.

Working conditions of care workers: Currently, workers in the health and education sectors are in short supply and often trapped in low-quality jobs. As discussed in ILO (2018), a "high road scenario" involves improving both the quality of care provision and the working conditions in these sectors. Wages in care sectors are often below the average for occupations requiring similar levels of education. Raising wages up to the relevant averages would be part of the solution in improving working conditions. Such a policy would increase overall spending in these sectors over and above that entailed by the required increase in the number of workers to achieve SDGs 3 and 4. As in ILO (2018), domestic workers are not included in the modelling, although their numbers could change as a result of the overall changes in GDP.

Timeline: It is assumed that countries make these investments from 2022 onwards. Under the scenario, the enhanced coverage in health and education is achieved by 2030.

(continued overleaf)

▶ **Box 4.10** ***(cont'd)***

Increased government expenditure on education and health: The assumptions regarding increased government spending on education and health are based on closing the coverage gap by 2030, as called for by the SDGs. The methodology of ILO (2018) is used to estimate the cost per teacher/doctor (including support staff). The total spending over the period is then calculated as the cost per teacher/doctor (including support staff) multiplied by the increase in staff between 2015 and 2030 in the "high road scenario" of ILO (2018). For countries not covered by that ILO report (most of Africa and part of Asia), a proxy country is used and the total spending adjusted in proportion to the relevant population – that is, children (under 15 years) for education and total population for health.

Funding: For most countries, 50 per cent of the increase in government spending on education and health is funded by reallocating spending from public administration and defence. The other 50 per cent is funded by an even split between increased income taxation and increased social security contributions. The investment is repaid over 20 years following an initial five-year grace period (the repayment of the investment starts five years after the investment). The assumptions are based on some practices that have been observed in countries which receive development finance.[1]

Caveats: The scenario has not modelled any change in trends in the age and gender distribution of sectoral employment in response to the policy specifically. The modelling results should be thought of as the potential employment gains of investment in the care economy subject to major constraints or obstacles being addressed, including the assumption that improvements in working conditions will be sufficient to attract young workers to care sectors and that workers, young and adult, will have the necessary skills to take on the additional jobs created. This is quite a bold assumption given the formal qualifications that will be required for many of the jobs created in the education and health sectors.

[1] For example, in 2016, the Inter-American Development Bank lent Uruguay US$50 million, to be repaid over 25 years, with a five-year grace period.

Source: ILO and Cambridge Econometrics.

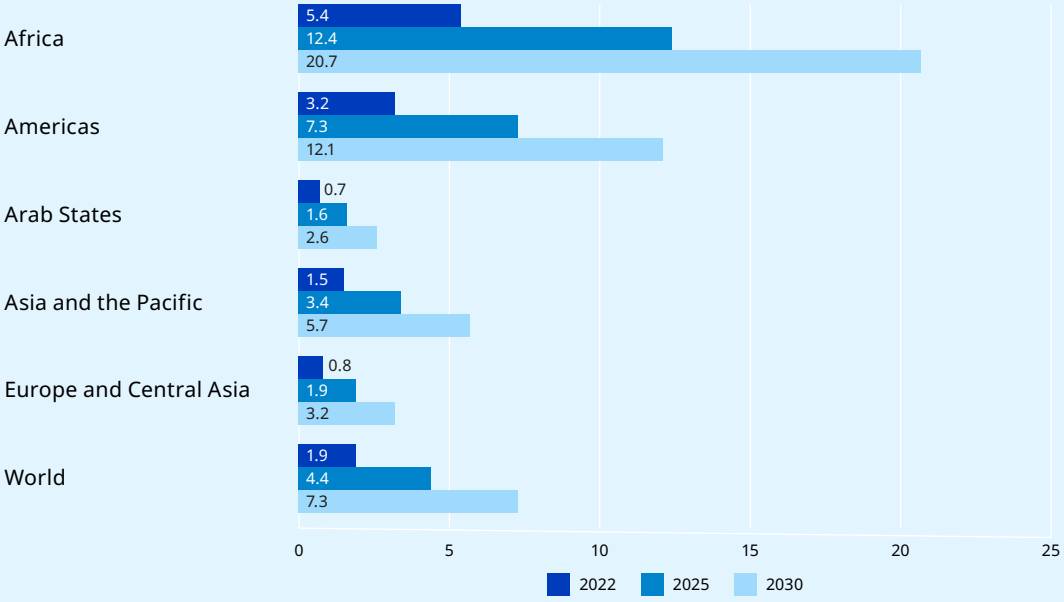
In this scenario, the economy-wide impacts are driven by the increase in government expenditure to provide for the necessary investments. Figure 4.19 shows the change in government spending under the care scenario relative to the baseline. The proportions are in relation to initial expenditure: the lower the initial expenditure, the greater the required extra effort.

Figure 4.20, in turn, shows the overall impact of these public investments on GDP relative to the baseline. This impact depends on the relative size of the additional expenditure, on how the latter is translated into jobs in education, health and long-term care services (that is, on the "employment multipliers") and, finally, on consumer expenditure. In Africa, for example, 20 per cent additional government expenditure in 2030 relative to the baseline is expected to lead to GDP that is higher by 4.4 per cent relative to the baseline. In Europe and Central Asia, where government spending as a share of the economy is generally greater and implementing the SDGs is not as challenging as in other regions, the required 3.2 per cent increase in government expenditure would result in a 1.4 per cent increase in GDP. For the world as a whole, 1.9 per cent extra growth would be achieved by 2030, provided that there is an increase of 7.3 per cent in government expenditure.[8]

The increase in spending on education and health and long-term care services leads directly to greater employment in these sectors and thus higher overall disposable income. Some of this additional income will be spent, benefiting the suppliers of consumer goods and services. The increase in activity in the

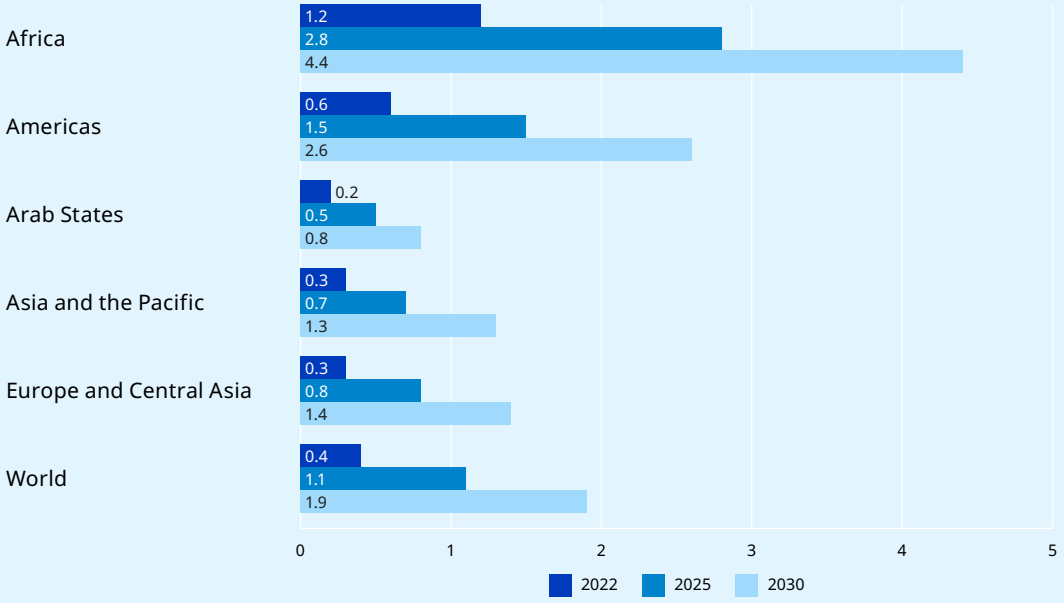
[8] It should be noted that these projected increases are not expressed as shares of GDP.

▶ **Figure 4.19 Projected change in government expenditure under the care scenario, world and by region, 2022, 2025 and 2030** (percentage change relative to baseline)



Source: ILO, based on the E3ME model of Cambridge Econometrics.

▶ **Figure 4.20 Projected change in GDP under the care scenario, world and by region, 2022, 2025 and 2030** (percentage change relative to baseline)



Source: ILO, based on the E3ME model of Cambridge Econometrics.

education, health and social work sectors will also positively affect output and employment in the sectors that supply them. On the other hand, if some of these supplies are imported (for example, medicines), this would reduce the positive impact on a country's economy (though the countries supplying the medicines would obviously benefit).

However, the need to finance these investments means that the positive GDP and employment projections have to be tempered. The modelling assumes that the additional government expenditure is partly financed through the issuance of further debt, with a five-year grace period. Repayment of the debt incurred during 2022–25/26 starts in 2026/27 and is prolonged beyond 2030. For the period 2026–30, the repayment is partly financed by a decrease in expenditure in public administration and defence, which in turn leads to lower employment in those sectors (see box 4.10 for details). By the same token as above, the loss of employment and output in public administration and defence will have a negative impact on other sectors of the economy (such as construction) that supply the goods and services on which they rely. The net employment impact of additional spending in public care services combined with a reduction in spending in other areas will depend on the relative wages in the different parts of the public sector, and on the different input structures and their relative labour intensity.

A second source of financing is higher income taxes from 2026/27 onwards, which will reduce overall disposable income and consumer spending. This, in turn, will reduce demand for and employment in consumer service sectors, including distribution, retail, hotels and catering. A third source of financing, namely higher social security contributions, will also make it more expensive for firms to employ people. Since the additional cost will be passed on to consumers through higher prices, this will further contribute to a reduction in employment. All these impacts are evident in figure 4.20 above, where it can be seen that the changes in GDP are relatively lower for the period 2026–30 than for the preceding five years.

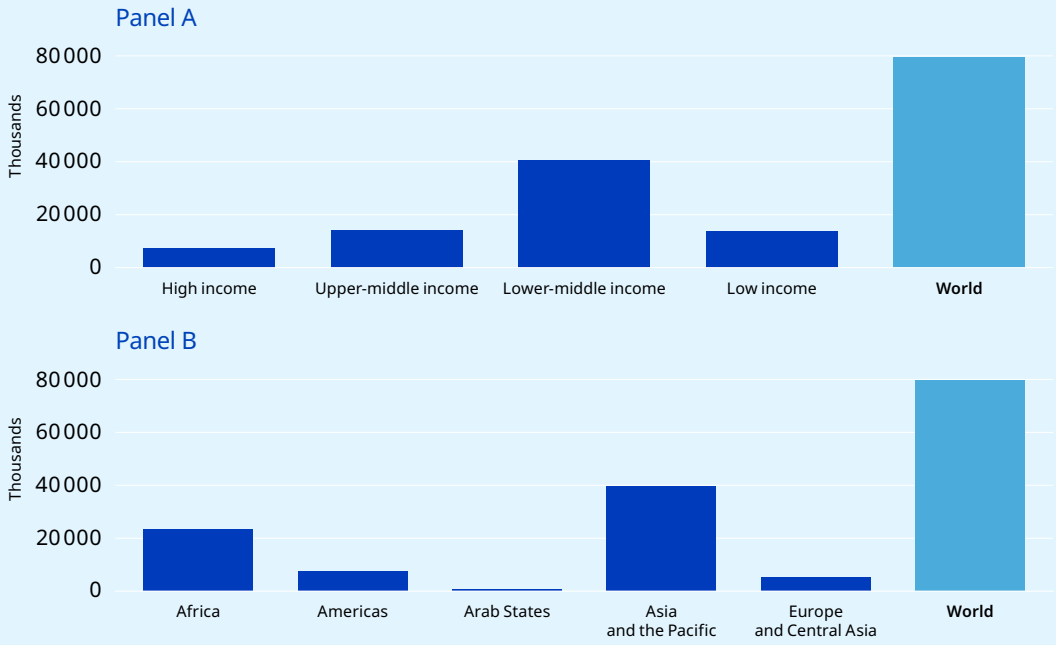
Investments in health and long-term care services and in education increase global employment by 0.5 per cent in 2022, 1.2 per cent in 2025 and just under 2.2 per cent in 2030 relative to the baseline, which translates into a total of almost 80 million additional jobs by 2030 (figure 4.21). The impact on overall employment depends on the size of the government sectors (education, health and long-term care, and public administration and defence) within the economy, and relative to one another. Over half of the total additional employment created comes from lower-middle-income countries (40.8 million), followed by upper-middle-income countries (14.0 million) and low-income countries (13.8 million). In regional terms, the higher the increase required in the coverage of care services, the greater the employment impact, particularly in Asia and the Pacific (39.6 million) and in Africa (23.2 million).

Investment in care services changes the sectoral profile of overall and public employment. The scale of the increase in employment in education (42.0 million) and in health and social work (25.2 million) by 2030 far exceeds the reduction in employment in public administration and defence (0.9 million) (figure 4.22). Overall, 13.3 million jobs are created in sectors other than those directly impacted by these investments – indirectly via input–output channels and as a result of the additional spending because more people are in employment. In percentage terms, employment in education increases by 19.2 per cent by 2030 relative to the baseline, and the corresponding increase for health and social work is 15.8 per cent. There are substantial gains in all manufacturing sectors (1.9 per cent), construction (1.1 per cent), and information and communication (1.1 per cent).

These overall employment outcomes translate into positive impacts for youth employment. Globally, 17.9 million more jobs for young people are created by 2030 relative to the baseline. Around 22 per cent of the new jobs created in the education sector would be taken by young people, together with 20 per cent of the new jobs in health and social work, for a total of 14.4 million jobs.[9] The remaining 3.4 million jobs are created in other sectors – in particular, manufacturing sectors (1 million in total).

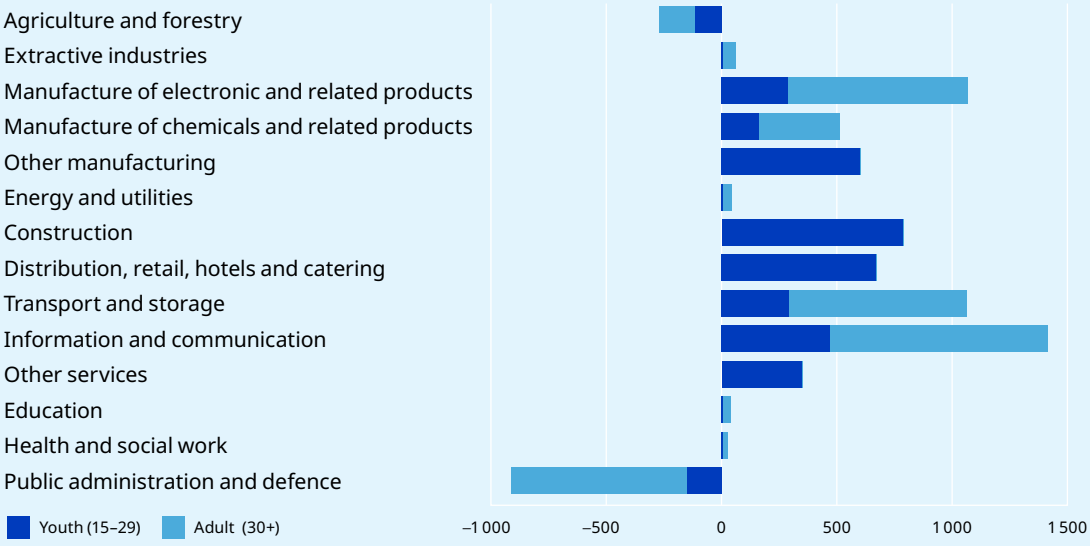
[9] These proportions are in line with what one would expect to see if an overall employment profile for the care economy resembling that presented in section 4.2 is used in the model.

▶ Figure 4.21 Projected difference in employment relative to the baseline under the care scenario, world and by country income group (panel A) and region (panel B), 2030 (thousands)



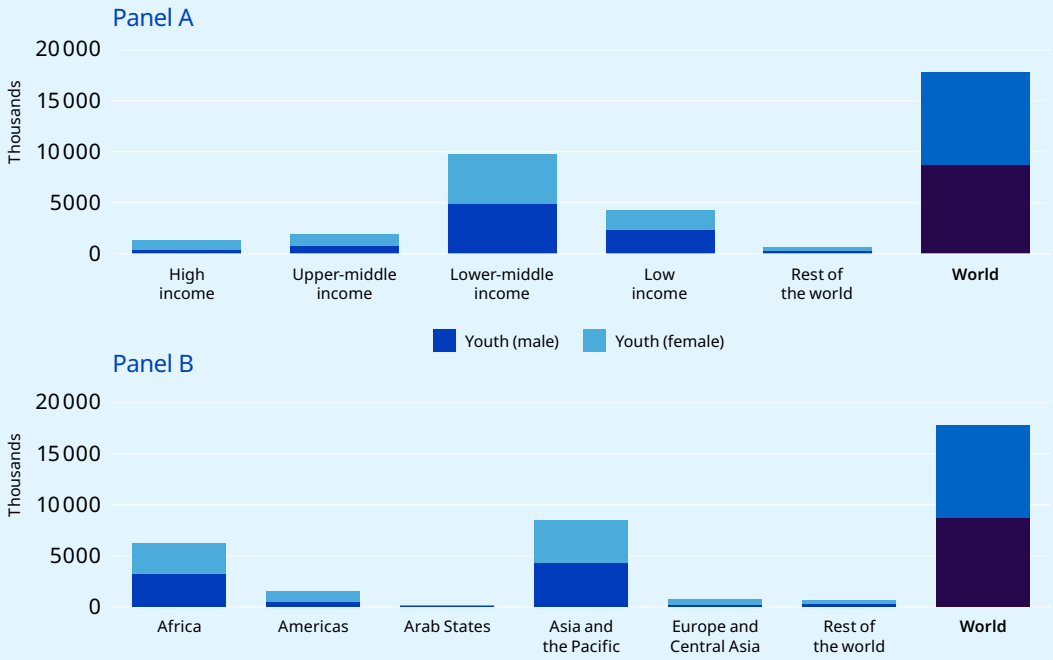
Source: ILO, based on the E3ME model of Cambridge Econometrics.

▶ Figure 4.22 Projected difference in employment relative to the baseline under the care scenario, by age and sector, 2030 (thousands)



Source: ILO, based on E3ME model of Cambridge Econometrics.

▶ **Figure 4.23 Projected difference in youth employment relative to the baseline under the care scenario, by sex, world and by country income group (panel A) and region (panel B), 2030** (thousands)



Note: "Youth" refers to ages 15–29.

Source: ILO, based on the E3ME model of Cambridge Econometrics.

Assuming that the current sex-disaggregated distribution of employment across age groups and sectors remains unchanged, more of the additional jobs can be expected to be taken by young women than by young men (figure 4.23). For the world as a whole, Asia and the Pacific, and Africa, the additional youth jobs created are split approximately evenly between young women and young men, but in the Americas, and in Europe and Central Asia, 70 per cent of the new jobs go to young women. The opposite occurs in the Arab States, where only 35 per cent of the new jobs go to young women (though the absolute number of new youth jobs in the Arab States is small by international standards: 49,000 for young women and 92,000 for young men).

4.5 The care economy as the centrepiece of a job-rich, youth- and gender-responsive recovery

The care economy is a major employer of young workers (those aged 15–29 years). This is due to the combined effects of greater demand for young workers in care sectors (particularly in health and social work) and of young people staying in education longer (which means that they make up a proportionally smaller workforce).

As shown in this chapter, however, the situation of young workers in the care economy varies dramatically depending on countries' levels of income. In low-income countries, care sectors account for 8.0 per cent of all youth employment, in lower-middle-income countries for 6.6 per cent, in upper-middle-income

countries for 11.6 per cent, while in high-income countries they account for 19.7 per cent. In line with the long-standing trend towards feminization of the care workforce, care sectors are a significant source of demand for young women's work, although, again to a much greater extent in richer countries. Care sectors thus account for 12.1 per cent of young women's employment in low-income countries (80 per cent of which is domestic work), 13.5 per cent in lower-middle-income countries (50 per cent of which is in education), 21.7 per cent in upper-middle-income countries (39 per cent of which is in education, 37 per cent in health and social work and 24 per cent in domestic work) and 31.3 per cent in high-income countries (66 per cent of which is in health and social work). These findings imply that there is huge scope for expanding youth employment in care sectors, particularly in low- and lower-middle-income countries, to make the care economy the centrepiece of a job-rich, youth- and gender-responsive recovery from the COVID-19 crisis.

Indeed, the simulation model presented in section 4.4 indicates that investments in the care economy could create almost 18 million new jobs for young people by 2030, including 9.3 million jobs in education, 5.1 million jobs in health and social work and, indirectly, 3.5 million in non-care sectors. Along with the required investments, the ensuing positive impacts on youth employment would be concentrated in low-income countries (4.2 million) and, above all, lower-middle-income countries (9.7 million).

> Investments in the care economy could create almost 18 million new jobs for young people by 2030. Investments in care sectors must be accompanied by the promotion of decent working conditions for young as well as older workers in these sectors.

Investments in care sectors must be accompanied by the promotion of decent working conditions for young as well as older workers in these sectors. This includes ensuring that they enjoy labour and social protections; guaranteeing freedom of association, the right to collective bargaining and equal pay for work of equal value; and preventing and eliminating violence and harassment, in line with the eight fundamental international labour Conventions and the Violence and Harassment Convention, 2019 (No. 190). These principles should also be extended to domestic workers in accordance with the Domestic Workers Convention, 2011 (No. 189).

Unfortunately, there is still a long way to go before decent work becomes a reality for all young workers in the care economy. Young workers in education, for example, face very unequal working conditions depending on the characteristics of educational systems, the conditions being typically worse in the private sector than in public institutions. Only in high-income countries did young teachers receive adequate support to help them cope with the challenges of the COVID-19 crisis. Elsewhere many young teachers lost their jobs, particularly in lower-middle-income countries.

In health and social work, the working conditions of young workers also vary greatly – between those who are university-educated and those who do not have such credentials, between public and private sector workers, and between those employed in health and those who are part of the social care workforce. The COVID-19 crisis put great strain on young workers in the health sector, as evidenced by their hours worked and their high levels of burnout as a result of dealing with the pandemic.

Lastly, young domestic workers are very much alike across all countries in having the worst working conditions: almost all of them are informally employed and lack social protection and basic labour rights. During the pandemic, many lost their jobs and income or had to stay on isolated in their employer's household.

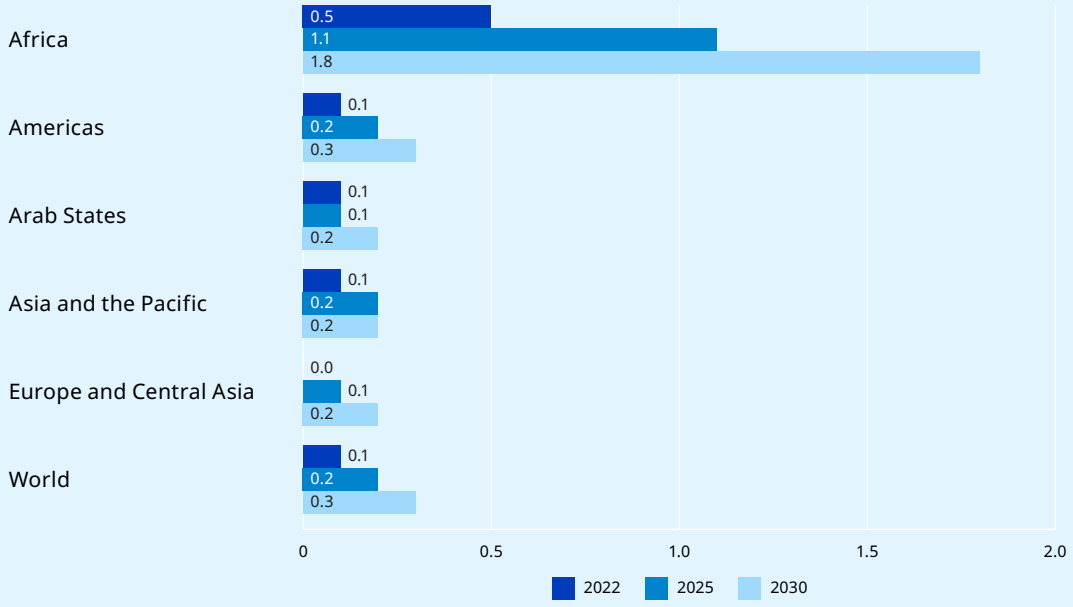
4.5.1 Policies to support young workers in education

Commit resources to strengthen education systems and invest in them: The COVID-19 crisis brought about a major disruption to school systems, and learning losses have been substantial in all countries of the world, particularly for the most marginalized students, aggravating already existing inequalities in education. As at September 2021, less than 3 per cent of governments' stimulus packages had been allocated to education; and in low- and lower-middle-income countries, the share was below 1 per cent (World Bank, UNESCO and UNICEF 2021). To achieve a "learning recovery" and implement SDG 4, significant financial resources will have to be invested in the short term and sustained well into the future.

The modelling exercise presented in this chapter suggests that the required investments in education are relatively modest, but that they need to be sustained over time. For the world as a whole, the "care scenario" requires investments amounting to 0.1 per cent of baseline GDP in 2022, 0.2 per cent of baseline GDP in 2024–26 and 0.3 per cent of baseline GDP in 2027–29. As figure 4.24 shows, the greatest efforts are required in Africa, where annual investment starts at 0.5 per cent of baseline GDP, but needs to rise to 1.1 per cent of baseline GDP by 2025 and 1.8 per cent of baseline GDP by 2029.

Strengthen and support the young teaching workforce: Teachers require high-quality initial teacher training and continuous professional development. Education systems should ensure the professionalism of the teaching workforce and incentivize the best candidates to enter the profession through remuneration and adequate working conditions. Effective strategies for the deployment of teachers are necessary to reduce urban–rural disparities and to align teachers' skills and subject specialization with schools' needs (World Bank, UNESCO and UNICEF 2021). This should be done in the framework of a broader set of policies aimed at ensuring decent work in the education sector; providing adequate working conditions and safety and health at work, including mental well-being for all education personnel; and providing all workers in education with universal access to comprehensive and sustainable social protection (ILO 2021c).

▶ **Figure 4.24 Additional expenditure on education required under the care scenario, world and by region, 2022, 2025 and 2030** (percentage of baseline GDP)



Source: ILO, based on the E3ME model of Cambridge Econometrics.

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> A broad set of policies is required to support and strengthen the young teaching workforce, ensuring decent work, providing adequate working conditions and safety and health, and offering universal access to comprehensive and sustainable social protection.

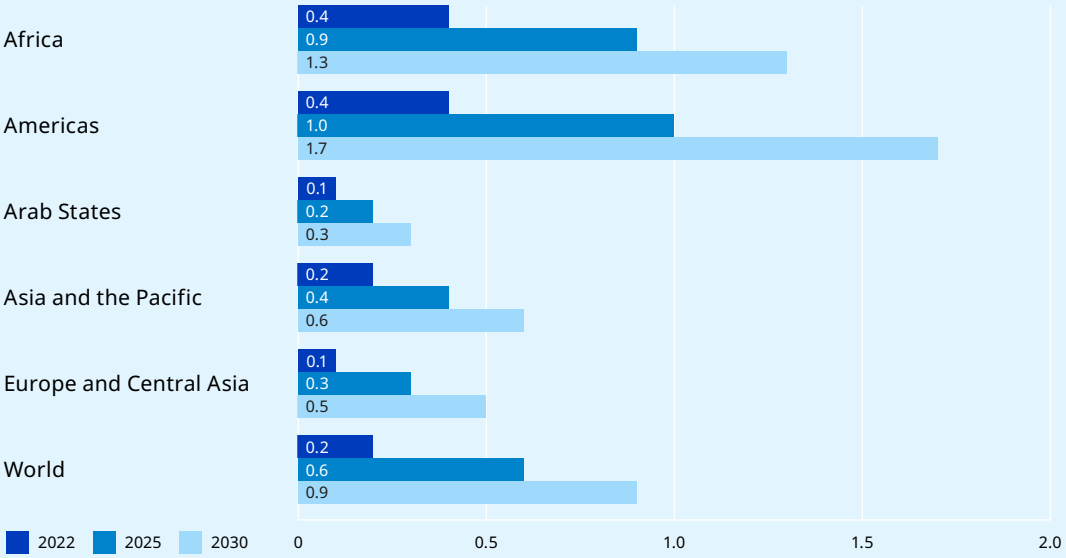
Take measures to help teachers and schools adapt to the post-COVID-19 situation: The risk of transmission in school settings can be sharply reduced if a set of mitigating actions are taken, such as using quality masks and improving ventilation (GEEAP 2022).

4.5.2 Policies to support young workers in health and social work

Invest in health and social work: The COVID-19 crisis led to renewed calls for investment in more resilient public health systems, including investment in the health workforce and in improving working conditions, as a key pillar of the universalization of social protection systems (Bierbaum and Schmitt 2022; ILO 2021f; UN 2020). The investment required to achieve the care scenario's objectives in health and social work (that is, to achieve SDGs 3 and 8) is greater than that required to achieve the objectives related to education (figure 4.25). For the world as a whole, 0.2 per cent of baseline GDP would be required in 2022, increasing yearly to reach 0.6 per cent of baseline GDP in 2025 and 0.9 per cent of baseline GDP in 2029. The additional expenditure is particularly high in the Americas, where it has to rise from 0.4 per cent of baseline GDP in 2022 to 1.0 per cent in 2025 and 1.7 per cent in 2029 (that is, an increase of over four times the initial share of baseline GDP). Similarly, Africa would need to ramp up its efforts to reach 1.3 per cent of baseline GDP in 2029. Funding is essential to that end, but it could be sustained through a combination of development finance and improved tax revenues.

> The COVID-19 crisis led to renewed calls for investment in more resilient public health systems, including investment in the health workforce and in improving working conditions, as a key pillar of the universalization of social protection systems.

▶ **Figure 4.25 Additional expenditure on health and social work required under the care scenario, world and by region, 2022, 2025 and 2030** (percentage of baseline GDP)



Source: ILO, based on E3ME model of Cambridge Econometrics.

> The pandemic highlighted the need to incorporate young professionals into the public health workforce in a sustainable manner, that is, avoiding a reliance on voluntary work or overwork.

Ensure that young health professionals are properly integrated in the health system: The COVID-19 crisis highlighted the need to incorporate young professionals into the public health workforce in a sustainable manner, that is, avoiding a reliance on voluntary work or overwork. This requires robust mentorship structures, intentional recruitment and continuous support (including access to education and training), and genuine recognition of the contributions that young professionals can make as part of a sustainable and diverse health workforce (Wong et al. 2021). Only bold action by governments and other stakeholders can ensure that these goals are achieved (box 4.11).

▶ Box 4.11 Key recommendations to governments from the Global Health Workforce Network's Youth Hub[1]

Immediately

- Expand domestic investment in health systems and in the health workforce, including the education, lifelong training and decent employment of future health and social workers;
- Establish laws, policies and accountability mechanisms to protect young health and social care workers, safeguard their rights, promote and ensure decent work, and foster an enabling working environment; and
- Strengthen health systems to ensure the continuous delivery of essential public health services, even when responding to a public health emergency.

In the medium term

- Increase funding for the development of digital health infrastructure and enact laws to regulate the use of digital health technologies;
- Work collaboratively across health, employment and other social ministries to design regulations that allocate key resources and health and social workers in an equal and ethical way; and
- Ensure universal access to quality essential services at the community level by providing appropriate training, supervision and remuneration to all community-level workers, ensuring decent work and quality assurance, and incentivizing doctors to practise in remote and rural areas.

In the long term

- Improve and incentivize the collection and analysis of reliable data on human resources for health in terms of needs, demand and supply at the national level, and arrange for the tracking of health and social worker migration trends, disaggregated by age and sex;
- Invest in human and logistic resources to actively combat misinformation and provide reliable, timely and comprehensible public health communication; and
- Ensure greater public access to health products and services, including digital health.

[1] The Youth Hub is an intersectoral, interprofessional community of practice hosted by the Global Health Workforce Network (GHWN) and the WHO Health Workforce Department. The focus of the Hub is on youth employment in health and social care and it aims to promote youth-inclusive policies as part of the "human resources for health" agenda.

Source: Adapted from GHWN Youth Hub (2022).

Formalize community health workers: Community health workers, the vast majority of whom are young, need to become part of the public health workforce, with improved working conditions and pay, adequate labour and social protections, standardized and structured education, effective supervision and a clear career path. This would result in better health systems, enhanced access to health, improved health outcomes, greater awareness in communities, and a stronger capacity to tackle any future pandemics or epidemics (Alperstein, unpublished).

Attract young workers to the social care sector by providing better working conditions, training and support: As a significant proportion of the social care workforce approaches retirement, the recruitment of younger workers is particularly important. Substantial pay increases and improvements in working conditions are required to retain existing care workers and attract young workers to the sector (ILO 2020a; Florek 2021).

4.5.3 Policies to support young domestic workers

Formalize domestic workers: Young domestic workers need to be the focus of special attention to address the appalling working conditions that many of them face, particularly if they are below the minimum legal age (child labour). Formalization in the framework of Convention No. 189 – which means ensuring that domestic workers are protected by labour and social security laws and regulations, and can access social protection to the same extent as other workers – is the foremost priority for improving the working conditions of young domestic workers. While progress has been made in extending labour laws to domestic workers over the past ten years, significant gaps remain – especially in the areas of minimum wages and social security. Implementation gaps also need to be closed for the vast majority of domestic workers who are informally employed despite being covered by labour and social security laws (ILO 2021b).

In particular, Paragraph 5.2 of the Domestic Workers Recommendation, 2011 (No. 201), states:

> When regulating the working and living conditions of domestic workers, Members should give special attention to the needs of domestic workers who are under the age of 18 and above the minimum age of employment as defined by national laws and regulations, and take measures to protect them, including by:
>
> (a) strictly limiting their hours of work to ensure adequate time for rest, education and training, leisure activities and family contacts;
>
> (b) prohibiting night work;
>
> (c) placing restrictions on work that is excessively demanding, whether physically or psychologically; and
>
> (d) establishing or strengthening mechanisms to monitor their working and living conditions. (ILO 2017b, 28)

Access to education, sexual and reproductive health and rights, and adequate accommodation is key to ensuring that these young workers, most of whom are young women, are able to stay safe and protected.

Chapter references

Acheampong, Phinihas, and Juliana Fosua Gyasi. 2019. "Teacher Retention: A Review of Policies for Motivating Rural Basic School Teachers in Ghana". *Asian Journal of Education and Training* 5 (1): 86–92.

Afreen Latika, Khandokar Zahra, Jyoti Baroua, Meem Maysha Manzur, Amir Khan Sharaboan, and Mir Tamjidul Islam. 2021. "Young Domestic Workers in Bangladesh Face the Economic Fallout from Covid-19". Institute of Development Studies, 10 June 2021.

Alaluusua, Sanna. 2017. "Rural to Urban Migration and Young Female Domestic Workers in the 21st Century Lima, Peru". Paper delivered at the "Migrating out of Poverty: From Evidence to Policy" conference, London, 28–29 March 2017.

Alperstein, Melanie. Unpublished [2020]. "The Role of Community Health Workers during the Covid-19 Pandemic". Public Services International.

Amdeselassie, Tsinu, Guday Emirie, Kiya Gezahegne, Nicola Jones, Elizabeth Presler-Marshall, and Workneh Yadete. 2020. "Experiences of Vulnerable Urban Youth under Covid-19: The Case of Domestic Workers". Policy brief. Gender and Adolescence: Global Evidence.

Bierbaum, Mira, and Valérie Schmitt. 2022. "Investing Better in Universal Social Protection: Applying International Social Security Standards in Social Protection Policy and Financing", ILO Working Paper No. 43.

Cattaneo, Umberto, Margherita Licata, and Marcello Montefiori. 2019. *The Impact of HIV on Care Work and the Care Workforce*. ILO.

Chudgar, Amita, Madhur Chandra, and Ayesha Razzaque. 2014. "Alternative Forms of Teacher Hiring in Developing Countries and Its Implications: A Review of Literature". *Teaching and Teacher Education* 37: 150–161.

da Silva, Inés. 2019. "Young Teachers are the Future of the Profession". *Education for All Blog* (blog). 3 October 2019. https://www.globalpartnership.org/blog/young-teachers-are-future-profession.

Evans, David K., Fei Yuan, and Deon Filmer. 2022. "Teacher Pay in Africa: Evidence from 15 Countries". *World Development* 155 (July 2022).

Fisher, Duncan. 2021. "'You Never Know What You Could Walk Into': The Perceptions and Experiences of Adult Social Care Workers in Teesside, North-East England". PhD thesis, Teesside University.

Florek, Karol, 2021. "Resilience of the Long-Term Care Sector: Early Key Lessons Learned from the Covid-19 Pandemic". European Public Service Union.

Friedrichs, Anne, and Heinz-Alex Schaub. 2011. "Academisation of the Health Professions: Achievements and Future Prospects". *GMS Journal for Medical Education* 28 (4).

GEEAP (Global Education Evidence Advisory Panel). 2022. *Prioritizing Learning during COVID-19: The Most Effective Ways to Keep Children Learning during and post-Pandemic*. World Bank and United Nations Children's Fund.

GHWN (Global Health Workforce Network) Youth Hub. 2020. "Youth and Decent Work in the Health and Social Care Sector: An Evidence Synthesis".

———. 2022. "Call for Action: Building a Resilient and Adaptable Youth Health Workforce".

ICN (International Council of Nurses). 2021. "The Global Nursing Shortage and Nurse Retention". Policy brief.

ILO. 2017a. *Improving Employment and Working Conditions in Health Services*.

———. 2017b. *Practical Guide to Ending Child Labour and Protecting Young Workers in Domestic Work*.

———. 2018. *Care Work and Care Jobs for the Future of Decent Work*.

———. 2019a. "Global Youth Employment Forum 2019 – 'Today and Tomorrow with Decent Jobs for Youth' – Abuja, 1–3 August 2019: Activity Report".

———. 2019b. "Young People Not in Employment, Education or Training", ILO/SIDA Partnership on Employment Technical Brief No. 3.

———. 2020a. "COVID-19 and the Health Sector", ILO Sectoral Brief.

———. 2020b. "Impact of the COVID-19 Crisis on Loss of Jobs and Hours among Domestic Workers". ILO factsheet, 15 June 2020.

———. 2021a. *Global Call to Action for a Human-Centred Recovery from the COVID-19 Crisis That Is Inclusive, Sustainable and Resilient*. International Labour Conference, 109th Session.

———. 2021b. *Making Decent Work a Reality for Domestic Workers: Progress and Prospects Ten Years after the Adoption of the Domestic Workers Convention, 2011 (No. 189)*.

———. 2021c. *The Future of Work in the Education Sector in the Context of Lifelong Learning for All, Skills and the Decent Work Agenda*.

———. 2021d. *Digitalization in Teaching and Education in Ethiopia, Kenya, Malawi, Rwanda and the United Republic of Tanzania*.

———. 2021e. "Impact of the Covid-19 Pandemic on Informality: Has Informal Employment Increased or Decreased? A Review of Country Data".

———. 2021f. *World Social Protection Report 2020–22: Social Protection at the Crossroads – In Pursuit of a Better Future*.

———. 2022a. *World Employment and Social Outlook: Trends 2022*.

———. 2022b. *Care at Work: Investing in Care Leave and Services for a More Gender Equal World of Work*.

Irumba, Wilson. 2020. "Young Women Coping with Domestic Work: Experiences from Kampala, Uganda". Research paper, International Institute of Social Studies.

Kerega, Polycarp Africanus. 2019. "Exploration of the Means of Getting to the City and Getting Employed among Young Female Domestic Workers in Dar es Salaam, Tanzania". *Open Journal of Social Sciences* 7 (4): 95–144.

King-Dejardin, Amelita. 2019. *The Social Construction of Migrant Care Work: At the Intersection of Care, Migration and Gender*. ILO.

Kirzinger, Ashley, Audrey Kearney, Liz Hamel, and Mollyann Brodie. 2021. "KFF/The Washington Post Frontline Health Care Workers Survey". Kaiser Family Foundation, 6 April 2021.

Lamberg, Emma. 2020. "Staying in Place or Moving Forward? Young Women's Imagined Futures and Aspirations for Mobility in Care Work". *YOUNG* 28 (4): 329–346.

Lipman, Valerie, Jill Manthorpe, and Jess Harris. 2018. "Does Age Matter in the Social Care Workforce?" *Journal of Long-Term Care*, September 2018.

Maunder, Robert G., Natalie D. Heeney, Gillian Strudwick, Hwayeon Danielle Shin, Braden O'Neill, Nancy Young, Lianne P. Jeffs, Kali Barrett, Nicolas S. Bodmer, Karen B. Born, et al. 2021. "Burnout in Hospital-Based Healthcare Workers during COVID-19". Ontario COVID-19 Science Advisory Table, 7 October 2021.

Montgomery, Tom, Micaela Mazzei, Simone Baglioni, and Stephen Sinclair. 2017. "Who Cares? The Social Care Sector and the Future of Youth Employment". *Policy & Politics* 45 (3): 413–429.

Müller, Torsten. 2019. "She Works Hard for the Money: Tackling Low Pay in Sectors Dominated by Women – Evidence from Health and Social Care", European Trade Union Institute Working Paper No. 2019.11.

OECD (Organisation for Economic Co-operation and Development). 2021a. *Education at a Glance 2021: OECD Indicators*.

———. 2021b. *The State of Global Education: 18 Months into the Pandemic*.

Panjabi, Ray. 2020. "The Job Description for a COVID-19 Community Health Worker – and How This Could Fight US Unemployment". World Economic Forum, 31 March 2020.

Sedlák, Marián, and Batool Al-Wahdani. 2020. "Changing the Narrative: Young People Are Key to Dealing with the Covid-19 Pandemic". *The BMJ*, 27 July 2020.

Svensson, Jenny. 2018. "Young Domestic Workers: A Qualitative Study on the Health and Wellbeing of Girls Working in Households in Delhi". PhD thesis, London School of Hygiene and Tropical Medicine.

Tiete, Julien, Magda Guatteri, Audrey Lachaux, Araxie Matossian, Jean-Michel Hougardy, Gwenolé Loas, and Marianne Rotsaert. 2021. "Mental Health Outcomes in Healthcare Workers in COVID-19 and Non-COVID-19 Care Units: A Cross-Sectional Survey in Belgium". *Frontiers in Psychology* 11.

UN (United Nations). 2020. "Policy Brief: COVID-19 and Universal Health Coverage".

UNESCO (United Nations Educational, Scientific and Cultural Organization). 2021. *Global Education Monitoring Report 2021/2: Non-State Actors in Education – Who Chooses? Who Loses?*

WHO (World Health Organization). 2019. *Delivered by Women, Led by Men: A Gender and Equity Analysis of the Global Health and Social Workforce*. Human Resources for Health Observer Series No. 24.

Wong, Brian Li Han, Ines Siepmann, Tara T. Chen, Shelby Fisher, Tobias S. Weitzel, Naomi L. Nathan, and Diah S. Saminarsih. 2021. "Rebuilding to Shape a Better Future: The Role of Young Professionals in the Public Health Workforce". *Human Resources for Health* 19.

World Bank, UNESCO (United Nations Educational, Scientific and Cultural Organization) and UNICEF (United Nations Children's Fund). 2021. *The State of the Global Education Crisis: A Path to Recovery*.

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5

Policy implications

▶ Chapter 5. Policy implications

5.1 Introduction

This chapter reviews the implications of the report's findings for the design, implementation and evaluation of youth employment policies. It first looks at COVID-19 policy response packages in developed and developing economies, highlighting gaps in the measures adopted to support young workers. It then outlines a comprehensive set of policy recommendations for a youth-friendly recovery building on the ILO Global Call to Action for a Human-Centred Recovery from the COVID-19 Crisis That Is Inclusive, Sustainable and Resilient, and on the ILO follow-up plan of action on youth employment for the period 2020–30 (ILO 2020a). Strong initiatives to promote a better future of work for young people are critical as the global economy remains fragile and countries are confronted with multiple challenges associated with their green, digital and demographic transitions.

Strong initiatives to promote a better future of work for young people are critical as the global economy remains fragile and countries are confronted with multiple challenges associated with their green, digital and demographic transitions.

Young people were hit very hard by the economic and social consequences of the COVID-19 pandemic. As a result of the crisis, young people suffered heavy job losses, a deterioration of job quality and higher inactivity, and faced greater obstacles preventing them from entering the labour market or moving between jobs. The global trends discussed in Chapter 1 indicate that employment losses and the shift to inactivity were most acute for young people. Most young women and men also experienced severe disruption to their education and training, especially in developing countries. All this has led to growing anxiety and mental stress among young people.

Young people were already in a precarious labour market situation before the crisis, which served to exacerbate existing fragilities. Most young people have few, if any, assets or financial buffers, which puts them at greater risk of falling into poverty during a recession. They also have limited work experience and a weak attachment to the labour market. This may exclude them from social security schemes and put them at a disadvantage in a polarized world of work, in which good opportunities are few and far between. Unless these vulnerabilities are promptly addressed, the high rates of youth unemployment, inactivity and insecure work could have long-lasting "scarring" effects on young people's career paths and future earnings at the same time as undermining countries' economic growth. The social risks of a "COVID-19 lockdown generation" are severe, notably long-term exclusion, deep-seated poverty, and polarized and unstable societies.

5.2 Blind spots in the policy responses to the COVID-19 crisis

The socio-economic policy response to the COVID-19 crisis was unparalleled in several respects, but there were "blind spots" in the assistance provided to young people. Countries swiftly introduced a wide range of policy measures aimed at stabilizing employment and income, mainly by providing emergency lifelines for firms and households. Financial support in high- and middle-income countries was generous and largely untargeted, but even those governments that had greater fiscal space and

> Young people suffered heavy job losses, a deterioration of job quality and higher inactivity, and faced greater obstacles preventing them from entering the labour market or moving between jobs.

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could afford to spend more did not always manage to reach all young people, especially those most vulnerable. In low-income countries efforts were also made to protect people from falling into poverty through financial support,[1] but the fiscal space there was considerably more limited and so these countries' response fell behind in relative as well as absolute terms. In addition to available levels of funding, the pre-crisis strength of youth employment support systems and of labour market institutions was another factor determining how well countries managed to reach out to young people by scaling up existing programmes or launching new ones.

In advanced economies, discretionary fiscal support averaged an unprecedented 23 per cent of GDP as at October 2021 (IMF 2021). This complemented the automatic stabilizers that are in place in many countries, especially in Europe. The policy mix varied across countries. Providing capital to affected businesses through concessional loans or grants was a very common tool: half of the total value of financial assistance measures adopted in high-income countries was accounted for by support for equity, loans and guarantees. Considerable amounts were also earmarked for the preservation of employment linkages by reimbursing firms for payroll costs, for the reinforcement of unemployment insurance systems, and for the provision of income and in-kind relief for vulnerable households. Prompted by the emergency, countries rapidly adapted and expanded their existing social and labour market programmes by increasing benefits, lifting entry requirements and making support more flexible, thereby increasing considerably the number of beneficiaries. New tools such as short-time work schemes were introduced in a few countries. Another widespread measure was the integration of self-employed workers into regular support systems or the creation of ad hoc schemes to assist the self-employed (Eichhorst, Marx and Rinne 2020; ILO 2021a). Across the OECD countries, 50 million jobs were supported through job retention schemes of various kinds (OECD 2020a).

In the rest of the world, policy support was similarly swift but on a much smaller scale. On average, the discretionary fiscal response reached almost 10 per cent of GDP in emerging market economies, but only 4 per cent in developing countries (IMF 2021). Key measures included support for affected businesses and emergency relief for the most vulnerable groups through cash transfers, food aid, and waivers or deferrals of taxes, electricity bills and other payments. Countries expanded and topped up existing cash transfer programmes (such as the Productive Safety Net Programme in Ethiopia, the Child Grants Programme in Lesotho and the *Bolsa Família* programme in Brazil), in some cases adopting new technologies and innovative ways to reach unregistered people, including people working in the urban informal economy.[2] A few countries specifically included informal workers in their support programmes (Costa Rica, El Salvador, Indonesia, Morocco, Togo), while others introduced wage subsidies and job retention schemes in highly exposed and critical sectors such as the garment and tourism industries (Bangladesh, Cambodia, Ethiopia, Lao People's Democratic Republic, Viet Nam). Some countries also strengthened labour market policies, including the provision of training (Philippines, Thailand) and public works programmes (Cambodia, Guinea, Nepal, Nigeria).

Limited fiscal leeway in most developing countries, persistent informality and the weakness of social protection systems made it difficult for them to effectively contain the damage to their economies, particularly to the informal sectors in which many young people work. Of the total volume of support measures worldwide estimated at close to US$17 trillion in October 2021, developed countries accounted for 85 per cent, while only about 0.2 per cent was accounted for by the least developed countries – the group of the 46 poorest countries, in which by 2030 one in five of young people in the world (aged 15 to 24 years) will be living (ILO 2022a). Even in middle- and lower-income countries, government support was only able to reach a fraction of poor people and those working in the informal economy. For instance, Nigeria – a country in which 90 per cent of the workforce work informally

[1] See the ILO World Social Protection Data Dashboard, https://www.social-protection.org/gimi/ShowWiki.action?id=3417.

[2] The ILO Social Protection Monitor provides an inventory of social protection measures announced throughout the world (see https://www.social-protection.org/gimi/ShowWiki.action?id=3426). A distinctive challenge in many poor countries was to redirect existing cash transfer programmes targeting children and vulnerable groups in rural areas to informal workers in urban areas who were more severely affected by the COVID-19-related lockdowns and restrictions.

and 87 million people are living below the international poverty line of US$1.9 per day – introduced 50 per cent tax rebates for registered businesses to help them retain their workers and provided a cash transfer worth US$52 in each case to 3.6 million poor and vulnerable households (Dixit, Ogundeji and Onwujekwe 2020).

5.2.1 Support programmes for young people were sporadic

In both developed and developing countries, most COVID-19 support programmes were not youth-specific (Barford, Coutts and Sahai 2021; Rinne, Eichhorst and Brunner 2022). They did cover young people to some extent – for instance, where targeting the economic sectors in which young workers were over-represented, such as tourism. Benefits also reached young people indirectly through their families, as households were primary recipients of social assistance. In most developing countries, however, those benefits were limited and temporary and generally insufficient to cover the widespread reductions in income and increases in household expenses caused by the crisis.

> In both developed and developing countries, most COVID-19 support programmes were not youth-specific.

Even in advanced countries that could afford generous financial support measures, relief was provided mainly for older age groups, whose position at work is usually more stable and secure. Data from high- and middle-income countries suggest that a moderate decline in employment rates among prime-age workers was associated with strong labour market institutions, as measured by the ILO EPLex indicators of labour market regulation. This mitigating effect was essential to contain the economic consequences of the pandemic, but it was less pronounced for young people, who were hit particularly hard and whose position in the labour market is usually more precarious and beyond the purview of most labour market institutions and social protection systems (O'Higgins, Verick and Elsheikhi 2021).

> Even in advanced countries that could afford generous financial support measures, relief was provided mainly for older age groups, whose position at work is usually more stable and secure.

New programmes for young people were sporadic, albeit with some notable exceptions. In France, the "One young person, one solution" programme was launched in the summer of 2020. Worth more than €9 billion in total, it provided a comprehensive package of services for vulnerable young people, including hiring subsidies, training, orientation, counselling and mentorship, and financial assistance.[3] Within a year of its launch it had supported the creation of 526,000 apprenticeships, the hiring of 1.8 million young people (aged 25 years or younger), the training of 100,000 young people for jobs in emerging sectors and complemented the EU Youth Guarantee initiative by reaching out to 200,000 individuals (Soussi 2021). In the Republic of Korea, youth-targeted measures focused on creating 50,000 high-tech jobs and supporting 50,000 internships for young adults (ILO and ADB 2020). The Philippines and South Africa also launched various new programmes with a focus on young people (Rinne, Eichhorst and Brunner 2022).

[3] See the programme website, https://www.1jeune1solution.gouv.fr/.

Some countries expanded or adjusted their existing labour market programmes to cater to the needs of young workers and jobseekers. Indonesia adjusted its *Kartu Prakerja* (Pre-Employment Card) programme to provide financial incentives to 2 million young people so that they could participate in pre-employment and on-the-job training in skills that are in high demand, such as foreign languages and data science (IDN Financials 2020).[4] Other countries used COVID-19 discretionary spending to strengthen their apprenticeship schemes (Austria, Germany, New Zealand); to provide training for recent graduates (Thailand); to subsidize jobs for young people (Malaysia, United Kingdom) or provide them with extended unemployment benefits (Belgium); and to support young entrepreneurs (Bulgaria, Chad). Other measures included guidance and counselling for youth work (Finland), student healthcare (Sweden) and extended deferral of student loan repayments (United States).

The crisis also affected the scale and scope of the youth employment programmes already in place, which often focused on vulnerable young people and comprised a range of training and apprenticeship programmes, employment services and entrepreneurship support. Many such programmes were suspended owing to public health restrictions (see Vezza 2021 for Latin America). Others had to adapt their mode of delivery to the circumstances imposed by the pandemic – for example, by scaling up virtual operations and remote learning (Singh and Joseph 2020). In some cases, the crisis prompted policy innovation – for example, by helping young entrepreneurs to take advantage of new business opportunities, including crowdsourcing, new channels for service delivery or local sourcing of food and basic medical equipment.

5.2.2 The need for targeted action to tackle inequalities

Disrupted classroom learning and the massive shift to online formats exacerbated stark inequalities in access to education and training. According to a joint survey by the ILO, the United Nations Educational, Scientific and Cultural Organization and the World Bank, in high-income countries more than two thirds of the providers of technical and vocational education and training were able to deliver training entirely by remote methods, whereas very few providers in low-income countries could make that transition owing to limited access to broadband infrastructure and equipment. Accordingly, while only around 10 per cent of training was cancelled in high-income countries during the pandemic, that share reached over 50 per cent in low-income countries (ILO, UNESCO and World Bank 2020). Similar findings emerge from a myriad of studies and surveys conducted in developing countries. For example, in Peru, 16 per cent of 19-year-olds dropped out of education for multiple reasons, including unaffordable fees and lack of internet access, while in Ethiopia only 5 per cent of students were able to access online learning during the lockdowns (Favara 2021).

In addition to receiving very little support to help them cope with the socio-economic effects of the crisis, large numbers of young people in developing countries also suffered major interruptions to their education. As argued in Chapter 1, the long-term effects of the education crisis will be considerable. Gaps in learning are likely to have an especially detrimental impact on girls, who are at greater risk of withdrawing from education during a crisis and not returning later on. This has negative implications for their future welfare and for gender equality.

[4] For an evaluation of the programme's impact on the economy and community income, see Suryadi et al. (2022).

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5.3 Key policy messages for a youth-friendly recovery from the COVID-19 crisis and a better future of work

COVID-19 relief measures were introduced as emergency measures – they were not specifically designed to address the distinctive ways in which the crisis affected young people. Some groups were entirely left out by these measures: school-leavers, apprentices and young labour market entrants affected by reduced hiring rates; those who had temporary positions and thus less job security; and those forced into inactivity (Barford, Coutts and Sahai 2021). Within those groups, young women were generally in a less advantageous position than young men, as reflected in the more severe impact that they suffered in terms of job losses and reduced incomes, as well as in the burden of increased care work at home and greater risks of domestic violence.

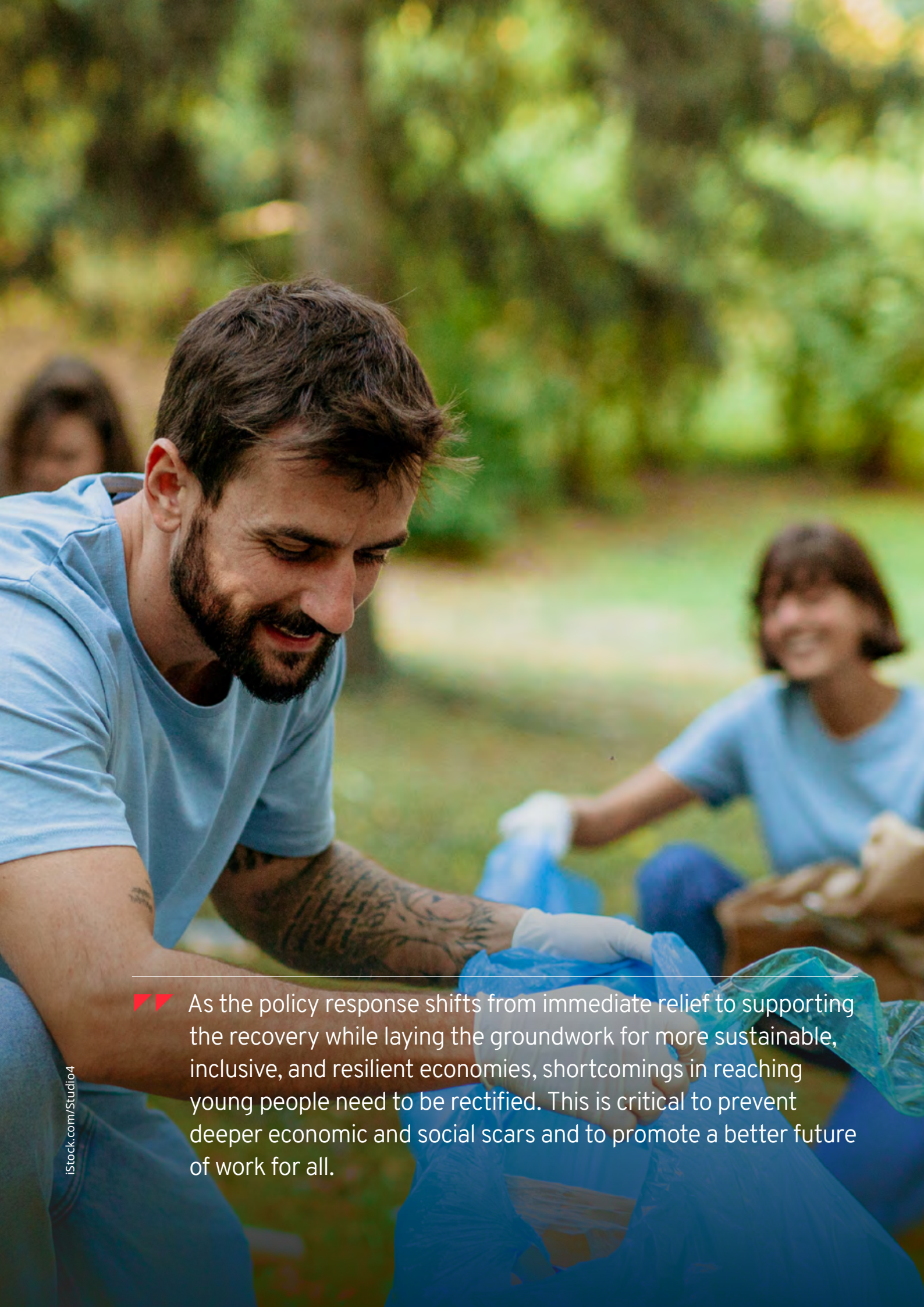
As the policy response shifts from immediate relief to supporting the recovery while laying the groundwork for more sustainable, inclusive, and resilient economies, shortcomings in reaching young people need to be rectified. This is critical to prevent deeper economic and social scars and to promote a better future of work for all.

5.3.1 Ensuring that the labour market creates jobs for young people

The latest ILO estimates suggest that the global recovery of working hours has stalled in recent months, and economic prospects have been further dampened by the conflict in Ukraine (ILO 2022b). Some countries are bouncing back to pre-crisis economic conditions, but many countries and population groups are lagging behind, especially in the developing world and in the regions most affected by the war in Ukraine. Even in the most successful cases, while there are shortages of workers in some sectors and occupations, young people, women, low-skilled and informal workers are still experiencing difficulties finding productive jobs. The problems of youth unemployment, inactivity and precarious work should be at the centre of economic recovery policies to prevent a jobs crisis from becoming a social crisis.

Governments should continue to provide tailored macroeconomic support to assist sustainable enterprises, boost labour demand and support young workers in their labour market transitions. Fiscal and monetary policies should be coordinated to support one another, and they should be complemented by revamped employment policies and strategies. A hasty across-the-board withdrawal of macroeconomic support would do little to contain inflationary pressures and could hamper future economic growth and debt sustainability. Fiscal support should be maintained and calibrated to help lower-income and lower-middle-class households to cope with sudden increases in food and oil prices, thereby also helping to prevent a wage–price spiral (OECD 2022). The recent conflict in Ukraine has increased inflationary pressures and supply chain disruptions, emphasizing further the need for active policy measures to protect vulnerable households. Tackling bottlenecks in energy supply, production and transport capacity, and addressing misalignments in the labour market, as discussed below, will also be important in the medium term. Creating a stronger and more resilient labour market is the most effective pathway to stable economic growth and a better future of work.

Enhanced international cooperation is equally important to address the fiscal and financial constraints faced by developing countries, in which the majority of young people live. Developing countries will have to spend wisely, mobilize domestic resources to strengthen their social protection systems, and carry out reforms to improve financial intermediation and the business environment so that their small enterprises are able to grow. Considerable investments have to be made in the green transition and in climate change adaptation through efforts to deploy, adapt and scale up the relevant technologies in developing countries. These countries will need international financial assistance, especially in cases where high oil and food prices and the decline in revenues from migration and tourism are adding to the debt burden. There are important global initiatives under way that need to regain momentum – notably initiatives on debt relief and restructuring, on the voluntary channelling of special drawing rights to low-income countries, and on the expansion of concessional lending. It is



> As the policy response shifts from immediate relief to supporting the recovery while laying the groundwork for more sustainable, inclusive, and resilient economies, shortcomings in reaching young people need to be rectified. This is critical to prevent deeper economic and social scars and to promote a better future of work for all.

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also important to maintain stable conditions in capital markets so as to ensure adequate market-based finance. The call by the United Nations Secretary-General for a Global Accelerator for Jobs and Social Protection could provide a suitable framework, since it is aimed at mobilizing public and private resources to achieve SDG 8 ("Decent work and economic growth") and at extending social protection to millions of people currently without coverage, many of them young women and men and children.

5.3.2 Investing to transform the economy, create new decent jobs and ensure the well-being of future generations

Recovery packages should include new investments in strategic sectors and economic areas with growing social demand, such as the green, blue, digital, creative and care economies examined in the thematic chapters of this report. Investments in these areas are critical components of any effort to achieve a better future of work. In particular, they have great potential to create decent and productive jobs for young people.

Redirecting public investment towards the digital, care and green economies could result in the net creation of 139 million additional jobs by 2030, of which more than 30 million would be taken by young people (aged 15–29 years). The modelling exercise carried out for this report in collaboration with Cambridge Econometrics provides an indication of what could be achieved through a concerted global effort to attain universal (90 per cent) coverage of broadband internet worldwide; increase the provision of healthcare and social care and education coverage in line with the relevant SDGs; and establish a net zero economy by 2050. As highlighted in the thematic chapters, the modelling results suggest that by combining the three scenarios, global GDP could increase by over 4 per cent by 2030 relative to the baseline.

The benefits of a big investment push would refer not just to jobs and incomes. Countries are increasingly aware of the need to promote successful decarbonization and digital and demographic transitions while tackling the inequalities that the COVID-19 crisis has exacerbated. Major, targeted investments will be crucial to address climate change and make the necessary adjustments in the structure of production and consumption. Investments are also necessary to overcome existing digital divides and help all countries to realize the potential of the digital transformation for future economic resilience. Indeed, the COVID-19 recovery packages launched by some major economies (Canada, European Union, Japan, Republic of Korea, United States) have significant investments in the digital and green economies at their core. As noted in Chapter 2, much more has to be done to channel recovery spending to support environmental sustainability: new green investments continue to be a fraction of the annual subsidies provided to fossil fuel industries (O'Callaghan and Murdock 2021). The imperative of addressing climate change and the urgent need to diversify energy sources present a unique opportunity for transformative investments.

While much emphasis is placed on digital and green investments, investing in the care economy could be an important source of productive employment, not least for young people. Of the 139 million projected additional jobs by 2030, around 80 million could be created in support of increased health and social care and education coverage in line with the relevant SDGs. Of these, 18 million would be taken by young people, especially young women. There would also be an increase in global GDP of almost 2 per cent relative to the baseline. The broader effects, in terms of widely shared economic well-being, would be particularly important in the developing countries that historically have lagged behind in building modern social welfare states (Saez 2022). In the context of the ongoing demographic transformation, countries with ageing populations are likely to need more care workers in health and care for the elderly, while societies with a growing "youth bulge" are increasingly demanding education and childcare services. However, as discussed in Chapter 4, to ensure that the new jobs in the care sector are of good quality, care workers, many of whom are young people, need to be provided with better working conditions and pay with benefits, standardized and structured education, good supervision and clear career paths.

Trade-offs and policy choices can affect the multipliers. The projected increase in GDP and jobs is mainly a result of higher government expenditure in health and education followed by increased investment related to digitalization and the transition to a green and blue economy. The assumption is that these investments are financed from existing resources. However, there are also some trade-offs. Increased taxation to pay for the additional public investment could have adverse impacts in some countries, while the loss of oil and gas revenues in oil- and gas-exporting countries is expected to lead to lower activity and reduced state budgets. Higher carbon prices are also expected to diminish the impacts of higher economic activity on employment and output. Nevertheless, the 4 per cent increase in the long-term GDP growth rate of the global economy projected by the model is higher than that based on current forecasts about the level of real interest rates in the major economies in the long run. This suggests that the aggregate debt incurred to finance these investments could be sustainable. Expanding the sources of financing could help to achieve an even higher impact – for example, by issuing bonds with longer-term repayment periods or new international liquidity through special drawing rights. Private financing also offers untapped opportunities for green and digital investments.

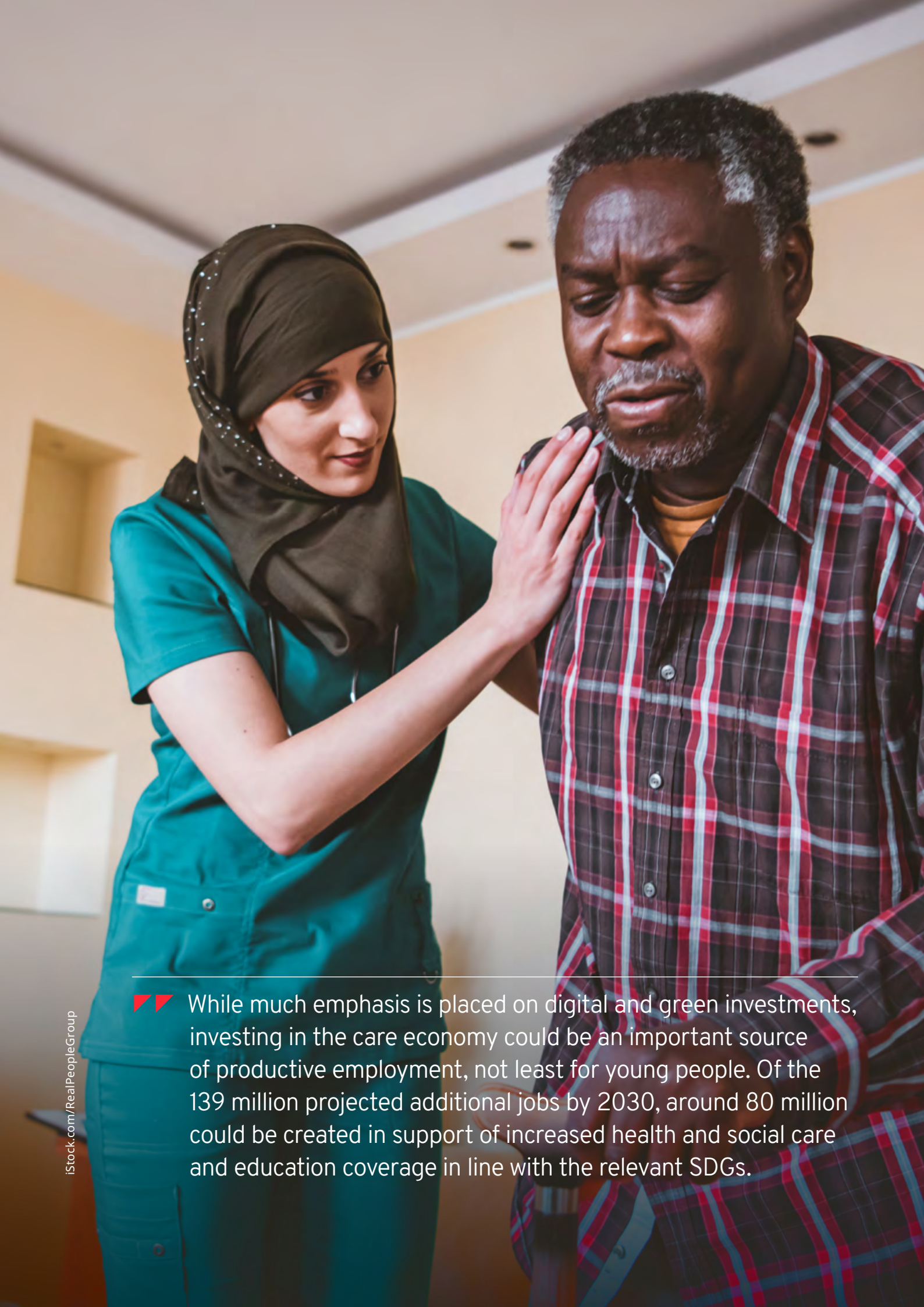
Local constraints inhibiting realization of the potential of these investments should be addressed in national policies. These constraints include infrastructure deficiencies in the poorest countries, for example with regard to electricity supply. The availability of qualified and skilled workers is another major bottleneck not considered in the model. It can partly be addressed through increased investment in education. Workers in the sectors that lose out will also need to be compensated in ways that go beyond the mere provision of better education and health and care services.

Economic transformation will not just happen automatically as a result of higher targeted investments. It will be important to identify and address the missing knowledge and infrastructural inputs required by the new industries and economies. The investment push will need to be accompanied by fiscal and monetary measures and employment and labour market policies that help to maximize the potential for job creation.

5.3.3 Adopting supportive labour market policies and promoting skills development and entrepreneurship

Labour market and skills development policies targeting young people should be designed to support and facilitate economic recovery and transformation to ensure greater resilience to future shocks. As the recovery from the COVID-19 crisis gains momentum, new challenges are emerging. The focus of the policy response is shifting from undifferentiated support to more calibrated measures that take into account the new situation in the labour market. These include active labour market policies and skills development policies to help people move on to new occupations and jobs. It is important to ensure that young people are not overlooked, and that structural change is supported in critical sectors. The transition to greener and more digital economies calls for a broad-based approach to digital literacy coupled with promotion of the acquisition of appropriate technical and digital skills by young people so that they can take full advantage of the new opportunities created.

Active support includes wage and hiring subsidies, job search support and public employment programmes. Well-designed targeted subsidies are a way to promote the creation of jobs for young people by reducing the costs of recruitment, retention and training in key sectors. Employment services can also help to support young people in their career planning and job searches by directing them to the most promising sectors and occupations. As a significant proportion of the social care workforce approaches retirement in many countries, attracting younger workers into the sector may require more targeted support to improve working conditions, training and wages. In some cases, special public employment programmes for young people may be necessary to ensure their continued attachment to the labour market while maintaining their work readiness through the ongoing use and acquisition of skills. In the least developed countries, public works schemes and targeted programmes for young people can help to alleviate poverty and contain social conflict, winning time and creating conditions in which macroeconomic and structural reforms are more likely to succeed.



> While much emphasis is placed on digital and green investments, investing in the care economy could be an important source of productive employment, not least for young people. Of the 139 million projected additional jobs by 2030, around 80 million could be created in support of increased health and social care and education coverage in line with the relevant SDGs.

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> Training should be more learner-centred, offering a range of skills and various options for reskilling, upskilling and lifelong learning.

Reforming skills systems is needed to support work transitions. Skills development is one of the areas favoured by governments when it comes to labour market interventions for young people. The challenge now is to rapidly strengthen and reorient existing skills development systems to support young people in their work transitions, expanding access to immediate opportunities and fostering adaptation to changes in labour market demands across sectors and occupations. In many countries, the focus is still on pre-employment training in technical and vocational skills for mainly young people delivered on a full-time basis. The COVID-19 crisis prompted greater digitalization of technical and vocational education and training, but other changes should be considered in this area as well (Sakamoto 2021). In particular, training should become more learner-centred, offering a range of both core and technical skills and comprising short-term courses, micro-credentials and other options for reskilling, upskilling and lifelong learning. Industry and trade unions should partner with governments to review and adapt curricula; involve young people in workplace learning and apprenticeships; and ensure inclusiveness and respect for young people's rights. Good-quality apprenticeships, well-designed internships (O'Higgins and Pinedo Caro 2021) and volunteering initiatives (O'Higgins 2020; O'Higgins 2022) can help to provide an entry to the labour market for first-time jobseekers and young people leaving school or university. An inclusive transition to the green and digital economies, in particular, requires greater opportunities for young girls and women to pursue education and training in STEM subjects (ILO and UNICEF 2018).

Skills can be a driver of economic transformation. Skills development is a critical input in any effort aimed at transforming the economy, and it should accordingly be an integral part of strategies for economic upgrading. Sectoral approaches can facilitate stakeholder dialogue on skills development and help to identify and anticipate skills needs – for example, new skills and skills adjacency to support transitions to the green, blue, digital, creative and care economies of the future. In developing countries, the strengthening of skills development systems can play a role in broader efforts to formalize young workers – for instance, through the recognition of prior learning; by promoting entry to and career progression in traditional and non-traditional jobs; and through area-based approaches and upgrading of local value chains (Sakamoto 2021).

Supporting youth entrepreneurship and youth-led local solutions. Assisting micro, small and medium-sized enterprises has been a priority in the COVID-19 policy responses of many governments, but youth-specific measures in this area have been rare. However, there are many examples of young entrepreneurs who managed to turn innovative business ideas into practice during the pandemic across such sectors as agriculture, mental health and logistics. For example, Bundle, a youth-led delivery business in Bhutan, distributed personal protective equipment and groceries. AGREA, a social enterprise in the Philippines, helped farmers to supply households with fruit and vegetables that would otherwise have been wasted. In Indonesia, many of the microentrepreneurs assisted by the YCAB Foundation, including the poorest and most vulnerable, resorted to digital tools to weather the restrictions imposed by the pandemic (for example, by selling products and services through chat groups). Throughout Africa, the development of job creation hubs providing young microentrepreneurs with access to a range of start-up and business services, and helping them to expand and formalize their operations, is an encouraging phenomenon. Such youth-led local solutions testify to innovative potential that should be nurtured.

Harnessing youth-led innovation, however, requires investments from national and local governments. This may include investing in incubators, providing support with the scaling up of innovations, facilitating seed-funding ecosystems, and strengthening public–private partnerships to provide young entrepreneurs with funding, mentoring and skills. Support is also needed in the form of technology and physical infrastructure, tax breaks for start-ups, concessional finance, and the creation

of a transparent regulatory environment (Abisoye 2021; Bandiera et al. 2022). As even the poorest young entrepreneurs tend to be digitally savvy, digital solutions can be used effectively to channel assistance to them – for example, by scaling up the provision of business services, finance and training through online networks, learning platforms and crowdfunding (YBI 2022), and by helping them to digitalize their financial records and facilitating their formalization (ILO 2020c).

5.3.4 Addressing youth-specific vulnerabilities and the lack of decent work

Reach out to the inactive, not just to the unemployed. The response to the COVID-19 crisis highlighted various shortcomings in addressing the needs of young people, especially vulnerable ones: first-time jobseekers, school dropouts, fresh graduates with low skills and the many young people who remain inactive not by choice. Labour market programmes and policies and social protection systems should shift their focus to outreach beyond the labour market, and they need to be complemented by robust educational and care facilities. Such efforts should consider the local context and be gender-responsive to ensure that no one is left behind. The global community has already missed the SDG target of reducing substantially the youth NEET rate by 2020, and renewed efforts are necessary if this is to be achieved by the new target year of 2030.

Strengthen social protection systems. In many countries, it is necessary to strengthen social protection systems and tackle the problem of fragmented coverage in order to enhance young people's resilience at a time of wide-ranging economic and labour market transformations (ILO 2021a). Social protection coverage should be expanded by ensuring that young workers in all types of employment are included in social insurance mechanisms, supplemented where necessary by non-contributory mechanisms. Income support could also be integrated within conventional labour market and training programmes. This combination has been found to be effective in improving the employment perspectives of vulnerable workers in developing countries, more so than the implementation of such policies in isolation (ILO 2020b). Psychosocial support measures and mental health services should also be expanded.

Combat decent work deficits. Young people are particularly exposed to a lack of decent work. Informality remains pervasive among young workers in developing countries. Even in the advanced economies where employment recovery has been strongest, many of the new jobs for young people are unstable and precarious – that is, they involve temporary or zero-hour contracts, doing agency work or working variable hours. A recent survey in the United Kingdom found that one in three young people who "returned" to work in October 2021 were in atypical work, compared with just 12 per cent of those who were in work one year earlier (Powell 2022). Exact figures for other countries are not available, but the high number of young people in non-standard forms of employment is one of the main problems exacerbated by the crisis. As documented in Chapter 4, large numbers of young workers in the care economy face challenges ranging from overwork, pay penalties and poor working conditions to violence and harassment, especially among young female domestic workers. As discussed in Chapter 3, the spread of digital platforms, where most workers are young, also gives cause for concern: pay and working conditions can be inadequate, since the terms of service agreements are set unilaterally by the platform company; many workers have little access to unemployment benefits and health insurance; and there are challenges related to collective bargaining and freedom of association (ILO 2021a; ILO 2021b).

5.3.5 Improving policy design and delivery through integrated employment strategies

Youth employment programmes and initiatives are often fragmented and ad hoc. Making them an integral part of well-structured national strategies for a sustainable job recovery could help to reduce this atomization, prevent overlapping and duplication, minimize displacement effects, and facilitate policy coherence and coordination. The institutional framework for such programmes and initiatives should be strengthened to support good design and effective implementation. One lesson from the policy

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> Youth programmes combining training, income support, counselling and intermediation can be more effective than such measures implemented in isolation.

responses to the COVID-19 crisis is that delivery was smoother where it could rely on existing strong institutions – effective employment services, well-developed and resourced social protection systems, efficient tax administration, and decentralized financial intermediation. Another lesson is the importance of cooperation between government departments, leading to more holistic and collaborative forms of policymaking across economic and social ministries.

Policy packages for young people are more likely to be successful than single measures. Youth programmes offering a package of services, such as training, income support, counselling and intermediation, can have greater impact than such measures implemented in isolation (ILO 2016). A combination of interventions is better able to respond to the specific needs of individuals belonging to highly heterogeneous youth populations (Kluve et al. 2016; Newton et al. 2020). Facilitating job search by combining advice and information with income support, for instance, can be particularly helpful for at-risk young people. Successful entrepreneurship schemes also usually offer a combination of services, including training, business services, finance, networking and mentoring. In Europe, employment guarantee-type approaches have proved successful in reducing youth unemployment (Escudero and López Mourelo 2017). Such guarantees could also be designed to foster green solutions while promoting jobs for young people (see Chapter 2). However, employment guarantees are costly, can be difficult to implement from an administrative point of view, and require national and local institutions that are competent and capable of working cooperatively.

Regular monitoring, evaluation and fine-tuning are other key factors for success. It is a common finding of many studies that design and implementation are key to the success of youth employment programmes (see, for instance, Kluve et al. 2016). Assessing the impact of a programme or a policy initiative is a complex exercise, but it is essential to correct flaws in design and tackle unintended or null effects. This task is now being made easier by the emergence of new evaluation techniques, unconventional sources of information and more powerful computing capacity. These resources were widely used in all countries to adapt the policy response to the fast-changing contours of the crisis. The body of literature assessing the effects of youth programmes is large and growing; it comprises field surveys, natural experiments and randomized field experiments (see, for example, Bird and Silva 2020; Newton et al. 2020; Beam and Quimbo 2021; Madoń et al. 2021). Some researchers have started to use machine learning techniques to account more precisely for heterogeneous effects (Davis and Heller 2020). The findings of such studies can be idiosyncratic, but they are a critical input for the improvement of policy design and implementation in a given context. A comprehensive employment strategy should seek to facilitate data-sharing among relevant institutions while setting milestones and benchmarks that can be used to assess progress.

The transition towards a more sustainable future requires better data to track the employment effects of investments. As argued in Chapter 2, advancing towards a sustainable future requires considerable investment in new technologies and the integration of environmental considerations in economic decision-making at all levels. Reliable data on the employment effects of different investment options are necessary to inform the design and implementation of evidence-based labour and employment policies, and to adequately monitor and evaluate progress towards more sustainable and inclusive societies. The availability of such data can enhance young people's awareness of the opportunities that are available to them in the green and blue economies, and help to anticipate future skills needs by shaping education and technical and vocational training and facilitating social dialogue.

5.3.6 Listening to young people and fostering their engagement

Efforts to create a more sustainable future cannot succeed if they fail to engage the younger generations meaningfully. During the response to the COVID-19 crisis, social dialogue proved to be an important mechanism for facilitating broad participation and policy buy-in, and for supporting the design and implementation of credible and effective solutions. Many measures were adopted or adapted following consultations with the social partners or within national economic and social councils. A comprehensive review shows that during 2020, almost 400 social dialogue outcomes, such as joint statements and agreements, were reached in 102 countries in all regions. They were aimed at providing immediate relief; helping workers and enterprises adjust to the continuing spread of the virus; and promoting long-term recovery and resilience, including greening of the economy (ILO 2021c). Some of these measures catered to the specific needs of young people, but efforts to directly engage the latter have been rare. Governments, employers and trade unions need to find ways to ensure that young people are more meaningfully engaged throughout the policy cycle. This will require capacity-building among youth and non-youth stakeholders together with the establishment of new practical channels for engagement, such as multi-stakeholder crisis task forces or advisory youth forums (Barford, Coutts and Sahai 2021). The voice of young people is indispensable in shaping a better future of work.

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▶ Chapter references

Abisoye, Tejumola. 2021. "The Case for Job Creation Hubs to Reduce Youth Unemployment in Africa". Brookings Institution. *Africa in Focus* (blog). 8 December 2021. https://www.brookings.edu/blog/africa-in-focus/2021/12/08/the-case-for-job-creation-hubs-to-reduce-youth-unemployment-in-africa/.

ADB (Asian Development Bank). 2020. "Putting Youth Employment at the Center of Asia's Pandemic Recovery". Development Asia policy brief, 20 November 2020.

Bandiera, Oriana, Ahmed Elsayed, Andrea Smurra, and Céline Zipfel. 2022. "Young Adults and Labor Markets in Africa". *Journal of Economic Perspectives* 36 (1): 81–100.

Barford, Anna, Adam Coutts, and Garima Sahai. 2021. *Youth Employment in Times of COVID: A Global Review of COVID-19 Policy Responses to Tackle (Un)employment and Disadvantage among Young People*. ILO.

Beam, Emily A., and Stella Quimbo. 2021. "The Impact of Short-Term Employment for Low-Income Youth: Experimental Evidence from the Philippines". Institute of Labor Economics (IZA) Discussion Paper No. 14661.

Bird, Nicolò, and Wesley Silva. 2020. "The Role of Social Protection in Young People's Transition to Work in the Middle East and North Africa". Research Report No. 41. International Policy Centre for Inclusive Growth and UNICEF Middle East and North Africa Office.

Davis, Jonathan M.V., and Sara B. Heller. 2020. "Rethinking the Benefits of Youth Employment Programs: The Heterogeneous Effects of Summer Jobs". *The Review of Economics and Statistics* 102 (4): 664–677.

Dixit, Siddharth, Yewande Kofoworola Ogundeji, and Obinna Onwujekwe. 2020. "How Well Has Nigeria Responded to COVID-19?" Brookings Institution. *Future Development* (blog). 2 July 2020. https://www.brookings.edu/blog/future-development/2020/07/02/how-well-has-nigeria-responded-to-covid-19/.

Eichhorst, Werner, Paul Marx, and Ulf Rinne. 2020. "Manoeuvring through the Crisis: Labour Market and Social Policies during the COVID-19 Pandemic". *Intereconomics* 55 (6): 375–380.

Escudero, Verónica, and Elva López Mourelo. 2017. "The European Youth Guarantee: A Systematic Review of Its Implementation across Countries", ILO Research Department Working Paper No. 21.

Favara, Marta. 2021. "Young Lives: Study and New Evidence on Youth Labour Market Resilience during Covid-19". Presentation given at ILO Employment Policy Department Seminar No. 35, "Youth Employment and COVID-19: Some Lessons from the Crisis", 21 October 2021.

IDN Financials. 2020. "First Wave of Registration for Pre-Employment Card Programme Opened". 13 April 2020.

ILO. 2016. *What Works: Active Labour Market Policies in Latin America and the Caribbean*.

———. 2020a. *Renewing Commitment to Youth Employment by Endorsing a Follow-up Plan of Action on Youth Employment for the Period 2020–30*. GB.340/POL/2.

———. 2020b. "Delivering Income and Employment Support in Times of COVID-19: Integrating Cash Transfers with Active Labour Market Policies", ILO Policy Brief, June 2020.

———. 2020c. "Answering Key Questions around Informality in Micro and Small Enterprises during the COVID-19 Crisis", ILO Policy Brief, September 2020.

———. 2021a. *World Social Protection Report 2020–22: Social Protection at the Crossroads – In Pursuit of a Better Future*.

———. 2021b. *World Employment and Social Outlook 2021: The Role of Digital Labour Platforms in Transforming the World of Work*.

———. 2021c. "Social Dialogue One Year after the Outbreak of the Covid-19 Pandemic: Spotlight on Outcomes", ILO Research Brief, June 2021.

———. 2022a. *Present and Future of Work in the Least Developed Countries*.

———. 2022b. "ILO Monitor on the World of Work. Ninth Edition", 23 May 2022

ILO and ADB (Asian Development Bank). 2020. *Tackling the COVID-19 Youth Employment Crisis in Asia and the Pacific*.

ILO, UNESCO (United Nations Educational, Scientific and Cultural Organization) and World Bank. 2020. "Joint Survey on Technical and Vocational Education and Training (TVET) and Skills Development during the Time of COVID-19".

ILO and UNICEF (United Nations Children's Fund). 2018. *GirlForce: Skills, Education and Training for Girls Now*.

IMF (International Monetary Fund). 2021. "Database of Fiscal Policy Responses to Covid-19". https://www.imf.org/en/Topics/imf-and-covid19/Fiscal-Policies-Database-in-Response-to-COVID-19.

Kluve, Jochen, Susana Puerto, David Robalino, Jose Manuel Romero, Friederike Rother, Jonathan Stöterau, Felix Weidenkaff, and Marc Witte. 2016. "Do Youth Employment Programs Improve Labor Market Outcomes? A Systematic Review". Institute for the Study of Labor (IZA) Discussion Paper No. 10263.

Madoń, Karol, Iga Magda, Marta Palczyńska, and Mateusz Smoter. 2021. "What Works for Whom? Youth Labour Market Policy in Poland", Institute of Labor Economics (IZA) Discussion Paper No. 14793.

Newton, Becci, Alice Sinclair, Claire Tyers, and Tony Wilson. 2020. *Supporting Disadvantaged Young People into Meaningful Work: An Initial Evidence Review to Identify What Works and Inform Good Practice among Practitioners and Employers*. Institute for Employment Studies.

O'Callaghan, Brian J., and Em Murdock. 2021. *Are We Building Back Better? Evidence from 2020 and Pathways to Inclusive Green Recovery Spending*. United Nations Environment Programme.

OECD (Organisation for Economic Co-operation and Development). 2020a. "Job Retention Schemes during the COVID-19 Lockdown and Beyond", OECD Policy Responses to Coronavirus (COVID-19), 12 October 2020.

———. 2020b. "Youth and COVID-19: Response, Recovery and Resilience".

———. 2021. "What Have Countries Done to Support Young People in the COVID-19 Crisis?", OECD Policy Responses to Coronavirus (COVID-19), 6 July 2021.

———. 2022. *OECD Economic Outlook, Interim Report March 2022: Economic and Social Impacts and Policy Implications of the War in Ukraine*.

O'Higgins, Niall. 2020. "Volunteer Work and Its Links to the Labour Market Experiences of Young People". Paper prepared under the United Nations Volunteers–ILO partnership for the measurement of volunteer work.

———. 2022. "On the Design of Volunteer Programmes to Facilitate the Entry and Re-entry of Young People into Decent Jobs". Paper prepared under the United Nations Volunteers–ILO partnership for the measurement of volunteer work.

O'Higgins, Niall, and Luis Pinedo Caro. 2021. "What Makes for a 'Good' Internship". In *Internships, Employability and the Search for Decent Work Experience*, edited by Andrew Stewart, Rosemary Owens, Niall O'Higgins and Anne Hewitt, 35–54. Cheltenham: Edward Elgar.

O'Higgins, Niall, Sher Verick, and Adam Elsheikhi. 2021. "On the Nature of the Impact of the COVID-19 Pandemic on Youth Labour Markets: A Cross-Country Analysis". Paper presented at the Seventh Regulating for Decent Work Conference, Geneva, 6–9 July 2021.

Powell, Caitlin. 2022. "Young People Returning to Insecure Jobs Post Covid, Think Tank Finds". People Management. 31 January 2022.

Rinne, Ulf, Werner Eichhorst, and Johannes Brunner. 2022. "Promoting Youth Employment during COVID-19: A Review of Policy Responses". Institute of Labor Economics (IZA), 31 March 2022.

Saez, Emmanuel. 2022. "Understanding the Social State". *Finance and Development* (International Monetary Fund) March 2022: 23–25.

Sakamoto, Akiko. 2021. "Skills Development for Supporting Workers in Transitions". Presentation given at the Fourth ILO Employment Policy Department Research Symposium, "Employment Policies for a Job-Rich Recovery and a Better Future of Work", 15–16 November 2021.

Singh, Sunamika, and Kavell Joseph. 2020. "How are Youth Employment Programs Adapting to COVID-19?", Solutions for Youth Employment Knowledge Brief No. 10. World Bank.

Soussi, Rachida. 2021. "'1 jeune, 1 solution': 2 millions de jeunes aidés en un an". Studyrama, 8 July 2021.

Suryadi, Emi Syarif, Yuniarti Tri Suwadji, Ardhian Kurniawati, Hennigusnia, Ivan Lilin Suryono, Beni Teguh Gunawan, Nurlia Rahmatika, Faizal Amir P. Nasution, Nur Siti Annazah, et al. 2022. "'Kartu Prakerja' (Pre-Employment Card) Policy and Its Impact on Economy and Community Income". *International Journal of Innovation, Creativity and Change* 15 (10): 342–360.

Vezza, Evelyn. 2021. "Programas de empleo juvenil: Revalidación de su papel en la agenda pública pospandemia de COVID-19". Economic Commission for Latin America and the Caribbean.

YBI (Youth Business International). 2022. *Models for Scaling the Impact of Youth Entrepreneurship Programmes*.

▶ Appendices

▶ Appendix A. Country groupings by region and income level

Africa

North Africa
Algeria
Egypt
Libya
Morocco
Sudan
Tunisia
Western Sahara

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

Americas

Latin America and the Caribbean
Argentina
Bahamas
Barbados
Belize
Bolivia (Plurinational State of)
Brazil
Chile
Colombia
Costa Rica
Cuba
Dominican Republic
Ecuador
El Salvador
Guatemala
Guyana
Haiti
Honduras
Jamaica
Mexico
Nicaragua
Panama
Paraguay
Peru
Puerto Rico
Saint Lucia
Saint Vincent and the Grenadines
Suriname
Trinidad and Tobago
United States Virgin Islands
Uruguay
Venezuela (Bolivarian Republic of)

North America
Canada
United States of America

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

East Asia
China
Democratic People's Republic of Korea
Hong Kong, China
Japan
Macao, China
Mongolia
Republic of Korea
Taiwan, China

South-East Asia
Brunei Darussalam
Cambodia
Indonesia
Lao People's Democratic Republic
Malaysia
Myanmar
Philippines
Singapore
Thailand
Timor-Leste
Viet Nam

Pacific Islands
Australia
Fiji
French Polynesia
Guam
New Caledonia
New Zealand
Papua New Guinea
Samoa
Solomon Islands
Tonga
Vanuatu

South Asia
Afghanistan
Bangladesh
Bhutan
India
Iran (Islamic Republic of)
Maldives
Nepal
Pakistan
Sri Lanka

Europe and Central Asia

Northern, Southern and Western Europe
Albania
Austria
Belgium
Bosnia and Herzegovina
Channel Islands
Croatia
Denmark
Estonia
Finland
France
Germany
Greece
Iceland
Ireland
Italy
Latvia
Lithuania
Luxembourg
Malta
Montenegro
Netherlands
North Macedonia
Norway
Portugal
Serbia
Slovenia
Spain
Sweden
Switzerland
United Kingdom

Eastern Europe
Belarus
Bulgaria
Czechia
Hungary
Poland
Republic of Moldova
Romania
Russian Federation
Slovakia
Ukraine

Central and Western Asia
Armenia
Azerbaijan
Cyprus
Georgia
Israel
Kazakhstan
Kyrgyzstan
Tajikistan
Türkiye
Turkmenistan
Uzbekistan

High-income countries/territories	Upper-middle-income countries/territories	Lower-middle-income countries/territories	Low-income countries/territories
Australia	Albania	Angola	Afghanistan
Austria	Algeria	Bangladesh	Burkina Faso
Bahamas	Argentina	Belize	Burundi
Bahrain	Armenia	Benin	Central African Republic
Barbados	Azerbaijan	Bhutan	Chad
Belgium	Belarus	Bolivia (Plurinational State of)	Democratic People's Republic of Korea
Brunei Darussalam	Bosnia and Herzegovina	Cambodia	Democratic Republic of the Congo
Canada	Botswana	Cameroon	Eritrea
Channel Islands	Brazil	Cabo Verde	Ethiopia
Chile	Bulgaria	Comoros	Gambia
Croatia	China	Congo	Guinea
Cyprus	Colombia	Côte d'Ivoire	Guinea-Bissau
Czechia	Costa Rica	Djibouti	Liberia
Denmark	Cuba	Egypt	Madagascar
Estonia	Dominican Republic	El Salvador	Malawi
Finland	Ecuador	Eswatini	Mali
France	Equatorial Guinea	Ghana	Mozambique
French Polynesia	Fiji	Haiti	Niger
Germany	Gabon	Honduras	Rwanda
Greece	Georgia	India	Sierra Leone
Guam	Guatemala	Indonesia	Somalia
Hong Kong, China	Guyana	Iran (Islamic Republic of)	South Sudan
Hungary	Iraq	Kenya	Sudan
Iceland	Jamaica	Kyrgyzstan	Syrian Arab Republic
Ireland	Jordan	Lao People's Democratic Republic	Togo
Israel	Kazakhstan	Lesotho	Uganda
Italy	Lebanon	Mauritania	Yemen
Japan	Libya	Mongolia	
Kuwait	Malaysia	Morocco	
Latvia	Maldives	Myanmar	
Lithuania	Mauritius	Nepal	
Luxembourg	Mexico	Nicaragua	
Macao, China	Montenegro	Nigeria	
Malta	Namibia	Occupied Palestinian Territory	
Netherlands	North Macedonia	Pakistan	
New Caledonia	Panama	Papua New Guinea	
New Zealand	Paraguay	Philippines	
Norway	Peru	Samoa	
Oman	Republic of Moldova	Sao Tome and Principe	
Poland	Romania	Senegal	
Portugal	Russian Federation	Solomon Islands	
Puerto Rico	Saint Lucia	Tajikistan	
Qatar	Saint Vincent and the Grenadines	Timor-Leste	
Republic of Korea	Serbia	Tunisia	
Saudi Arabia	South Africa	Ukraine	
Singapore	Sri Lanka	United Republic of Tanzania	
Slovakia	Suriname	Uzbekistan	
Slovenia	Thailand	Vanuatu	
Spain	Tonga	Viet Nam	
Sweden	Türkiye	Western Sahara	
Switzerland	Turkmenistan	Zambia	
Taiwan, China	Venezuela (Bolivarian Republic of)	Zimbabwe	
Trinidad and Tobago			
United Arab Emirates			
United Kingdom			
United States of America			
United States Virgin Islands			
Uruguay			

▶ Appendix B. ILO modelled estimates

The source of all global and regional labour market estimates presented in this *Global Employment Trends for Youth* report is the ILO modelled estimates as of November 2021. The ILO has designed and actively maintains a series of econometric models that are used to produce estimates of labour market indicators in the countries and years for which country-reported data are unavailable. The purpose of estimating labour market indicators for countries with missing data is to obtain a balanced panel data set so that, every year, regional and global aggregates with consistent country coverage can be computed. These allow the ILO to analyse global and regional estimates of key labour market indicators and related trends. Moreover, the resulting country-level data, combining both reported and imputed observations, constitute a unique, internationally comparable data set on labour market indicators.

Data collection and evaluation

The ILO modelled estimates are generally derived for 189 countries, disaggregated by sex and age as appropriate. Before running the models to obtain the estimates, labour market information specialists from the ILO Department of Statistics, in cooperation with the Research Department, evaluate existing country-reported data and select only those observations deemed sufficiently comparable across countries. The recent efforts by the ILO to produce harmonized indicators from country-reported microdata have greatly increased the comparability of the observations. Nonetheless, it is still necessary to select the data on the basis of the following four criteria: (a) type of data source; (b) geographical coverage; (c) age-group coverage; and (d) presence of methodological breaks or outliers.

With regard to the first criterion, in order for labour market data to be included in a particular model, they must be derived from a labour force survey, a household survey or, more rarely, a population census. National labour force surveys are generally similar across countries and present the highest data quality. Hence, the data derived from such surveys are more readily comparable than data obtained from other sources. 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 on the basis of other types of household surveys or population censuses. Consequently, because of the need to balance the competing goals of data comparability and data coverage, some (non-labour-force-survey) household survey data and, more rarely, population-census-based data are included in the models.

The second criterion is that only nationally representative (that is, not geographically limited) labour market indicators are included. Observations corresponding to only urban or only rural areas are not included, because large differences typically exist between rural and urban labour markets, and the use of only rural or urban data would not be consistent with benchmark data such as gross domestic product (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 influence the observed value of a given labour market indicator.

The last criterion for excluding data from a given model is whether a methodological break is present or a particular data point is clearly an outlier. In both cases, a balance has to be struck between using as much data as possible and excluding observations likely to distort the results. During this process, particular attention is paid to the existing metadata and the underlying methodology for obtaining the data point under consideration.

Historical estimates can be revised in cases where previously used input data are discarded because a source that is more accurate according to the above-mentioned criteria has become available.

General methodology used to estimate labour market indicators

Labour market indicators are estimated using a series of models that establish statistical relationships between observed labour market indicators and explanatory variables. These relationships are used to impute missing observations and to make projections for the indicators.

There are many potential statistical relationships, also called "model specifications", that could be used to predict labour market indicators. The key to obtaining accurate and unbiased estimates is to select the best model specification in each case. The ILO modelled estimates generally rely on a procedure called "cross-validation", which is used to identify those models that minimize the expected error and variance of the estimation. This procedure involves repeatedly computing a number of candidate model specifications using random subsets of the data: the missing observations are predicted and the prediction error is calculated for each iteration. Each candidate model is assessed on the basis of the pseudo-out-of-sample root mean square error, although other metrics such as result stability are also assessed depending on the model. This makes it possible to identify the statistical relationship that provides the best estimate of a given labour market indicator. It is worth noting that the most appropriate statistical relationship for this purpose may differ according to the country.

The extraordinary disruptions to the global labour market caused by the COVID-19 crisis have rendered the series of models underlying the ILO modelled estimates less suitable for estimating and projecting the evolution of labour market indicators. For this reason, the methodology has been adapted, and explanatory variables that are specific to the COVID-19 crisis have been introduced into the modelling process.

The benchmark for the ILO modelled estimates is the 2019 revision of the United Nations World Population Prospects, which provides estimates and projections of the total population broken down into five-year age groups. The working-age population comprises everyone who is at least 15 years of age.

Although the same basic approach is followed in the models used to estimate all the indicators, there are differences between the various models because of specific features of the underlying data. Further details are provided below for each model.

Models used to estimate labour market indicators up to 2020

Labour force estimates

The basic data used as input for the labour force participation rate (LFPR) model are single-year LFPRs disaggregated by sex and age groups, the latter comprising two intervals (15–24 and 25+). The underlying methodology has been extensively assessed in terms of pseudo-out-of-sample performance. However, for certain types of missing data patterns, the LFPR and the unemployment rate models are the only two models described in this section that do not carry out automatized model selection.

Linear interpolation is used to fill in the missing data for countries for which such a procedure is possible. The performance of this procedure has been found to be reasonable, which is not surprising, given that the LFPR is a very persistent variable. In all other cases, weighted multivariate estimation is carried out. Countries are divided into nine estimation groups, which were chosen on the combined basis of broad economic similarity and geographical proximity. On the basis of the data structure and the heterogeneity among the countries covered by the input data, the model was specified using panel data with country fixed effects. The regressions are weighted by the inverse of the likelihood of a labour force survey's availability. The explanatory variables used include economic and demographic variables. To produce estimates for 2020, a cross-validation approach is used to select the model that minimizes prediction error in that specific year. The tested models include annual averages of high-frequency indicators related to the evolution of the COVID-19 pandemic. The global figures are calculated using the benchmark population from the United Nations World Population Prospects and the LFPRs.

Rebalancing the estimates ensures that the implied total rate obtained from summing the demographic breakdowns matches the total rate derived from the labour force surveys or estimated.

Unemployment estimates

This model estimates a complete panel data set of unemployment rates disaggregated by sex and age (15–24, 25+). For countries for which at least one observation is reported,[1] regressions involving country fixed effects are used. Three models are combined with equal weighting in order to impute missing values. The models have been chosen based on pseudo-out-of-sample root mean square error and stability of results (judgemental assessment of the two components). For countries with no reported observations, models are selected on the basis of cross-validation. The evolution of the average unemployment rate of a particular demographic group in a particular region is highly predictive of the evolution of the unemployment rate of that particular group in a country in that region. A separate cross-validation approach is used to select the model that minimizes prediction error in the year 2020. The candidate models include annual averages of high-frequency indicators related to the evolution of the COVID-19 pandemic.

Rebalancing the estimates ensures that the implied total rate obtained from summing the demographic breakdowns matches the total rate derived from the labour force surveys or estimated.

Hours worked

The ratio of weekly hours worked to the population aged 15–64 is the target variable that is estimated for countries with missing data. Total weekly working hours are derived by multiplying this ratio by the estimate of the population aged 15–64.

For estimates up to and including 2019, the regression approach uses the share of the population aged 15–64 in the total population, the employment-to-population ratio and the rate of time-related underemployment to predict missing values. For countries with no observations of this indicator, the country intercept is estimated by combining the regional mean and the income group mean.

Working hours up to and including the third quarter of 2021 are estimated using the ILO nowcasting model. This is a data-driven statistical prediction model that draws on the values of high-frequency indicators in real time or with a very short publication lag in order to predict the current value of the target variable. The specific target variable of the ILO nowcasting model is the change in hours worked adjusted for population aged 15–64 relative to the fourth quarter of 2019 (seasonally adjusted). The model produces an estimate of the change in hours worked adjusted for population aged 15–64 relative to this baseline. In addition, a benchmark of weekly hours worked in the fourth quarter of 2019 is used to compute the full-time equivalent number of jobs corresponding to the changes in working hours adjusted for population aged 15–64. This benchmark is also used to compute the time series of average hours worked adjusted for population aged 15–64.

The ILO nowcasting model draws from multiple sources: labour force survey data up to the third quarter of 2021 and up-to-date high-frequency economic data such as retail sales, administrative labour market data and confidence survey data. Up-to-date mobile phone data from Google Community Mobility Reports and the most recent values of the COVID-19 Government Response Stringency Index (hereafter "Oxford Stringency Index") are also used in the estimates.

Drawing on available real-time data, the model estimates the historical statistical relationship between these indicators and hours worked per person aged 15–64 and uses the resulting coefficients to predict how hours worked adjusted for population aged 15–64 change in response to the most recent observed values of the nowcasting indicators. Multiple candidate relationships were evaluated on the basis of their prediction accuracy and performance around turning points to construct a weighted average nowcast. For countries for which high-frequency data on economic activity were available, but either data on the target variable itself were not available or the above methodology did not work well, the estimated coefficients and data from the panel of countries were used to produce an estimate.

[1] For ease of exposition, we abstract here from the case in which reported observations exist for some demographic groups but not for others in a given country and year.

An indirect approach is used for the remaining countries: this involves extrapolating the change in hours adjusted for population aged 15–64 from countries with direct nowcasts. The extrapolation is based on the observed decline in mobility, derived from the Google Community Mobility Reports, and the Oxford Stringency Index, since countries with comparable drops in mobility and similar stringent restrictions are likely to experience a similar decline in hours worked adjusted for population aged 15–64. From the Google Community Mobility Reports, an average of the workplace and "retail and recreation" indices is used. The stringency and mobility indices are combined into a single variable using principal component analysis.[2] For countries without data on restrictions, mobility data, if available, and up-to-date data on the incidence of COVID-19 were used to extrapolate the impact on hours worked adjusted for population aged 15–64. Because of countries' different practices in counting cases of COVID-19 infection, the more homogeneous concept of deceased patients is used as a proxy for the extent of the pandemic. The variable was averaged for each month, but the data were updated daily on the basis of the "Our World in Data" online repository.[3] Finally, for a small number of countries with no readily available data at the time of estimation, the regional average was used to impute the target variable.

Estimates of the distribution of employment by status, occupation and economic activity

The distribution of employment by status, occupation and economic activity (sector) is estimated for total employment and also disaggregated by sex. In the first step, a cross-country regression is performed to identify the share of each of the employment-related categories in countries for which no data are available. This step uses information on demography, per capita income, economic structure and a model-specific indicator with high predictive power for the estimated distribution. The indicators for each category are as follows:

- for status, the index called "work for an employer" from the Gallup World Poll;
- for occupation, the share of value added of a sector in which people with a given occupation are most likely to work;
- for sector, the share of value added of the sector.

The next step estimates the evolution of the shares of each category, using information on the economic cycle and also on economic structure and demographics. The third step estimates the change in the shares of each category in the years 2020 and 2021. Lastly, the estimates are rebalanced to ensure that the individual shares add up to 100 per cent.

The estimated sectors are based on an ILO-specific classification that ensures maximum consistency between the third and fourth revisions of the United Nations International Standard Industrial Classification of All Economic Activities (ISIC). The sectors A, B, C, F, G, I, K, O, P and Q correspond to the ISIC Rev.4 classification. Furthermore, the following composite sectors are defined:

- "Utilities" is composed of sectors D and E.
- "Transport, storage and communication" is composed of sectors H and J.
- "Real estate, business and administrative activities" is composed of sectors L, M and N.
- "Other services" is composed of sectors R, S, T and U.

The estimated occupations correspond in principle to the major categories of the 1988 and 2008 iterations of the ILO International Standard Classification of Occupations (ISCO-88 and ISCO-08). However, subsistence farming occupations were classified inconsistently across countries, and sometimes even within one country across years. According to ISCO-08, subsistence farmers should be classified in

[2] For the first three quarters of 2021, a dummy variable for developed countries to account for differential impacts of workplace mobility and stringency on working hours was also used, as was a detrending procedure for Google Mobility Reports data.

[3] Hannah Ritchie, Edouard Mathieu, Lucas Rodés-Guirao, Cameron Appel, Charlie Giattino, Esteban Ortiz-Ospina, Joe Hasell, Bobbie Macdonald, Diana Beltekian and Max Roser, "Coronavirus Pandemic (COVID-19)". Our World in Data repository. Accessed 2 August 2022.

ISCO category 6, namely as skilled agricultural workers. However, a number of countries with a high incidence of subsistence farming reported a low share of workers in category 6, but a high share in category 9 (elementary occupations). This means that the shares of occupational categories 6 and 9 can differ widely between countries that have a very similar economic structure. It is not feasible to determine the extent of misclassification between categories 6 and 9. Consequently, in order to obtain a consistent and internationally comparable classification, categories 6 and 9 are merged and estimated jointly.

Estimates of employment by economic class

The estimates of employment by economic class are produced for a subset of countries. The model uses the data derived from the unemployment, status and economic activity models as inputs in addition to other demographic, social and economic variables.

The methodology involves two steps. In the first step, the various economic classes of workers are estimated using the economic class of the overall population (among other explanatory variables). This procedure is based on the fact that the distribution of economic class in the overall population and the distribution in the working population are closely related. The economic class of the overall population is derived from the World Bank's PovcalNet database.[4] In general, the economic class is defined in terms of consumption, but in particular cases for which no other data exist income data are used instead.

Once the estimates from this first step have been obtained, a second step estimates the data for those observations for which neither data on the economic class of the working population nor estimates from step 1 are available. This second step relies on cross-validation and subsequent selection of the best-performing model to ensure a satisfactory performance.

In the present edition of the model, employment is subdivided into four different economic classes: workers living on US$0–1.90 per day, US$1.90–3.20 per day, US$3.20–5.50 per day and above US$5.50 per day, in purchasing power parity terms.

Models used to project labour market indicators

The ILO has developed projection models to estimate and forecast hours worked, employment, unemployment and the labour force for the years 2021 to 2023. In a first step, the hours worked are projected. In a second step, the projection of hours worked serves as a basis for the simultaneous projection of employment, unemployment and the labour force.

Projecting hours worked

The estimate of working hours in the fourth quarter of 2021 is based on a crisis recovery model. This is specified as an error correction model of the form

$$\Delta h_{(i,\,t)} = \beta_{(0,\,i)} + \beta_{(1,\,i)}\,\mathrm{gap}_{(i,\,t-1)} + \beta_2\,\mathrm{gap}^2_{(i,\,t-1)} + \beta_3 h_{(i,\,t-1)} + \beta_4\,\Delta\mathrm{GDP}_{(i,\,t)} \qquad (1)$$

The "gap" refers to the difference in the hours worked relative to a medium-term trend, $\mathrm{gap}_{(i,\,t)} = h_{(i,\,t)} - \mathrm{trend}_{(i,\,t)}$, where the evolution of the trend in working hours is determined by a geometric average of the long-run target and a function of the current working hours. The variable of interest, $\Delta h_{(i,\,t)}$, is the change in working hours per population aged 15–64. The crisis recovery mechanism works through the gap, whose parameters $\beta_{(1,\,i)}$ and β_2 determine the speed with which working hours increase to close the gap. The model mechanics are such that larger gaps result in a larger change in hours worked. In order to capture scarring or hysteresis, the medium-term trend is modelled to react to the gap with a parameter γ_1, but

[4] The 2020–21 poverty data are from the World Bank, "Macro and Poverty Outlook: Country-by-Country Analysis and Projections for the Developing World", 2021, combined with World Bank estimates (June 2021) of the impact of COVID-19 on poverty. For a discussion of the methodology used to estimate the impact, see Daniel Gerszon Mahler, Nishant Yonzan, Christoph Lakner, R. Andres Castaneda Aguilar and Haoyu Wu, "Updated Estimates of the Impact of COVID-19 on Global Poverty: Turning the Corner on the Pandemic in 2021?", *World Bank Blogs* (blog), 24 June 2021.

the medium-term trend also has a component reverting to its long-term target with a parameter γ_2. The country-specific constant, $\beta_{(0,\,i)}$, is calculated to imply zero change when the long-run target is achieved.

The parameters of the projection model are estimated empirically as far as possible. Equation (1) is estimated at quarterly intervals for 30 countries with suitable data up to 2019 using multilevel mixed-effects methods, which means that the distribution of the slope parameters for the gap is also estimated. This provides baseline estimates of the parameters. The impact of vaccination on the recovery speed parameter, $\beta_{(1,\,i)}$, is also estimated. This parameter is then adjusted for each country according to the projected progress in vaccination.

The scarring parameters are set to $\gamma_1 = 0.05$ and $\gamma_2 = 0.9$ for upper-middle- and high-income countries and to $\gamma_1 = 0.02$ and $\gamma_2 = 0.95$ for lower-middle- and low-income countries. The logic here is that, in the latter country groups, people are more likely to fall back on low-quality employment options out of necessity. This does not mean that the affected workers will be less scarred by an extended loss of activity; on the contrary, they may have an ever harder time getting back into quality employment the longer they remain in low-quality activities.

Projecting employment, unemployment and the labour force

The projection of employment, unemployment and the labour force involves two steps. The first step exploits quarterly data from the year 2021 that are available for 58 countries in order to improve the precision of the estimates for that year. The second step utilizes a projection model specified at the annual frequency to estimate and project the labour market indicators for the remaining countries.[5] Since the labour force equals the sum of unemployment and employment, one should only need to project two of the three indicators and then obtain the third as a residual. However, owing to the high uncertainty and the resulting large variance in the projections, all three indicators are rebalanced to ensure that the identity holds.

The quarterly projections for the unemployment rate use high-frequency data, such as confidence indices in addition to economic growth forecasts, in order to test a series of models. These models are evaluated using the model search routines described above, including splitting the data into training and evaluation samples. Because of the high serial correlation of quarterly unemployment rates, a block of observations before and after the time periods of the evaluation sample need to be excluded from the estimation in order to ensure the training sample's independence from the observation that is being evaluated. Models are combined using a "jackknife model-averaging" technique described by Hansen and Racine,[6] which essentially finds the linear combination of models that minimizes the variance of the prediction error.

The quarterly projection model for employment and the labour force focuses on the hours worked per employed person and the hours worked per person in the labour force. Those ratios have been strongly affected by the COVID-19 crisis, especially in countries where employment retention schemes and furloughs have been widespread. The projection model is based on the assumption that this ratio will return to its long-term trend. In essence, firms will realize how many workers they will need, and will adjust employment so that the hours worked per worker will recover. The speed of recovery is estimated using a multilevel mixed model quite similar to the one used to project the hours worked.

The annual projection model utilizes vector error correction models. In fact, two different models are estimated, whose projections are then averaged. In the first model the dependent variables are the change in the unemployment rate, the employment-to-population ratio and the LFPR. The independent variables are the lag of the respective variable, GDP growth and the lagged value of the change in one of the other variables. The second model uses the hours worked per employed person and the hours worked in ratio to the labour force, following the same reasoning as that underpinning the model estimated at quarterly frequency.

[5] Although the year 2021 lies in the past at the time of this report's publication, the unavailability of real data spanning the entire year – at the time of writing – means that a projection model is needed to derive the estimates for the year 2021.

[6] Bruce Hansen and Jeffrey Racine, "Jackknife Model Averaging", *Journal of Econometrics* 167, No. 1 (2012): 38–46.

▶ Appendix C. Additional tables

World

Indicator	Demographic group (Youth)	Unit	2000	2001	2002	2003	2004	2005	2006	
Labour force participation rate	Total	%	51.8	51.3	51.0	50.6	50.4	50.1	49.4	
	Male		60.4	60.0	59.6	59.1	59.0	58.5	57.8	
	Female		42.7	42.3	42.1	41.6	41.4	41.2	40.5	
Labour force	Total	millions	561.6	565.8	572.7	579.2	587.5	591.9	590.2	
	Male		334.8	337.8	341.8	346.2	351.7	354.3	354.0	
	Female		226.8	228.0	230.9	233.0	235.8	237.5	236.3	
Employment-to-population ratio	Total	%	45.3	44.9	44.4	43.9	43.8	43.5	43.1	
	Male		52.8	52.3	51.7	51.2	51.3	50.9	50.5	
	Female		37.5	37.1	36.7	36.2	36.0	35.8	35.4	
Employment	Total	millions	491.9	494.3	498.1	502.5	510.7	514.4	515.4	
	Male		292.6	294.5	296.7	299.9	305.8	307.9	309.1	
	Female		199.2	199.7	201.4	202.6	205.0	206.4	206.3	
Unemployment rate	Total	%	12.4	12.6	13.0	13.2	13.1	13.1	12.7	
	Male		12.6	12.8	13.2	13.4	13.0	13.1	12.7	
	Female		12.2	12.4	12.8	13.1	13.1	13.1	12.7	
Unemployment	Total	millions	69.7	71.5	74.6	76.7	76.8	77.5	74.9	
	Male		42.2	43.3	45.1	46.2	45.9	46.4	44.9	
	Female		27.6	28.2	29.5	30.4	30.9	31.1	30.0	
Potential labour force	Total	millions						38.5	39.0	
	Male							18.9	19.3	
	Female							19.5	19.7	
Combined rate of unemployment and potential labour force	Total	%						18.4	18.1	
	Male							17.5	17.2	
	Female							19.7	19.4	
Rate of young people not in employment, education or training (NEET)	Total	%						23.1	22.9	
	Male							13.5	13.2	
	Female							33.3	33.1	
Number of young people with NEET status	Total	millions						273.6	274.2	
	Male							81.4	80.9	
	Female							192.2	193.3	
Extreme working poverty rate	Total	%	31.9	31.0	30.0	28.8	26.7	24.5	23.7	
Moderate working poverty rate	Total	%	24.3	24.3	24.3	24.3	24.3	23.8	23.1	
Number of young people in extreme working poverty	Total	millions	156.9	153.2	149.2	144.9	136.6	126.1	122.1	
Number of young people in moderate working poverty	Total	millions	119.5	120.1	120.9	122.0	123.9	122.6	119.2	

Note: "Youth" refers to ages 15–24.

World

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
	48.6	47.9	47.0	46.1	45.3	44.5	43.8	43.1	42.7	42.2	41.8	41.4	41.2	38.6	39.7	40.1
	57.0	56.3	55.2	54.2	53.5	52.8	52.0	51.3	50.6	50.1	49.6	49.2	49.0	46.0	47.1	47.5
	39.8	39.1	38.4	37.5	36.7	35.8	35.1	34.5	34.2	33.8	33.5	33.1	33.0	30.7	31.8	32.1
	586.3	580.5	571.4	560.2	550.4	539.3	528.5	518.5	511.5	505.5	501.1	497.1	497.0	466.9	483.0	489.6
	352.3	349.6	344.2	338.4	334.0	328.6	323.1	317.4	312.8	309.4	306.8	305.0	304.7	287.2	296.0	300.1
	234.0	230.8	227.2	221.8	216.4	210.6	205.4	201.1	198.7	196.1	194.2	192.1	192.3	179.7	187.0	189.5
	42.7	42.0	40.8	40.1	39.4	38.6	38.0	37.4	36.9	36.4	36.1	35.8	35.7	32.7	33.6	34.1
	50.0	49.3	47.8	47.0	46.4	45.6	44.9	44.3	43.6	43.1	42.7	42.4	42.2	38.8	39.6	40.3
	35.0	34.4	33.5	32.7	32.0	31.2	30.6	30.1	29.7	29.3	29.0	28.7	28.7	26.2	27.1	27.4
	514.1	509.0	495.8	486.8	478.4	467.9	457.8	449.9	442.4	435.9	432.4	429.9	429.8	395.9	407.9	416.5
	308.5	306.1	298.0	293.5	289.6	284.3	279.0	274.5	269.7	266.1	264.1	263.0	262.7	242.7	248.9	254.5
	205.6	202.9	197.8	193.3	188.8	183.6	178.8	175.4	172.6	169.8	168.3	166.9	167.1	153.2	158.9	162.0
	12.3	12.3	13.2	13.1	13.1	13.2	13.4	13.2	13.5	13.8	13.7	13.5	13.5	15.2	15.6	14.9
	12.4	12.5	13.4	13.3	13.3	13.5	13.6	13.5	13.8	14.0	13.9	13.8	13.8	15.5	15.9	15.2
	12.1	12.1	12.9	12.9	12.8	12.8	12.9	12.8	13.1	13.4	13.4	13.1	13.1	14.7	15.0	14.5
	72.2	71.5	75.6	73.4	72.0	71.4	70.6	68.6	69.1	69.6	68.7	67.2	67.2	71.0	75.1	73.0
	43.8	43.6	46.2	44.9	44.3	44.3	44.1	42.9	43.1	43.3	42.7	42.0	42.0	44.6	47.1	45.6
	28.4	27.9	29.4	28.5	27.7	27.1	26.6	25.7	26.1	26.3	26.0	25.2	25.2	26.4	28.1	27.4
	39.4	38.8	39.6	40.5	40.9	41.0	40.5	40.7	40.5	41.9	42.6	42.9	42.3	49.1		
	19.6	19.4	19.8	20.2	20.5	20.6	20.4	20.6	20.5	21.4	21.9	22.0	21.7	25.6		
	19.8	19.4	19.8	20.3	20.5	20.4	20.1	20.1	20.0	20.6	20.7	20.8	20.7	23.5		
	17.8	17.8	18.9	19.0	19.1	19.4	19.5	19.5	19.9	20.4	20.5	20.4	20.3	23.3		
	17.0	17.1	18.1	18.2	18.3	18.6	18.8	18.8	19.1	19.5	19.6	19.6	19.5	22.4		
	19.0	18.9	19.9	20.2	20.3	20.6	20.7	20.7	21.1	21.6	21.7	21.6	21.5	24.6		
	22.6	22.2	22.4	22.1	22.0	21.8	21.9	21.7	21.8	21.9	22.0	22.0	21.8	23.3		
	13.0	12.8	13.2	12.9	12.8	12.7	12.9	12.8	13.0	13.3	13.5	13.7	13.5	15.7		
	32.7	32.1	32.1	31.8	31.6	31.4	31.4	31.2	31.1	31.0	31.0	31.0	30.6	31.5		
	272.3	268.9	271.9	268.7	266.8	263.9	264.0	261.2	261.1	261.9	263.2	264.6	262.7	282.2		
	80.2	79.4	82.1	80.7	80.1	79.0	80.0	79.4	80.6	82.1	83.3	84.7	84.3	98.3		
	192.2	189.6	189.8	188.0	186.7	184.9	184.0	181.8	180.5	179.8	179.9	179.9	178.4	183.9		
	22.4	21.6	20.9	19.0	16.8	15.6	13.5	13.1	12.8	12.5	12.2	12.0	11.9			
	22.3	21.9	21.5	20.8	20.3	19.7	19.0	18.3	17.6	16.9	16.1	15.4	15.1			
	115.1	109.9	103.4	92.5	80.4	72.9	61.9	58.8	56.4	54.6	52.9	51.5	51.0			
	114.9	111.4	106.6	101.4	97.3	92.1	87.0	82.4	77.7	73.5	69.4	66.2	64.9			

Arab States

Indicator	Demographic group (Youth)	Unit	2000	2001	2002	2003	2004	2005	2006	
Labour force participation rate	Total	%	32.9	32.4	32.1	32.1	31.6	31.2	31.0	
	Male		51.6	50.9	50.2	50.1	49.6	49.2	48.9	
	Female		12.9	12.7	12.7	12.7	12.3	12.0	11.7	
Labour force	Total	millions	6.5	6.6	6.8	7.0	7.1	7.2	7.4	
	Male		5.2	5.4	5.5	5.6	5.7	5.8	6.1	
	Female		1.2	1.3	1.3	1.3	1.3	1.3	1.3	
Employment-to-population ratio	Total	%	26.9	26.1	25.8	25.8	25.4	25.0	24.9	
	Male		42.9	41.7	41.0	41.0	40.6	40.3	40.3	
	Female		9.9	9.5	9.4	9.5	9.0	8.6	8.3	
Employment	Total	millions	5.3	5.3	5.4	5.6	5.7	5.7	6.0	
	Male		4.4	4.4	4.5	4.6	4.7	4.8	5.0	
	Female		1.0	0.9	1.0	1.0	1.0	1.0	0.9	
Unemployment rate	Total	%	18.1	19.5	19.7	19.6	19.8	20.0	19.7	
	Male		16.9	18.1	18.3	18.3	18.1	18.0	17.6	
	Female		23.1	25.5	25.8	25.4	27.0	28.5	29.4	
Unemployment	Total	millions	1.2	1.3	1.3	1.4	1.4	1.4	1.5	
	Male		0.9	1.0	1.0	1.0	1.0	1.1	1.1	
	Female		0.3	0.3	0.3	0.3	0.4	0.4	0.4	
Potential labour force	Total	millions						1.4	1.4	
	Male							0.8	0.8	
	Female							0.6	0.6	
Combined rate of unemployment and potential labour force	Total	%						32.9	32.8	
	Male							27.6	27.2	
	Female							50.9	52.2	
Rate of young people not in employment, education or training (NEET)	Total	%						33.1	32.9	
	Male							17.1	17.0	
	Female							50.2	50.1	
Number of young people with NEET status	Total	millions						7.6	7.9	
	Male							2.0	2.1	
	Female							5.6	5.8	
Extreme working poverty rate	Total	%	1.0	1.1	1.2	3.5	1.3	1.3	1.2	
Moderate working poverty rate	Total	%	8.7	8.6	10.3	17.0	10.5	10.0	8.3	
Number of young people in extreme working poverty	Total	millions	0.1	0.1	0.1	0.2	0.1	0.1	0.1	
Number of young people in moderate working poverty	Total	millions	0.5	0.5	0.6	1.0	0.6	0.6	0.5	

Note: "Youth" refers to ages 15–24.

Arab States

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
	30.4	30.1	29.1	29.0	29.1	28.8	28.7	28.6	28.1	28.2	28.0	27.9	27.9	27.3	27.6	28.0
	48.0	47.6	46.5	46.4	46.6	46.3	46.2	46.2	45.3	45.1	45.5	45.5	45.3	44.5	44.8	45.4
	11.1	10.8	10.1	10.0	9.9	9.7	9.6	9.5	9.6	9.9	8.8	8.6	9.0	8.8	9.0	9.1
	7.6	7.7	7.6	7.7	7.9	8.0	8.0	8.0	7.9	8.0	8.0	8.0	8.0	7.8	8.0	8.3
	6.2	6.4	6.4	6.5	6.6	6.7	6.8	6.7	6.6	6.6	6.8	6.8	6.7	6.6	6.8	7.0
	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.2	1.2	1.2	1.2	1.3	1.3
	24.6	24.2	23.7	23.3	23.4	23.2	22.9	22.5	22.0	22.0	21.5	21.3	21.5	20.3	20.5	21.1
	39.9	39.3	39.0	38.5	38.7	38.6	38.2	37.8	36.7	36.4	36.3	36.2	36.4	34.4	34.7	35.6
	7.8	7.5	7.0	6.9	6.7	6.4	6.2	5.9	6.0	6.3	5.3	5.0	5.4	5.1	5.1	5.2
	6.1	6.2	6.2	6.2	6.4	6.4	6.4	6.3	6.1	6.2	6.1	6.1	6.2	5.8	6.0	6.2
	5.2	5.3	5.3	5.3	5.5	5.6	5.6	5.5	5.3	5.4	5.4	5.4	5.4	5.1	5.2	5.5
	0.9	0.9	0.9	0.9	0.9	0.8	0.8	0.8	0.8	0.9	0.7	0.7	0.7	0.7	0.7	0.7
	19.2	19.7	18.5	19.4	19.5	19.5	20.4	21.2	21.9	22.0	23.3	23.6	22.9	25.6	25.9	24.8
	17.0	17.4	16.1	17.2	17.1	16.7	17.4	18.1	18.9	19.3	20.4	20.4	19.7	22.6	22.5	21.5
	30.0	30.7	30.4	31.0	32.2	34.1	35.9	37.7	37.4	35.8	40.2	41.9	40.3	41.8	43.8	42.5
	1.5	1.5	1.4	1.5	1.6	1.6	1.6	1.7	1.7	1.8	1.9	1.9	1.8	2.0	2.1	2.1
	1.1	1.1	1.0	1.1	1.1	1.1	1.2	1.2	1.2	1.3	1.4	1.4	1.3	1.5	1.5	1.5
	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	1.5	1.5	1.5	1.6	1.6	1.6	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.9		
	0.8	0.8	0.8	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	1.0	0.9	1.1		
	0.6	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.8	0.8	0.7	0.8	0.8		
	32.3	32.8	31.9	33.0	33.1	33.1	34.0	34.8	35.5	35.5	36.7	37.1	36.5	40.4		
	26.7	27.0	25.9	26.9	26.7	26.4	26.9	27.3	28.2	28.6	29.8	30.3	29.3	33.7		
	52.6	53.8	54.4	55.6	56.9	58.4	60.3	61.9	61.3	59.7	63.6	64.5	63.8	65.6		
	32.6	32.3	31.8	32.2	32.2	31.6	32.7	33.1	33.2	33.6	34.4	34.5	34.6	35.6		
	16.9	16.7	16.0	16.4	16.5	15.5	16.4	16.8	17.3	18.1	18.7	19.0	18.9	21.0		
	49.9	49.4	49.1	49.3	49.3	49.2	50.4	50.8	50.4	50.5	51.7	51.5	51.7	51.4		
	8.1	8.3	8.3	8.6	8.8	8.8	9.1	9.3	9.3	9.5	9.8	9.9	9.9	10.2		
	2.2	2.2	2.2	2.3	2.3	2.3	2.4	2.4	2.5	2.7	2.8	2.8	2.8	3.1		
	5.9	6.0	6.1	6.3	6.4	6.5	6.7	6.8	6.8	6.8	7.0	7.0	7.1	7.1		
	1.3	1.3	1.4	1.2	2.3	2.4	2.1	2.6	6.5	8.3	10.5	11.4	11.5			
	8.2	8.0	7.9	7.5	8.6	8.9	8.8	10.0	11.4	10.3	10.5	10.7	10.3			
	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.4	0.5	0.6	0.7	0.7			
	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.6	0.7	0.6	0.6	0.7	0.6			

Central and Western Asia

Indicator	Demographic group (Youth)	Unit	2000	2001	2002	2003	2004	2005	2006	
Labour force participation rate	Total	%	45.4	44.8	43.8	42.5	41.7	41.6	40.5	
	Male		55.4	54.4	52.5	51.2	50.9	51.0	49.7	
	Female		35.2	35.0	34.9	33.8	32.3	32.0	31.2	
Labour force	Total	millions	12.2	12.3	12.2	12.1	12.0	12.2	12.0	
	Male		7.5	7.5	7.4	7.3	7.4	7.5	7.4	
	Female		4.7	4.8	4.8	4.8	4.6	4.6	4.6	
Employment-to-population ratio	Total	%	37.1	36.4	35.1	34.3	33.9	34.4	34.4	
	Male		45.7	44.5	42.3	41.5	41.8	42.4	42.5	
	Female		28.4	28.2	27.9	27.0	25.9	26.3	26.3	
Employment	Total	millions	10.0	10.0	9.8	9.8	9.8	10.1	10.2	
	Male		6.2	6.1	5.9	5.9	6.1	6.3	6.3	
	Female		3.8	3.8	3.9	3.8	3.7	3.8	3.9	
Unemployment rate	Total	%	18.2	18.8	19.8	19.3	18.6	17.2	15.0	
	Male		17.4	18.3	19.5	18.8	18.0	16.8	14.5	
	Female		19.5	19.4	20.2	19.9	19.7	17.9	15.9	
Unemployment	Total	millions	2.2	2.3	2.4	2.3	2.2	2.1	1.8	
	Male		1.3	1.4	1.4	1.4	1.3	1.3	1.1	
	Female		0.9	0.9	1.0	0.9	0.9	0.8	0.7	
Potential labour force	Total	millions						1.2	1.1	
	Male							0.6	0.6	
	Female							0.6	0.6	
Combined rate of unemployment and potential labour force	Total	%						24.4	22.3	
	Male							22.6	20.5	
	Female							27.1	25.0	
Rate of young people not in employment, education or training (NEET)	Total	%						31.0	29.0	
	Male							21.7	19.6	
	Female							40.5	38.4	
Number of young people with NEET status	Total	millions						9.1	8.6	
	Male							3.2	2.9	
	Female							5.9	5.6	
Extreme working poverty rate	Total	%	14.7	15.0	14.5	16.0	13.6	12.7	11.4	
Moderate working poverty rate	Total	%	16.7	18.1	18.2	17.7	15.8	15.1	14.6	
Number of young people in extreme working poverty	Total	millions	1.5	1.5	1.4	1.6	1.3	1.3	1.2	
Number of young people in moderate working poverty	Total	millions	1.7	1.8	1.8	1.7	1.5	1.5	1.5	

Note: "Youth" refers to ages 15–24.

Central and Western Asia

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
	40.3	40.2	40.0	39.7	39.9	39.1	39.6	40.5	41.0	40.9	41.0	41.2	41.1	37.3	39.0	39.7
	49.5	49.4	48.8	48.0	48.9	48.1	48.6	49.8	49.9	49.8	50.0	50.3	49.9	45.8	47.7	48.5
	30.9	30.8	31.0	31.2	30.6	29.8	30.3	30.8	31.7	31.6	31.6	31.6	32.0	28.4	29.8	30.5
	12.0	12.1	12.1	12.0	12.0	11.7	11.8	12.0	12.0	11.9	11.8	11.8	11.7	10.6	11.0	11.3
	7.5	7.5	7.4	7.3	7.5	7.3	7.3	7.5	7.5	7.4	7.4	7.4	7.3	6.6	6.9	7.0
	4.6	4.6	4.6	4.7	4.6	4.4	4.5	4.5	4.6	4.5	4.5	4.4	4.4	3.9	4.1	4.2
	34.5	34.3	33.1	33.3	34.1	33.6	33.8	34.4	34.8	34.5	34.3	34.5	33.5	30.1	31.5	31.9
	42.5	42.2	40.6	40.5	42.0	41.5	41.8	42.6	42.8	42.5	42.6	42.9	41.3	37.4	39.2	39.7
	26.4	26.2	25.6	26.0	25.9	25.4	25.7	25.9	26.5	26.1	25.7	25.8	25.3	22.4	23.4	23.8
	10.3	10.3	10.0	10.1	10.3	10.1	10.1	10.2	10.2	10.0	9.9	9.9	9.5	8.5	8.9	9.0
	6.4	6.4	6.2	6.2	6.4	6.3	6.3	6.4	6.4	6.3	6.3	6.3	6.0	5.4	5.7	5.8
	3.9	3.9	3.8	3.9	3.9	3.8	3.8	3.8	3.8	3.7	3.6	3.6	3.5	3.1	3.2	3.3
	14.3	14.8	17.1	16.0	14.6	14.1	14.5	15.0	15.1	15.6	16.3	16.1	18.6	19.3	19.3	19.6
	14.2	14.6	17.0	15.6	14.2	13.6	13.9	14.6	14.2	14.6	14.8	14.8	17.3	18.3	17.8	18.2
	14.5	15.1	17.4	16.7	15.3	14.9	15.4	15.7	16.6	17.3	18.6	18.2	20.7	21.0	21.7	22.1
	1.7	1.8	2.1	1.9	1.8	1.7	1.7	1.8	1.8	1.9	1.9	1.9	2.2	2.0	2.1	2.2
	1.1	1.1	1.3	1.1	1.1	1.0	1.0	1.1	1.1	1.1	1.1	1.1	1.3	1.2	1.2	1.3
	0.7	0.7	0.8	0.8	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.8	0.9	0.8	0.9	0.9
	1.1	1.1	1.2	1.2	1.1	1.1	1.1	1.1	1.1	1.1	1.0	1.0	1.0	1.5		
	0.5	0.5	0.6	0.6	0.5	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.8		
	0.5	0.5	0.6	0.6	0.6	0.5	0.6	0.6	0.6	0.6	0.6	0.5	0.5	0.8		
	21.4	21.7	24.6	23.6	21.7	21.6	21.7	22.3	22.3	22.9	23.1	22.5	24.8	29.5		
	20.0	20.2	23.1	21.9	19.9	19.9	19.8	20.2	19.9	20.4	20.1	19.8	22.2	26.7		
	23.7	24.1	26.8	26.1	24.6	24.2	24.7	25.7	25.9	26.7	27.7	26.8	28.9	33.9		
	28.5	27.4	27.0	25.9	24.8	24.4	23.0	22.5	22.0	21.9	22.0	22.0	22.6	24.4		
	19.4	18.6	19.1	18.1	17.2	17.2	16.1	15.7	15.2	15.2	15.1	15.5	16.6	19.1		
	37.8	36.3	35.1	33.8	32.6	31.8	30.1	29.7	29.0	28.9	29.2	28.8	28.7	29.9		
	8.5	8.2	8.1	7.8	7.5	7.3	6.9	6.7	6.4	6.4	6.3	6.3	6.4	6.9		
	2.9	2.8	2.9	2.8	2.6	2.6	2.4	2.4	2.3	2.3	2.2	2.3	2.4	2.8		
	5.6	5.4	5.2	5.1	4.9	4.7	4.4	4.3	4.2	4.1	4.1	4.0	4.0	4.1		
	10.3	8.6	7.5	6.6	5.6	4.8	4.1	3.3	2.8	2.5	2.2	2.0	1.8			
	14.2	13.8	13.6	13.4	13.0	12.2	11.8	10.5	9.8	9.0	8.3	7.4	7.1			
	1.1	0.9	0.8	0.7	0.6	0.5	0.4	0.3	0.3	0.2	0.2	0.2	0.2			
	1.5	1.4	1.4	1.3	1.3	1.2	1.2	1.1	1.0	0.9	0.8	0.7	0.7			

Eastern Asia

Indicator	Demographic group (Youth)	Unit	2000	2001	2002	2003	2004	2005	2006	
Labour force participation rate	Total	%	64.8	64.0	63.3	62.6	61.8	61.0	60.1	
	Male		64.9	64.2	63.7	63.1	62.5	61.9	61.2	
	Female		64.8	63.9	62.9	62.0	61.0	60.0	58.9	
Labour force	Total	millions	152.2	151.6	153.6	156.8	159.5	160.4	159.9	
	Male		78.3	78.1	79.5	81.4	83.2	84.0	84.1	
	Female		73.9	73.5	74.1	75.4	76.4	76.5	75.8	
Employment-to-population ratio	Total	%	60.3	58.8	57.6	56.5	56.0	55.2	54.5	
	Male		59.8	58.4	57.3	56.4	56.0	55.4	54.9	
	Female		60.8	59.3	58.0	56.7	56.0	55.0	54.1	
Employment	Total	millions	141.4	139.2	139.8	141.7	144.5	145.3	145.1	
	Male		72.1	71.1	71.5	72.7	74.5	75.2	75.5	
	Female		69.3	68.2	68.3	69.0	70.1	70.1	69.6	
Unemployment rate	Total	%	7.1	8.1	9.0	9.6	9.4	9.4	9.2	
	Male		7.8	9.0	10.0	10.7	10.4	10.4	10.2	
	Female		6.2	7.2	7.9	8.5	8.3	8.3	8.1	
Unemployment	Total	millions	10.7	12.3	13.8	15.1	15.0	15.1	14.8	
	Male		6.1	7.1	7.9	8.7	8.7	8.8	8.6	
	Female		4.6	5.3	5.9	6.4	6.3	6.3	6.2	
Potential labour force	Total	millions						4.6	4.8	
	Male							2.9	3.0	
	Female							1.7	1.8	
Combined rate of unemployment and potential labour force	Total	%						11.9	11.9	
	Male							13.4	13.3	
	Female							10.2	10.3	
Rate of young people not in employment, education or training (NEET)	Total	%						19.1	19.1	
	Male							15.5	15.4	
	Female							22.8	23.0	
Number of young people with NEET status	Total	millions						50.2	50.7	
	Male							21.1	21.2	
	Female							29.1	29.6	
Extreme working poverty rate	Total	%	38.1	36.5	34.5	31.4	27.6	23.2	22.1	
Moderate working poverty rate	Total	%	27.0	26.4	26.1	25.6	25.4	23.8	22.2	
Number of young people in extreme working poverty	Total	millions	53.8	50.9	48.2	44.5	39.9	33.7	32.1	
Number of young people in moderate working poverty	Total	millions	38.2	36.7	36.5	36.4	36.7	34.5	32.3	

Note: "Youth" refers to ages 15–24.

Eastern Asia

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
	59.1	58.0	56.9	55.9	55.0	54.0	53.1	52.3	51.6	50.9	50.0	49.4	48.9	47.0	47.8	47.5
	60.4	59.6	58.6	57.7	57.1	56.2	55.4	54.8	54.2	53.7	53.0	52.5	52.1	50.5	51.2	50.8
	57.6	56.4	55.2	53.9	52.8	51.6	50.5	49.5	48.6	47.7	46.7	45.9	45.2	43.1	44.0	43.7
	157.8	154.3	149.5	143.8	137.8	130.3	122.7	115.8	110.1	105.4	101.4	98.6	96.3	91.5	92.1	90.7
	83.5	82.0	79.9	77.3	74.5	70.9	67.2	63.8	61.0	58.8	56.8	55.5	54.4	52.1	52.4	51.6
	74.3	72.2	69.6	66.5	63.3	59.4	55.5	52.0	49.1	46.6	44.6	43.1	41.8	39.4	39.7	39.0
	53.7	52.5	51.2	50.4	49.6	48.6	47.7	47.0	46.2	45.7	45.0	44.7	43.9	41.7	42.7	42.5
	54.4	53.3	52.1	51.5	51.0	50.1	49.4	48.7	48.2	47.8	47.3	47.0	46.4	44.3	45.3	45.1
	53.0	51.6	50.3	49.2	48.2	47.0	46.0	45.0	44.1	43.3	42.5	42.0	41.1	38.7	39.7	39.5
	143.5	139.5	134.5	129.8	124.3	117.4	110.3	104.0	98.7	94.7	91.2	89.1	86.5	81.2	82.3	81.2
	75.1	73.4	71.1	69.0	66.5	63.2	59.8	56.8	54.2	52.3	50.7	49.7	48.5	45.8	46.4	45.9
	68.4	66.1	63.4	60.8	57.8	54.1	50.5	47.3	44.5	42.4	40.6	39.4	38.0	35.4	35.9	35.3
	9.1	9.6	10.0	9.7	9.8	10.0	10.1	10.2	10.3	10.2	10.0	9.6	10.2	11.3	10.7	10.5
	10.0	10.6	11.0	10.7	10.7	10.9	11.0	11.1	11.2	11.0	10.8	10.4	10.9	12.2	11.4	11.2
	8.0	8.5	8.9	8.6	8.7	8.9	9.0	9.1	9.3	9.1	9.0	8.6	9.1	10.1	9.8	9.5
	14.3	14.8	15.0	14.0	13.5	13.0	12.3	11.8	11.4	10.7	10.1	9.5	9.8	10.3	9.9	9.5
	8.4	8.7	8.8	8.2	8.0	7.7	7.4	7.1	6.8	6.5	6.1	5.8	6.0	6.3	6.0	5.8
	6.0	6.1	6.2	5.7	5.5	5.3	5.0	4.7	4.5	4.3	4.0	3.7	3.8	4.0	3.9	3.7
	5.0	5.2	5.4	5.4	5.4	5.4	5.3	5.2	5.2	5.1	5.1	5.1	5.2	5.1		
	3.1	3.2	3.3	3.3	3.3	3.3	3.2	3.2	3.1	3.1	3.1	3.0	3.1	3.0		
	1.9	2.0	2.1	2.1	2.2	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.1	2.1		
	11.9	12.5	13.1	13.0	13.2	13.5	13.8	14.1	14.3	14.3	14.3	14.1	14.7	16.0		
	13.2	13.9	14.5	14.3	14.5	14.8	15.0	15.3	15.5	15.4	15.3	15.0	15.7	17.0		
	10.3	10.9	11.5	11.4	11.7	12.0	12.3	12.6	12.9	12.9	12.9	12.8	13.4	14.8		
	18.8	18.9	18.9	18.6	18.7	18.5	18.3	17.8	17.5	17.2	17.0	16.8	16.6	17.6		
	14.9	15.0	15.0	14.5	14.4	14.2	14.0	13.5	13.2	12.9	12.6	12.3	12.1	13.6		
	22.9	23.0	23.1	23.2	23.3	23.2	23.1	22.5	22.3	22.1	22.0	21.8	21.7	22.2		
	50.1	50.1	49.7	48.0	46.7	44.7	42.4	39.4	37.4	35.6	34.5	33.4	32.8	34.3		
	20.6	20.7	20.5	19.4	18.9	17.9	17.0	15.7	14.9	14.1	13.5	12.9	12.7	14.1		
	29.5	29.5	29.2	28.6	27.9	26.7	25.4	23.6	22.5	21.6	21.0	20.5	20.1	20.3		
	20.5	19.6	17.9	15.9	11.7	9.7	3.2	2.5	1.6	1.3	1.1	1.0	1.0			
	20.3	18.9	17.6	16.1	15.0	13.5	11.5	9.6	7.7	6.2	4.6	3.6	3.0			
	29.5	27.4	24.1	20.7	14.5	11.4	3.5	2.6	1.6	1.3	1.0	0.9	0.8			
	29.2	26.3	23.6	20.9	18.7	15.8	12.7	10.0	7.6	5.8	4.2	3.2	2.6			

Eastern Europe

Indicator	Demographic group (Youth)	Unit	2000	2001	2002	2003	2004	2005	2006	
Labour force participation rate	Total	%	40.6	39.4	38.7	37.3	37.1	36.7	36.4	
	Male		43.8	42.6	41.7	40.3	40.3	39.7	39.4	
	Female		37.3	36.0	35.5	34.1	33.8	33.6	33.4	
Labour force	Total	millions	19.5	19.0	18.7	18.1	18.0	17.6	17.2	
	Male		10.7	10.4	10.3	10.0	10.0	9.7	9.5	
	Female		8.8	8.5	8.4	8.1	8.1	7.9	7.7	
Employment-to-population ratio	Total	%	31.4	30.7	30.6	29.4	29.4	29.7	29.8	
	Male		34.1	33.4	33.2	32.0	32.0	32.3	32.3	
	Female		28.7	28.0	28.0	26.7	26.7	27.0	27.1	
Employment	Total	millions	15.1	14.8	14.8	14.3	14.3	14.3	14.1	
	Male		8.3	8.2	8.2	7.9	7.9	7.9	7.8	
	Female		6.8	6.6	6.7	6.4	6.4	6.4	6.3	
Unemployment rate	Total	%	22.7	22.0	20.8	21.0	20.7	19.1	18.3	
	Male		22.3	21.7	20.5	20.7	20.4	18.7	17.9	
	Female		23.2	22.4	21.2	21.5	21.0	19.5	18.7	
Unemployment	Total	millions	4.4	4.2	3.9	3.8	3.7	3.4	3.1	
	Male		2.4	2.3	2.1	2.1	2.0	1.8	1.7	
	Female		2.0	1.9	1.8	1.7	1.7	1.5	1.4	
Potential labour force	Total	millions						1.3	1.3	
	Male							0.7	0.7	
	Female							0.6	0.6	
Combined rate of unemployment and potential labour force	Total	%						24.7	24.0	
	Male							24.1	23.5	
	Female							25.5	24.6	
Rate of young people not in employment, education or training (NEET)	Total	%						16.4	15.9	
	Male							13.8	13.3	
	Female							19.2	18.5	
Number of young people with NEET status	Total	millions						7.9	7.5	
	Male							3.4	3.2	
	Female							4.5	4.3	

Note: "Youth" refers to ages 15–24.

Eastern Europe

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
	36.5	37.8	38.0	37.6	37.3	36.3	36.3	35.7	35.4	35.2	34.6	33.9	33.4	31.5	32.0	32.0
	39.6	41.4	41.5	41.5	41.3	40.2	40.4	39.8	39.5	39.4	38.5	37.6	37.2	35.3	36.0	35.9
	33.3	33.9	34.4	33.5	33.1	32.1	32.0	31.3	31.0	30.6	30.4	29.9	29.3	27.6	27.9	27.9
	16.9	17.0	16.6	15.9	15.0	13.9	13.1	12.1	11.4	10.8	10.3	9.8	9.4	8.8	9.0	9.1
	9.3	9.5	9.3	8.9	8.5	7.9	7.5	6.9	6.5	6.2	5.9	5.6	5.4	5.1	5.1	5.2
	7.5	7.5	7.3	6.9	6.5	6.0	5.6	5.2	4.9	4.6	4.4	4.2	4.0	3.8	3.8	3.9
	30.9	32.3	30.9	30.6	30.6	29.8	29.9	29.3	29.0	29.0	29.1	28.6	28.8	26.7	26.9	27.2
	33.5	35.6	33.6	33.8	33.9	33.1	33.3	32.8	32.5	32.6	32.4	32.0	32.1	30.0	30.5	30.8
	28.1	28.8	28.1	27.3	27.1	26.3	26.3	25.7	25.3	25.2	25.6	25.1	25.2	23.2	23.2	23.5
	14.3	14.5	13.5	12.9	12.3	11.4	10.8	10.0	9.4	8.9	8.6	8.3	8.1	7.5	7.5	7.7
	7.9	8.2	7.5	7.3	7.0	6.5	6.2	5.7	5.4	5.2	4.9	4.7	4.6	4.3	4.4	4.5
	6.4	6.3	6.0	5.6	5.3	4.9	4.6	4.3	4.0	3.8	3.7	3.5	3.5	3.2	3.2	3.2
	15.5	14.5	18.7	18.5	18.0	18.0	17.7	17.8	18.1	17.5	15.9	15.4	13.8	15.4	16.0	14.9
	15.5	13.9	18.9	18.5	17.9	17.8	17.4	17.6	17.8	17.3	15.8	14.9	13.7	15.0	15.2	14.3
	15.4	15.2	18.3	18.5	18.1	18.1	18.0	18.0	18.5	17.8	16.0	16.1	14.0	16.1	17.0	15.8
	2.6	2.5	3.1	2.9	2.7	2.5	2.3	2.2	2.1	1.9	1.6	1.5	1.3	1.4	1.4	1.4
	1.4	1.3	1.8	1.7	1.5	1.4	1.3	1.2	1.2	1.1	0.9	0.8	0.7	0.8	0.8	0.7
	1.2	1.1	1.3	1.3	1.2	1.1	1.0	0.9	0.9	0.8	0.7	0.7	0.6	0.6	0.6	0.6
	1.2	1.1	1.1	1.1	1.0	0.8	0.8	0.7	0.7	0.6	0.6	0.6	0.6	0.7		
	0.6	0.5	0.6	0.6	0.5	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.4		
	0.6	0.5	0.5	0.5	0.5	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3		
	21.1	19.5	23.8	23.8	23.0	22.6	22.5	22.4	22.8	22.0	20.4	20.0	19.2	21.5		
	20.8	18.4	23.7	23.4	22.6	22.3	21.9	22.0	22.2	21.6	20.0	19.2	18.8	20.8		
	21.6	21.0	23.9	24.4	23.5	23.1	23.3	22.8	23.5	22.5	21.0	21.1	19.7	22.6		
	14.4	13.0	14.3	14.7	14.0	13.6	13.7	13.9	13.4	13.5	12.9	12.8	12.3	13.0		
	12.0	10.0	11.9	12.1	12.2	11.8	11.7	11.9	11.5	11.6	11.0	10.6	10.3	11.4		
	17.0	16.1	16.8	17.4	15.9	15.5	15.7	16.0	15.3	15.4	15.0	15.0	14.5	14.7		
	6.7	5.8	6.3	6.2	5.6	5.2	4.9	4.7	4.3	4.2	3.8	3.7	3.5	3.6		
	2.8	2.3	2.7	2.6	2.5	2.3	2.2	2.1	1.9	1.8	1.7	1.6	1.5	1.6		
	3.8	3.5	3.6	3.6	3.1	2.9	2.8	2.7	2.4	2.3	2.2	2.1	2.0	2.0		

Latin America and the Caribbean

Indicator	Demographic group (Youth)	Unit	2000	2001	2002	2003	2004	2005	2006	
Labour force participation rate	Total	%	53.3	52.9	52.9	52.8	53.1	53.6	53.1	
	Male		65.3	64.5	64.2	63.9	64.0	64.3	63.6	
	Female		41.3	41.3	41.5	41.6	42.1	42.8	42.6	
Labour force	Total	millions	53.3	53.5	53.9	54.4	55.1	55.9	55.8	
	Male		32.7	32.7	32.9	33.0	33.3	33.7	33.6	
	Female		20.6	20.8	21.1	21.3	21.7	22.2	22.2	
Employment-to-population ratio	Total	%	44.5	44.5	44.0	43.9	44.5	45.1	45.3	
	Male		56.1	55.8	55.0	55.1	55.6	55.9	56.1	
	Female		32.8	33.1	32.9	32.7	33.2	34.2	34.5	
Employment	Total	millions	44.5	44.9	44.9	45.2	46.1	47.1	47.6	
	Male		28.1	28.3	28.2	28.5	28.9	29.3	29.6	
	Female		16.4	16.7	16.7	16.8	17.1	17.8	18.0	
Unemployment rate	Total	%	16.6	16.0	16.8	16.8	16.3	15.8	14.7	
	Male		14.1	13.6	14.3	13.8	13.2	13.0	11.8	
	Female		20.6	19.8	20.7	21.5	21.2	20.2	19.0	
Unemployment	Total	millions	8.8	8.6	9.1	9.2	9.0	8.8	8.2	
	Male		4.6	4.4	4.7	4.6	4.4	4.4	4.0	
	Female		4.2	4.1	4.4	4.6	4.6	4.5	4.2	
Potential labour force	Total	millions						5.0	4.9	
	Male							1.9	1.9	
	Female							3.1	3.0	
Combined rate of unemployment and potential labour force	Total	%						22.7	21.6	
	Male							17.7	16.6	
	Female							29.8	28.6	
Rate of young people not in employment, education or training (NEET)	Total	%						20.6	20.2	
	Male							12.0	11.6	
	Female							29.3	28.9	
Number of young people with NEET status	Total	millions						21.5	21.2	
	Male							6.3	6.1	
	Female							15.2	15.1	
Extreme working poverty rate	Total	%	10.7	10.3	9.6	9.1	8.5	8.2	6.6	
Moderate working poverty rate	Total	%	11.9	12.2	12.3	12.0	11.4	10.7	9.5	
Number of young people in extreme working poverty	Total	millions	4.8	4.6	4.3	4.1	3.9	3.9	3.2	
Number of young people in moderate working poverty	Total	millions	5.3	5.5	5.5	5.4	5.2	5.0	4.5	

Note: "Youth" refers to ages 15–24.

Latin America and the Caribbean

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
	52.5	52.2	51.9	51.1	50.4	50.2	49.5	48.8	48.3	48.2	48.4	48.7	48.8	43.4	46.7	47.6
	62.9	62.5	62.2	61.3	60.5	60.2	59.2	58.6	57.9	57.3	57.4	57.6	57.7	52.1	55.4	56.5
	42.0	41.7	41.5	40.7	40.1	40.0	39.5	38.7	38.4	38.9	39.2	39.5	39.7	34.5	37.8	38.6
	55.5	55.5	55.5	54.9	54.4	54.4	53.8	53.1	52.7	52.5	52.6	52.7	52.7	46.6	49.9	50.7
	33.5	33.5	33.5	33.3	33.0	33.0	32.6	32.3	32.0	31.6	31.6	31.6	31.5	28.3	30.0	30.4
	22.1	22.0	22.0	21.6	21.4	21.4	21.2	20.8	20.6	20.9	21.0	21.1	21.2	18.3	20.0	20.2
	45.3	45.2	44.1	44.0	43.5	43.4	42.7	42.2	41.2	39.8	39.7	40.0	40.1	34.2	36.7	37.9
	55.8	55.7	54.4	54.2	53.6	53.4	52.4	51.9	50.8	48.9	48.7	48.9	49.0	42.7	45.5	46.9
	34.6	34.5	33.6	33.5	33.2	33.2	32.7	32.2	31.3	30.6	30.5	30.8	31.0	25.6	27.6	28.6
	47.9	48.1	47.1	47.2	46.9	47.0	46.4	45.9	44.9	43.4	43.2	43.3	43.2	36.7	39.2	40.3
	29.7	29.9	29.3	29.4	29.2	29.3	28.8	28.6	28.1	27.0	26.8	26.8	26.7	23.2	24.6	25.2
	18.2	18.2	17.8	17.8	17.7	17.8	17.6	17.3	16.8	16.4	16.4	16.5	16.5	13.6	14.6	15.0
	13.8	13.3	15.1	14.0	13.7	13.6	13.7	13.5	14.7	17.4	17.9	17.9	18.0	21.2	21.6	20.5
	11.2	10.9	12.5	11.6	11.4	11.3	11.5	11.4	12.3	14.7	15.2	15.2	15.2	18.1	17.9	17.0
	17.6	17.1	19.0	17.7	17.3	17.1	17.1	16.8	18.5	21.4	22.1	21.9	22.1	25.9	27.0	25.8
	7.7	7.4	8.4	7.7	7.5	7.4	7.4	7.2	7.7	9.1	9.4	9.4	9.5	9.9	10.8	10.4
	3.8	3.6	4.2	3.9	3.8	3.7	3.8	3.7	3.9	4.7	4.8	4.8	4.8	5.1	5.4	5.2
	3.9	3.8	4.2	3.8	3.7	3.7	3.6	3.5	3.8	4.5	4.6	4.6	4.7	4.8	5.4	5.2
	4.9	4.9	5.1	5.0	5.0	5.1	4.9	4.7	4.9	5.4	5.7	5.9	5.9	7.5		
	1.9	2.0	2.1	2.1	2.1	2.1	2.1	2.0	2.1	2.4	2.6	2.7	2.7	3.5		
	3.0	2.9	3.0	3.0	2.9	3.0	2.8	2.7	2.8	3.0	3.2	3.3	3.3	4.0		
	20.8	20.3	22.3	21.2	21.0	21.0	20.9	20.6	22.0	25.0	26.0	26.2	26.3	32.1		
	16.1	15.8	17.6	16.8	16.7	16.7	16.8	16.6	17.6	20.6	21.5	21.8	21.8	27.1		
	27.4	26.8	28.9	27.6	27.3	27.2	26.8	26.4	28.3	31.3	32.3	32.4	32.5	39.3		
	20.0	19.7	20.1	20.0	20.2	20.1	20.3	20.4	20.8	21.1	21.4	21.3	21.2	24.0		
	11.6	11.4	12.3	12.2	12.3	12.3	12.7	12.7	13.0	13.7	14.0	14.1	14.2	17.6		
	28.4	28.0	28.2	28.0	28.2	28.0	28.2	28.2	28.7	28.6	28.9	28.6	28.2	30.5		
	21.1	20.9	21.5	21.5	21.8	21.7	22.1	22.2	22.6	23.0	23.2	23.0	22.8	25.7		
	6.2	6.1	6.6	6.6	6.7	6.8	7.0	7.0	7.2	7.6	7.7	7.7	7.8	9.6		
	14.9	14.8	14.9	14.9	15.1	15.0	15.1	15.2	15.4	15.4	15.5	15.3	15.0	16.1		
	5.7	5.1	4.7	4.0	3.6	3.2	2.7	2.4	2.3	2.4	2.6	2.7	3.0			
	8.5	7.9	7.5	7.1	6.5	6.4	5.6	5.5	5.2	5.0	4.9	5.0	5.2			
	2.7	2.4	2.2	1.9	1.7	1.5	1.2	1.1	1.0	1.0	1.1	1.2	1.3			
	4.1	3.8	3.5	3.3	3.0	3.0	2.6	2.5	2.3	2.2	2.1	2.2	2.2			

Northern Africa

Indicator	Demographic group (Youth)	Unit	2000	2001	2002	2003	2004	2005	2006	
Labour force participation rate	Total	%	34.6	33.1	33.4	33.3	33.3	33.3	33.2	
	Male		49.7	47.6	47.2	47.3	47.4	47.6	47.7	
	Female		19.1	18.2	19.1	18.9	18.7	18.5	18.3	
Labour force	Total	millions	12.4	12.1	12.5	12.7	12.9	13.1	13.2	
	Male		9.0	8.8	9.0	9.2	9.3	9.5	9.6	
	Female		3.4	3.3	3.5	3.5	3.6	3.6	3.6	
Employment-to-population ratio	Total	%	24.1	23.1	23.6	23.3	24.2	24.0	24.4	
	Male		35.5	34.1	33.9	33.7	35.9	35.8	37.0	
	Female		12.3	11.7	13.0	12.6	12.2	11.7	11.5	
Employment	Total	millions	8.6	8.4	8.8	8.9	9.4	9.4	9.7	
	Male		6.4	6.3	6.4	6.5	7.1	7.2	7.4	
	Female		2.2	2.1	2.4	2.4	2.3	2.3	2.2	
Unemployment rate	Total	%	30.4	30.2	29.3	30.0	27.2	27.9	26.5	
	Male		28.4	28.3	28.2	28.7	24.3	24.7	22.4	
	Female		35.5	35.4	32.0	33.1	34.8	36.6	37.3	
Unemployment	Total	millions	3.8	3.7	3.6	3.8	3.5	3.7	3.5	
	Male		2.6	2.5	2.5	2.6	2.3	2.3	2.1	
	Female		1.2	1.2	1.1	1.2	1.2	1.3	1.3	
Potential labour force	Total	millions						2.9	2.9	
	Male							1.4	1.4	
	Female							1.6	1.5	
Combined rate of unemployment and potential labour force	Total	%						41.2	39.6	
	Male							34.1	32.0	
	Female							56.1	55.9	
Rate of young people not in employment, education or training (NEET)	Total	%						31.0	30.4	
	Male							19.6	18.4	
	Female							42.7	42.8	
Number of young people with NEET status	Total	millions						12.2	12.1	
	Male							3.9	3.7	
	Female							8.3	8.4	
Extreme working poverty rate	Total	%	5.3	5.2	5.0	4.9	4.9	4.5	3.8	
Moderate working poverty rate	Total	%	21.9	21.1	21.5	21.2	21.5	20.5	19.9	
Number of young people in extreme working poverty	Total	millions	0.5	0.4	0.4	0.4	0.5	0.4	0.4	
Number of young people in moderate working poverty	Total	millions	1.9	1.8	1.9	1.9	2.0	1.9	1.9	

Note: "Youth" refers to ages 15–24.

Northern Africa

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
	32.9	33.3	32.7	32.3	31.4	31.4	31.4	30.6	29.1	28.4	27.1	25.1	24.1	22.6	23.3	23.5
	47.5	48.4	47.3	47.0	45.9	45.9	45.5	43.9	40.3	39.4	37.5	36.6	35.8	33.7	34.5	34.8
	17.8	17.7	17.7	17.1	16.4	16.3	16.8	16.9	17.5	17.0	16.3	13.2	11.9	11.1	11.6	11.7
	13.1	13.3	13.1	13.0	12.6	12.6	12.6	12.2	11.6	11.4	10.8	10.1	9.7	9.2	9.6	9.8
	9.6	9.8	9.6	9.6	9.4	9.4	9.3	8.9	8.2	8.0	7.7	7.5	7.4	7.0	7.2	7.4
	3.5	3.5	3.5	3.4	3.2	3.2	3.3	3.3	3.4	3.3	3.2	2.6	2.4	2.2	2.3	2.4
	24.8	25.0	25.0	24.5	22.6	21.7	21.8	21.5	19.9	19.6	18.7	18.0	17.8	16.0	16.3	16.7
	37.4	38.4	38.8	38.5	35.4	33.8	33.5	32.5	28.7	28.5	27.2	28.2	28.3	25.7	26.2	26.7
	11.8	11.2	10.9	10.1	9.5	9.1	9.7	10.1	10.7	10.3	9.9	7.4	6.8	5.9	6.0	6.2
	9.9	10.0	10.0	9.9	9.1	8.7	8.7	8.6	7.9	7.8	7.5	7.2	7.2	6.5	6.7	6.9
	7.6	7.8	7.9	7.9	7.2	6.9	6.8	6.6	5.8	5.8	5.6	5.8	5.8	5.3	5.5	5.7
	2.3	2.2	2.1	2.0	1.9	1.8	1.9	2.0	2.1	2.0	1.9	1.4	1.3	1.2	1.2	1.3
	24.7	24.9	23.6	24.1	27.9	30.9	30.4	29.8	31.7	31.2	30.9	28.3	26.3	29.3	29.8	29.2
	21.3	20.7	18.1	18.2	23.0	26.3	26.3	26.0	28.7	27.8	27.4	22.9	21.0	23.7	23.9	23.4
	33.9	36.7	38.7	41.1	42.0	44.2	42.1	40.0	38.8	39.5	39.4	43.9	42.9	46.8	48.1	47.3
	3.2	3.3	3.1	3.1	3.5	3.9	3.8	3.6	3.7	3.5	3.4	2.9	2.6	2.7	2.9	2.9
	2.0	2.0	1.7	1.7	2.2	2.5	2.4	2.3	2.4	2.2	2.1	1.7	1.6	1.7	1.7	1.7
	1.2	1.3	1.4	1.4	1.4	1.4	1.4	1.3	1.3	1.3	1.3	1.1	1.0	1.0	1.1	1.1
	2.8	2.8	2.7	2.8	2.9	3.1	3.0	3.0	3.1	3.0	3.0	2.9	2.9	3.0		
	1.3	1.3	1.2	1.2	1.3	1.4	1.4	1.4	1.5	1.5	1.5	1.5	1.5	1.6		
	1.5	1.5	1.5	1.6	1.6	1.7	1.6	1.6	1.6	1.6	1.5	1.5	1.4	1.4		
	38.1	38.0	36.8	37.6	41.5	44.5	44.0	43.5	46.0	45.7	45.9	44.5	43.2	46.8		
	30.9	29.9	27.3	27.3	32.3	35.7	36.0	36.1	39.7	39.0	39.3	35.7	34.5	38.3		
	53.8	55.8	57.3	59.9	61.5	63.5	61.3	59.3	58.2	58.7	58.9	64.1	63.9	67.4		
	29.8	29.3	28.8	30.1	30.6	29.5	27.9	27.9	27.8	27.7	27.5	27.6	28.0	29.1		
	17.6	16.6	15.8	15.8	18.1	17.7	16.6	17.1	18.4	18.6	18.6	18.3	17.5	19.6		
	42.4	42.3	42.2	44.9	43.5	41.7	39.5	39.0	37.5	37.3	36.9	37.3	39.0	39.0		
	11.9	11.7	11.6	12.1	12.3	11.8	11.2	11.1	11.1	11.1	11.0	11.1	11.3	11.8		
	3.6	3.4	3.2	3.2	3.7	3.6	3.4	3.5	3.8	3.8	3.8	3.8	3.6	4.1		
	8.3	8.3	8.3	8.9	8.6	8.2	7.8	7.7	7.4	7.3	7.2	7.3	7.7	7.8		
	3.7	3.5	2.8	2.4	1.8	1.4	1.4	1.4	1.3	1.4	1.7	2.1	2.4			
	19.9	19.5	17.9	16.4	13.6	11.7	11.9	12.0	11.1	11.9	12.5	13.9	14.4			
	0.4	0.3	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2			
	2.0	2.0	1.8	1.6	1.2	1.0	1.0	1.0	0.9	0.9	0.9	1.0	1.0			

Northern America

Indicator	Demographic group (Youth)	Unit	2000	2001	2002	2003	2004	2005	2006	
Labour force participation rate	Total	%	60.3	59.3	58.4	57.1	56.7	56.3	56.2	
	Male		62.7	61.4	60.3	59.0	58.7	58.1	58.4	
	Female		57.8	57.0	56.4	55.0	54.5	54.4	53.9	
Labour force	Total	millions	26.0	25.9	26.0	25.8	26.0	26.2	26.4	
	Male		13.8	13.7	13.7	13.6	13.8	13.9	14.1	
	Female		12.2	12.2	12.3	12.1	12.2	12.3	12.4	
Employment-to-population ratio	Total	%	54.5	52.9	51.3	49.9	49.9	49.9	50.3	
	Male		56.4	54.2	52.5	51.1	51.2	50.8	51.8	
	Female		52.5	51.5	50.2	48.8	48.5	48.9	48.7	
Employment	Total	millions	23.5	23.2	22.8	22.5	22.9	23.2	23.6	
	Male		12.4	12.1	11.9	11.8	12.0	12.1	12.5	
	Female		11.1	11.0	10.9	10.7	10.8	11.1	11.2	
Unemployment rate	Total	%	9.6	10.8	12.1	12.5	12.0	11.4	10.6	
	Male		10.1	11.7	13.0	13.5	12.8	12.4	11.3	
	Female		9.2	9.7	11.1	11.4	11.0	10.1	9.7	
Unemployment	Total	millions	2.5	2.8	3.2	3.2	3.1	3.0	2.8	
	Male		1.4	1.6	1.8	1.8	1.8	1.7	1.6	
	Female		1.1	1.2	1.4	1.4	1.3	1.3	1.2	
Potential labour force	Total	millions						0.7	0.7	
	Male							0.4	0.4	
	Female							0.3	0.3	
Combined rate of unemployment and potential labour force	Total	%						13.8	12.9	
	Male							14.9	13.6	
	Female							12.5	12.1	
Rate of young people not in employment, education or training (NEET)	Total	%						13.1	12.5	
	Male							11.3	10.4	
	Female							15.1	14.6	
Number of young people with NEET status	Total	millions						6.1	5.9	
	Male							2.7	2.5	
	Female							3.4	3.3	

Note: "Youth" refers to ages 15–24.

Northern America

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
	55.2	54.8	53.0	51.5	51.4	51.2	51.4	51.4	51.4	51.4	51.7	51.4	52.1	50.2	51.6	51.8
	57.0	56.7	54.3	52.8	52.7	52.5	52.6	52.5	52.3	52.5	52.7	52.0	52.6	50.8	52.3	52.3
	53.4	52.8	51.6	50.2	49.9	49.8	50.1	50.2	50.4	50.3	50.7	50.8	51.5	49.6	50.8	51.3
	26.2	26.3	25.6	25.0	25.1	25.2	25.3	25.3	25.2	25.2	25.2	24.9	25.0	24.0	24.7	24.8
	13.9	13.9	13.4	13.1	13.2	13.2	13.3	13.2	13.1	13.2	13.1	12.8	12.9	12.4	12.7	12.8
	12.4	12.4	12.2	11.9	11.9	12.0	12.0	12.1	12.1	12.1	12.1	12.1	12.1	11.6	11.9	12.0
	49.4	47.9	43.9	42.3	42.7	43.0	43.5	44.5	45.3	46.0	46.8	46.9	47.6	42.4	46.4	47.5
	50.5	48.7	43.6	42.1	43.0	43.4	43.8	44.8	45.5	46.4	47.1	46.9	47.5	42.8	46.6	47.4
	48.3	47.0	44.2	42.5	42.3	42.7	43.2	44.1	45.1	45.5	46.5	46.8	47.6	42.0	46.2	47.7
	23.5	23.0	21.2	20.5	20.9	21.2	21.5	21.9	22.3	22.5	22.8	22.7	22.9	20.3	22.2	22.7
	12.3	12.0	10.8	10.5	10.8	10.9	11.0	11.3	11.4	11.6	11.7	11.6	11.7	10.4	11.3	11.5
	11.2	11.0	10.4	10.1	10.1	10.2	10.4	10.6	10.8	10.9	11.1	11.1	11.2	9.9	10.8	11.2
	10.5	12.6	17.2	17.9	16.9	16.0	15.3	13.4	11.7	10.7	9.5	8.9	8.6	15.5	10.1	8.3
	11.5	14.1	19.7	20.3	18.3	17.4	16.7	14.5	12.9	11.7	10.6	9.8	9.7	15.6	11.0	9.5
	9.4	11.0	14.5	15.3	15.3	14.4	13.7	12.1	10.4	9.5	8.3	7.9	7.6	15.3	9.1	6.9
	2.8	3.3	4.4	4.5	4.2	4.0	3.9	3.4	3.0	2.7	2.4	2.2	2.2	3.7	2.5	2.0
	1.6	2.0	2.7	2.7	2.4	2.3	2.2	1.9	1.7	1.5	1.4	1.3	1.2	1.9	1.4	1.2
	1.2	1.4	1.8	1.8	1.8	1.7	1.6	1.5	1.3	1.1	1.0	0.9	0.9	1.8	1.1	0.8
	0.7	0.7	0.9	0.9	0.9	0.9	0.9	0.8	0.7	0.7	0.6	0.6	0.6	0.7		
	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.3	0.3	0.3	0.4		
	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3		
	12.8	14.9	20.0	20.8	19.6	18.9	18.1	16.1	14.1	13.0	11.6	11.0	10.6	17.8		
	13.8	16.4	22.6	23.2	21.2	20.3	19.6	17.3	15.3	14.2	12.9	12.0	11.6	18.0		
	11.6	13.3	17.1	18.2	17.9	17.3	16.4	14.7	12.8	11.8	10.3	9.8	9.5	17.5		
	12.3	13.0	15.0	15.1	14.3	13.9	14.3	13.4	12.6	12.2	11.1	11.1	10.6	14.3		
	10.5	11.8	14.6	14.9	13.5	13.1	13.6	12.5	11.8	11.5	10.5	10.6	10.2	14.1		
	14.2	14.3	15.4	15.4	15.2	14.7	15.1	14.4	13.3	12.8	11.8	11.6	11.0	14.4		
	5.8	6.2	7.2	7.3	7.0	6.8	7.0	6.6	6.2	6.0	5.4	5.4	5.1	6.8		
	2.5	2.9	3.6	3.7	3.4	3.3	3.4	3.2	3.0	2.9	2.6	2.6	2.5	3.4		
	3.3	3.3	3.6	3.6	3.6	3.5	3.6	3.5	3.2	3.1	2.8	2.8	2.6	3.4		

Northern, Southern and Western Europe

Indicator	Demographic group (Youth)	Unit	2000	2001	2002	2003	2004	2005	2006	
Labour force participation rate	Total	%	47.7	47.1	47.3	47.0	46.8	47.3	47.4	
	Male		51.2	50.7	50.9	50.5	50.2	50.8	50.8	
	Female		44.1	43.4	43.6	43.4	43.2	43.6	43.8	
Labour force	Total	millions	25.3	25.0	25.1	25.0	24.9	25.1	25.2	
	Male		13.8	13.7	13.8	13.7	13.6	13.8	13.8	
	Female		11.5	11.3	11.4	11.3	11.3	11.4	11.4	
Employment-to-population ratio	Total	%	39.6	39.9	39.9	39.2	38.8	38.8	39.3	
	Male		42.9	43.2	43.0	42.1	41.7	41.7	42.2	
	Female		36.2	36.5	36.6	36.3	35.8	35.8	36.2	
Employment	Total	millions	21.0	21.2	21.2	20.9	20.6	20.6	20.9	
	Male		11.6	11.7	11.6	11.4	11.3	11.3	11.4	
	Female		9.4	9.5	9.5	9.5	9.3	9.3	9.4	
Unemployment rate	Total	%	16.9	15.2	15.7	16.4	17.1	17.9	17.1	
	Male		16.1	14.7	15.5	16.6	17.0	17.8	16.8	
	Female		17.9	15.9	15.9	16.3	17.2	18.0	17.3	
Unemployment	Total	millions	4.3	3.8	3.9	4.1	4.3	4.5	4.3	
	Male		2.2	2.0	2.1	2.3	2.3	2.4	2.3	
	Female		2.1	1.8	1.8	1.8	1.9	2.0	2.0	
Potential labour force	Total	millions						2.6	2.6	
	Male							1.2	1.2	
	Female							1.3	1.4	
Combined rate of unemployment and potential labour force	Total	%						25.5	24.8	
	Male							24.5	23.7	
	Female							26.6	26.2	
Rate of young people not in employment, education or training (NEET)	Total	%						12.2	11.6	
	Male							11.1	10.6	
	Female							13.2	12.7	
Number of young people with NEET status	Total	millions						6.5	6.2	
	Male							3.0	2.9	
	Female							3.4	3.3	

Note: "Youth" refers to ages 15–24.

Northern, Southern and Western Europe

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
	47.4	47.5	46.5	45.5	45.4	45.1	44.6	44.0	43.9	43.8	43.7	43.8	43.9	42.4	44.5	44.6
	50.7	50.8	49.3	48.4	48.1	47.7	47.0	46.3	46.1	45.8	45.8	46.2	46.2	44.4	46.6	46.7
	44.0	44.1	43.6	42.6	42.6	42.3	42.1	41.6	41.6	41.8	41.6	41.3	41.6	40.2	42.4	42.4
	25.2	25.1	24.5	23.8	23.6	23.2	22.8	22.3	22.1	21.9	21.8	21.7	21.7	20.8	21.9	21.9
	13.7	13.7	13.2	12.9	12.7	12.5	12.3	12.0	11.9	11.7	11.7	11.7	11.7	11.2	11.7	11.7
	11.4	11.4	11.2	10.9	10.8	10.7	10.5	10.3	10.2	10.2	10.1	10.0	10.0	9.6	10.1	10.1
	39.9	39.9	37.0	35.9	35.7	34.7	34.2	34.2	34.9	35.5	36.2	36.9	37.4	35.3	37.1	37.8
	42.8	42.5	38.7	37.7	37.4	36.2	35.6	35.6	36.1	36.6	37.4	38.6	39.0	36.8	38.7	39.4
	36.9	37.1	35.3	34.1	34.0	33.2	32.8	32.9	33.5	34.3	34.8	35.2	35.8	33.8	35.5	36.1
	21.2	21.1	19.5	18.8	18.5	17.9	17.5	17.4	17.5	17.8	18.0	18.3	18.5	17.4	18.2	18.5
	11.6	11.5	10.4	10.1	9.9	9.5	9.3	9.2	9.3	9.4	9.6	9.8	9.9	9.3	9.7	9.9
	9.6	9.6	9.1	8.7	8.6	8.4	8.2	8.1	8.2	8.4	8.4	8.5	8.6	8.1	8.5	8.6
	15.8	16.1	20.3	21.1	21.3	22.9	23.2	22.2	20.6	19.1	17.3	15.7	14.8	16.6	16.6	15.3
	15.7	16.3	21.6	22.1	22.2	24.0	24.2	23.2	21.6	20.1	18.2	16.5	15.6	17.2	16.9	15.7
	16.0	15.8	18.9	19.9	20.3	21.6	22.1	21.0	19.4	17.9	16.3	14.8	13.9	15.8	16.3	14.9
	4.0	4.1	5.0	5.0	5.0	5.3	5.3	4.9	4.5	4.2	3.8	3.4	3.2	3.5	3.6	3.3
	2.1	2.2	2.9	2.8	2.8	3.0	3.0	2.8	2.6	2.4	2.1	1.9	1.8	1.9	2.0	1.8
	1.8	1.8	2.1	2.2	2.2	2.3	2.3	2.2	2.0	1.8	1.6	1.5	1.4	1.5	1.7	1.5
	2.6	2.6	2.7	2.6	2.7	2.7	2.7	2.7	2.6	2.6	2.4	2.3	2.2	2.8		
	1.3	1.2	1.3	1.3	1.4	1.4	1.4	1.4	1.3	1.3	1.3	1.2	1.2	1.5		
	1.4	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.2	1.2	1.1	1.1	1.0	1.3		
	23.8	23.9	28.1	29.0	29.4	31.0	31.3	30.5	28.9	27.6	25.5	23.7	22.6	26.5		
	22.8	23.2	28.7	29.4	29.7	31.6	31.8	31.1	29.5	28.3	26.2	24.1	23.2	26.9		
	25.0	24.7	27.5	28.5	29.0	30.4	30.6	29.8	28.2	26.7	24.7	23.1	22.0	26.1		
	11.6	11.5	13.0	13.1	13.2	13.3	13.0	12.6	12.2	11.7	11.1	10.7	10.3	11.4		
	10.6	10.6	12.8	12.9	12.9	13.3	13.0	12.6	12.1	11.7	11.2	10.7	10.4	11.8		
	12.7	12.5	13.3	13.3	13.4	13.4	13.1	12.6	12.2	11.7	11.0	10.8	10.3	11.0		
	6.2	6.1	6.9	6.8	6.8	6.9	6.7	6.4	6.1	5.8	5.5	5.3	5.1	5.6		
	2.9	2.9	3.4	3.4	3.4	3.5	3.4	3.3	3.1	3.0	2.9	2.7	2.6	3.0		
	3.3	3.2	3.4	3.4	3.4	3.4	3.3	3.1	3.0	2.8	2.7	2.6	2.5	2.6		

South-Eastern Asia and the Pacific

Indicator	Demographic group (Youth)	Unit	2000	2001	2002	2003	2004	2005	2006	
Labour force participation rate	Total	%	54.6	55.1	54.2	53.3	53.6	52.1	52.0	
	Male		60.3	61.3	60.5	59.8	60.5	58.6	58.6	
	Female		48.9	48.6	47.7	46.6	46.5	45.5	45.2	
Labour force	Total	millions	59.2	60.3	59.8	59.2	60.0	58.8	58.9	
	Male		33.1	34.0	33.8	33.6	34.3	33.5	33.6	
	Female		26.1	26.3	26.0	25.6	25.7	25.3	25.3	
Employment-to-population ratio	Total	%	48.7	49.0	48.0	47.2	47.1	45.4	45.5	
	Male		53.6	54.8	53.7	53.2	53.5	51.5	51.5	
	Female		43.7	43.1	42.2	41.1	40.5	39.2	39.2	
Employment	Total	millions	52.8	53.7	53.0	52.5	52.8	51.2	51.5	
	Male		29.4	30.3	30.0	29.9	30.3	29.4	29.5	
	Female		23.4	23.3	23.0	22.6	22.4	21.8	21.9	
Unemployment rate	Total	%	10.9	11.0	11.4	11.3	12.0	12.8	12.5	
	Male		11.0	10.7	11.1	11.0	11.5	12.2	12.1	
	Female		10.6	11.4	11.6	11.7	12.8	13.7	13.1	
Unemployment	Total	millions	6.4	6.6	6.8	6.7	7.2	7.5	7.4	
	Male		3.7	3.6	3.8	3.7	3.9	4.1	4.1	
	Female		2.8	3.0	3.0	3.0	3.3	3.5	3.3	
Potential labour force	Total	millions						5.1	5.1	
	Male							2.0	2.1	
	Female							3.1	3.0	
Combined rate of unemployment and potential labour force	Total	%						19.8	19.5	
	Male							17.2	17.2	
	Female							23.0	22.3	
Rate of young people not in employment, education or training (NEET)	Total	%						21.1	21.0	
	Male							15.4	15.1	
	Female							27.0	27.1	
Number of young people with NEET status	Total	millions						23.8	23.8	
	Male							8.8	8.7	
	Female							15.0	15.2	
Extreme working poverty rate	Total	%	35.0	33.2	29.1	26.1	24.1	21.7	21.2	
Moderate working poverty rate	Total	%	30.8	31.0	30.2	30.3	30.2	29.7	29.7	
Number of young people in extreme working poverty	Total	millions	18.5	17.8	15.4	13.7	12.7	11.1	10.9	
Number of young people in moderate working poverty	Total	millions	16.2	16.6	16.0	15.9	15.9	15.2	15.3	

Note: "Youth" refers to ages 15–24.

South-Eastern Asia and the Pacific

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
	52.4	51.9	51.4	50.4	50.4	50.3	49.7	49.2	48.9	48.1	47.1	47.0	46.6	44.6	45.4	45.6
	59.4	59.1	58.2	57.2	57.6	57.7	57.1	56.4	56.0	55.2	54.0	54.0	52.9	50.8	51.4	51.7
	45.3	44.5	44.4	43.4	42.9	42.8	42.0	41.7	41.5	40.6	40.0	39.8	40.0	38.2	39.0	39.1
	59.5	59.0	58.3	57.1	57.3	57.6	57.1	56.8	56.7	55.8	54.8	54.6	54.0	51.7	52.5	52.7
	34.1	34.0	33.4	32.8	33.2	33.5	33.4	33.2	33.1	32.7	32.1	32.1	31.4	30.2	30.5	30.7
	25.4	25.0	24.8	24.3	24.1	24.1	23.7	23.6	23.6	23.1	22.7	22.5	22.6	21.5	22.0	22.0
	46.1	46.3	46.0	45.6	45.4	45.8	45.1	44.5	44.0	43.4	42.6	42.5	42.4	40.1	40.3	40.5
	52.5	52.9	52.3	51.8	52.0	52.5	51.9	51.1	50.3	49.8	48.9	48.8	48.1	45.7	45.6	46.0
	39.7	39.6	39.6	39.1	38.6	38.8	38.0	37.7	37.3	36.6	36.0	35.9	36.4	34.2	34.7	34.8
	52.4	52.6	52.2	51.6	51.7	52.3	51.9	51.5	51.0	50.4	49.5	49.3	49.2	46.5	46.6	46.9
	30.2	30.4	30.0	29.7	30.0	30.5	30.4	30.1	29.8	29.6	29.0	29.0	28.6	27.1	27.1	27.3
	22.2	22.2	22.2	21.9	21.6	21.8	21.5	21.4	21.2	20.8	20.5	20.4	20.6	19.3	19.6	19.6
	12.0	10.8	10.5	9.6	9.8	9.1	9.2	9.4	10.0	9.8	9.6	9.7	9.0	10.1	11.2	11.0
	11.6	10.5	10.2	9.4	9.6	9.0	9.1	9.3	10.0	9.7	9.6	9.7	9.0	10.0	11.3	11.1
	12.5	11.1	10.8	9.9	10.1	9.2	9.3	9.6	10.1	9.9	9.8	9.7	9.0	10.3	11.2	11.0
	7.1	6.3	6.1	5.5	5.6	5.2	5.3	5.3	5.7	5.5	5.3	5.3	4.9	5.2	5.9	5.8
	4.0	3.6	3.4	3.1	3.2	3.0	3.0	3.1	3.3	3.2	3.1	3.1	2.8	3.0	3.4	3.4
	3.2	2.8	2.7	2.4	2.4	2.2	2.2	2.3	2.4	2.3	2.2	2.2	2.0	2.2	2.5	2.4
	5.0	4.9	4.8	4.8	4.8	4.7	4.8	4.8	4.8	5.1	4.9	4.5	3.9	5.2		
	2.1	2.1	2.1	2.2	2.1	2.1	2.2	2.2	2.2	2.3	2.4	2.1	2.0	2.7		
	3.0	2.7	2.7	2.6	2.6	2.6	2.6	2.6	2.6	2.8	2.5	2.4	2.0	2.5		
	18.8	17.5	17.3	16.7	16.7	16.0	16.3	16.5	17.1	17.3	17.1	16.6	15.2	18.3		
	16.6	15.8	15.6	15.0	15.0	14.4	14.7	15.0	15.7	15.7	15.8	15.2	14.3	17.3		
	21.7	19.9	19.5	18.8	19.0	18.1	18.4	18.6	19.0	19.6	18.8	18.4	16.3	19.6		
	20.9	20.2	20.2	19.5	19.1	18.4	18.6	18.2	18.4	18.2	17.7	17.1	16.7	17.6		
	15.0	14.3	14.3	13.8	13.3	12.5	13.0	12.8	13.4	13.1	12.8	12.5	12.3	13.9		
	27.0	26.3	26.2	25.4	25.0	24.4	24.4	23.8	23.6	23.5	22.9	22.0	21.3	21.4		
	23.8	23.0	22.9	22.1	21.7	21.0	21.4	21.0	21.3	21.1	20.6	19.9	19.4	20.3		
	8.6	8.2	8.2	7.9	7.7	7.3	7.6	7.6	7.9	7.8	7.6	7.4	7.3	8.3		
	15.1	14.7	14.7	14.2	14.0	13.7	13.8	13.5	13.4	13.3	13.0	12.4	12.1	12.1		
	18.7	17.2	14.6	11.3	10.2	8.7	7.7	6.8	6.0	5.2	4.5	4.0	3.3			
	28.7	28.6	28.0	23.9	23.1	22.3	21.5	20.1	18.0	16.8	15.0	13.5	12.9			
	9.8	9.0	7.6	5.8	5.3	4.6	4.0	3.5	3.0	2.6	2.2	2.0	1.6			
	15.0	15.1	14.6	12.3	11.9	11.7	11.1	10.3	9.2	8.5	7.4	6.7	6.4			

Southern Asia

Indicator	Demographic group (Youth)	Unit	2000	2001	2002	2003	2004	2005	2006	
Labour force participation rate	Total	%	44.4	44.4	44.4	44.3	44.2	44.0	42.6	
	Male		64.2	64.1	63.9	63.7	63.5	63.1	61.3	
	Female		23.0	23.1	23.3	23.3	23.3	23.3	22.3	
Labour force	Total	millions	127.8	130.6	133.4	135.6	137.7	139.3	136.6	
	Male		96.0	97.9	99.7	101.4	102.8	103.9	102.3	
	Female		31.8	32.7	33.6	34.3	34.9	35.4	34.3	
Employment-to-population ratio	Total	%	38.0	38.0	38.0	37.9	37.8	37.5	36.3	
	Male		55.3	55.1	55.0	54.8	54.6	54.1	52.6	
	Female		19.4	19.5	19.7	19.7	19.6	19.5	18.7	
Employment	Total	millions	109.5	111.8	114.2	116.1	117.8	118.6	116.4	
	Male		82.6	84.2	85.9	87.2	88.5	89.1	87.7	
	Female		26.8	27.6	28.4	28.9	29.3	29.5	28.7	
Unemployment rate	Total	%	14.3	14.4	14.3	14.4	14.5	14.8	14.8	
	Male		13.9	13.9	13.9	14.0	14.0	14.3	14.3	
	Female		15.7	15.8	15.7	15.7	16.0	16.5	16.2	
Unemployment	Total	millions	18.3	18.8	19.1	19.5	19.9	20.6	20.2	
	Male		13.3	13.6	13.8	14.1	14.4	14.8	14.6	
	Female		5.0	5.2	5.3	5.4	5.6	5.8	5.6	
Potential labour force	Total	millions						5.3	5.5	
	Male							3.5	3.7	
	Female							1.8	1.8	
Combined rate of unemployment and potential labour force	Total	%						17.9	18.1	
	Male							17.1	17.3	
	Female							20.4	20.4	
Rate of young people not in employment, education or training (NEET)	Total	%						31.5	31.5	
	Male							9.7	9.9	
	Female							55.1	54.9	
Number of young people with NEET status	Total	millions						99.6	100.8	
	Male							15.9	16.4	
	Female							83.7	84.3	
Extreme working poverty rate	Total	%	37.6	36.9	36.9	36.1	34.7	32.2	31.6	
Moderate working poverty rate	Total	%	38.4	38.6	38.6	38.6	38.8	39.5	39.3	
Number of young people in extreme working poverty	Total	millions	41.1	41.3	42.2	41.9	40.8	38.2	36.7	
Number of young people in moderate working poverty	Total	millions	42.0	43.2	44.1	44.9	45.7	46.9	45.8	

Note: "Youth" refers to ages 15–24.

Southern Asia

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
	41.2	39.7	38.6	37.4	36.0	34.9	34.1	33.1	32.4	31.7	31.3	30.6	30.6	27.3	28.1	28.5
	59.4	57.5	55.8	54.2	52.5	51.3	50.3	48.8	47.8	46.9	46.3	45.4	45.4	41.1	42.1	42.7
	21.3	20.4	19.8	19.1	18.0	17.1	16.5	16.0	15.6	15.1	14.8	14.2	14.2	12.2	12.6	12.9
	133.3	129.8	126.9	124.0	120.1	117.4	115.4	112.8	111.0	109.2	108.4	106.4	106.9	96.1	99.1	101.0
	100.1	97.8	95.8	93.7	91.4	89.9	88.8	86.8	85.5	84.5	83.9	82.8	83.3	75.7	78.0	79.3
	33.1	32.0	31.2	30.3	28.7	27.5	26.7	25.9	25.5	24.7	24.5	23.6	23.6	20.4	21.1	21.7
	35.0	33.8	32.5	31.5	30.3	29.2	28.4	27.5	26.7	25.9	25.5	24.9	24.9	21.8	21.8	22.6
	50.8	49.1	47.2	45.8	44.2	42.9	41.7	40.5	39.3	38.4	37.8	36.9	37.1	32.7	32.6	33.7
	17.9	17.2	16.6	16.1	15.1	14.3	13.8	13.3	12.8	12.3	12.1	11.6	11.6	9.9	10.0	10.3
	113.3	110.3	107.1	104.6	101.2	98.2	95.9	93.5	91.3	89.4	88.5	86.6	87.3	76.8	77.0	79.9
	85.5	83.4	81.0	79.1	77.0	75.2	73.7	72.0	70.4	69.2	68.6	67.4	68.0	60.2	60.3	62.6
	27.8	26.9	26.1	25.5	24.2	23.0	22.2	21.6	20.9	20.2	19.9	19.2	19.3	16.5	16.7	17.4
	15.0	15.0	15.6	15.6	15.8	16.4	16.9	17.0	17.7	18.1	18.4	18.6	18.4	20.1	22.3	20.9
	14.6	14.6	15.4	15.6	15.7	16.4	17.0	17.1	17.7	18.1	18.3	18.6	18.4	20.5	22.7	21.1
	16.2	16.0	16.2	15.8	15.8	16.1	16.6	16.7	17.9	18.3	18.6	18.6	18.4	18.9	20.7	20.0
	20.0	19.4	19.8	19.4	18.9	19.2	19.5	19.2	19.7	19.8	19.9	19.8	19.7	19.3	22.0	21.1
	14.6	14.3	14.8	14.6	14.4	14.8	15.1	14.9	15.1	15.3	15.4	15.4	15.3	15.5	17.7	16.8
	5.4	5.1	5.1	4.8	4.5	4.4	4.4	4.3	4.6	4.5	4.6	4.4	4.3	3.8	4.4	4.3
	5.6	5.8	5.6	5.8	6.2	6.0	5.7	6.1	5.8	6.1	6.4	6.6	6.2	7.6		
	3.9	4.1	3.9	3.9	4.2	4.1	3.9	4.2	4.1	4.2	4.4	4.6	4.1	5.3		
	1.7	1.8	1.7	1.9	2.0	1.9	1.7	1.9	1.7	1.8	2.0	2.0	2.0	2.4		
	18.4	18.6	19.2	19.4	19.9	20.4	20.8	21.3	21.8	22.4	22.9	23.4	22.8	26.0		
	17.8	18.1	18.7	19.0	19.5	20.1	20.5	21.0	21.4	22.0	22.4	22.9	22.3	25.6		
	20.4	20.4	20.6	20.8	21.1	21.5	21.7	22.3	23.1	23.9	24.6	24.9	24.8	27.3		
	30.9	30.0	29.8	28.9	28.6	28.6	29.1	29.1	29.3	29.3	29.7	30.1	29.3	31.1		
	9.7	9.6	9.9	9.5	9.4	9.5	10.4	10.8	11.3	11.8	12.7	13.5	12.9	15.6		
	53.8	52.2	51.5	50.0	49.5	49.3	49.6	49.1	49.0	48.4	48.4	48.5	47.4	48.3		
	99.9	98.0	98.1	95.8	95.4	96.0	98.5	99.0	100.3	100.9	103.0	104.9	102.6	109.5		
	16.4	16.4	16.9	16.4	16.4	16.7	18.3	19.2	20.3	21.3	23.0	24.5	23.6	28.8		
	83.5	81.7	81.2	79.4	79.0	79.2	80.2	79.8	80.0	79.5	80.0	80.4	78.9	80.7		
	30.1	29.2	28.1	24.4	21.0	19.3	17.6	16.0	14.3	12.7	11.2	10.1	9.7			
	39.4	39.5	39.4	40.0	39.5	38.6	38.1	37.2	36.6	35.3	33.8	32.3	31.2			
	34.1	32.2	30.1	25.5	21.3	18.9	16.8	14.9	13.1	11.4	9.9	8.7	8.4			
	44.7	43.6	42.2	41.8	40.0	37.9	36.6	34.8	33.5	31.5	29.9	28.0	27.2			

Sub-Saharan Africa

Indicator	Demographic group (Youth)	Unit	2000	2001	2002	2003	2004	2005	2006	
Labour force participation rate	Total	%	52.6	52.5	52.4	52.2	52.1	52.0	51.8	
	Male		54.2	54.1	53.9	53.7	53.6	53.4	53.2	
	Female		51.0	50.9	50.9	50.8	50.7	50.6	50.3	
Labour force	Total	millions	67.3	69.0	70.7	72.5	74.3	76.1	77.7	
	Male		34.7	35.5	36.4	37.3	38.2	39.2	40.0	
	Female		32.6	33.4	34.3	35.2	36.1	37.0	37.7	
Employment-to-population ratio	Total	%	47.1	47.0	46.9	46.8	47.0	46.9	46.9	
	Male		48.5	48.3	48.2	48.1	48.3	48.3	48.3	
	Female		45.8	45.8	45.6	45.5	45.6	45.6	45.5	
Employment	Total	millions	60.3	61.8	63.3	64.9	67.0	68.8	70.3	
	Male		31.0	31.8	32.6	33.4	34.5	35.4	36.3	
	Female		29.3	30.0	30.7	31.5	32.5	33.4	34.1	
Unemployment rate	Total	%	10.4	10.4	10.5	10.4	9.9	9.7	9.5	
	Male		10.6	10.6	10.6	10.4	9.8	9.6	9.3	
	Female		10.2	10.2	10.4	10.4	10.1	9.8	9.7	
Unemployment	Total	millions	7.0	7.2	7.4	7.5	7.4	7.4	7.4	
	Male		3.7	3.8	3.8	3.9	3.8	3.8	3.7	
	Female		3.3	3.4	3.6	3.7	3.6	3.6	3.6	
Potential labour force	Total	millions						8.4	8.7	
	Male							3.5	3.6	
	Female							4.9	5.1	
Combined rate of unemployment and potential labour force	Total	%						18.7	18.6	
	Male							17.0	16.8	
	Female							20.4	20.4	
Rate of young people not in employment, education or training (NEET)	Total	%						19.9	19.7	
	Male							15.1	14.9	
	Female							24.8	24.6	
Number of young people with NEET status	Total	millions						29.2	29.6	
	Male							11.1	11.2	
	Female							18.1	18.4	
Extreme working poverty rate	Total	%	60.6	59.1	58.5	59.0	55.8	54.4	53.4	
Moderate working poverty rate	Total	%	20.7	21.6	22.2	22.2	23.8	24.3	24.5	
Number of young people in extreme working poverty	Total	millions	36.5	36.5	37.1	38.3	37.4	37.4	37.5	
Number of young people in moderate working poverty	Total	millions	12.4	13.3	14.0	14.4	15.9	16.7	17.3	

Note: "Youth" refers to ages 15–24.

Sub-Saharan Africa

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
	51.5	51.1	50.6	50.1	49.8	48.8	48.0	47.9	48.0	48.1	48.1	48.0	48.0	45.9	47.0	47.6
	53.0	52.7	52.2	51.7	51.5	50.7	49.9	49.8	49.9	49.9	49.8	49.7	49.5	47.5	48.5	49.1
	50.0	49.6	49.0	48.4	48.1	47.0	46.1	46.0	46.2	46.3	46.4	46.4	46.5	44.2	45.6	46.0
	79.1	80.5	81.7	83.0	84.6	85.0	85.8	88.0	90.7	93.3	96.0	98.6	101.5	99.7	105.2	109.4
	40.8	41.5	42.2	43.0	43.9	44.3	44.8	45.9	47.3	48.7	50.0	51.3	52.7	52.0	54.6	56.9
	38.4	39.0	39.5	40.0	40.7	40.7	41.0	42.1	43.4	44.7	46.0	47.3	48.8	47.7	50.6	52.6
	46.7	46.6	46.1	45.4	45.3	44.4	43.8	43.9	43.9	43.7	43.6	43.4	43.2	40.8	41.7	42.2
	48.1	48.0	47.6	47.0	47.0	46.3	45.8	45.9	45.8	45.7	45.5	45.1	44.7	42.4	43.2	43.8
	45.3	45.2	44.6	43.7	43.5	42.5	41.8	41.9	41.9	41.7	41.7	41.7	41.7	39.2	40.2	40.6
	71.8	73.4	74.4	75.2	76.8	77.4	78.3	80.6	82.9	84.8	87.0	89.2	91.3	88.8	93.3	97.1
	37.0	37.9	38.5	39.0	40.0	40.4	41.1	42.3	43.5	44.5	45.6	46.6	47.5	46.4	48.7	50.7
	34.8	35.5	35.9	36.1	36.8	36.9	37.2	38.3	39.4	40.3	41.4	42.6	43.8	42.4	44.6	46.4
	9.3	8.8	8.9	9.4	9.2	9.0	8.7	8.4	8.6	9.2	9.3	9.6	10.1	11.0	11.3	11.3
	9.1	8.7	8.8	9.1	8.8	8.6	8.3	7.9	8.1	8.5	8.7	9.1	9.9	10.7	10.9	10.8
	9.4	8.9	9.0	9.8	9.5	9.4	9.3	9.0	9.2	9.9	10.0	10.1	10.3	11.2	11.8	11.8
	7.3	7.1	7.3	7.8	7.7	7.7	7.5	7.4	7.8	8.5	9.0	9.5	10.2	10.9	11.9	12.3
	3.7	3.6	3.7	3.9	3.9	3.8	3.7	3.6	3.8	4.1	4.3	4.7	5.2	5.6	5.9	6.2
	3.6	3.5	3.5	3.9	3.9	3.8	3.8	3.8	4.0	4.4	4.6	4.8	5.0	5.4	6.0	6.2
	8.9	8.2	8.6	9.2	9.4	9.5	9.6	9.8	10.0	10.6	11.2	11.7	12.2	13.0		
	3.6	3.2	3.4	3.7	3.7	3.8	3.9	4.0	4.1	4.4	4.7	4.9	5.1	5.5		
	5.3	5.0	5.2	5.6	5.6	5.7	5.7	5.8	6.0	6.2	6.5	6.8	7.1	7.5		
	18.4	17.3	17.6	18.5	18.2	18.1	17.9	17.6	17.7	18.4	18.8	19.2	19.7	21.3		
	16.5	15.3	15.6	16.3	16.0	15.8	15.6	15.2	15.4	16.1	16.5	17.1	17.9	19.3		
	20.4	19.3	19.5	20.8	20.5	20.5	20.3	20.1	20.2	20.9	21.2	21.4	21.6	23.3		
	19.7	19.4	19.4	19.6	19.5	19.4	18.9	19.0	19.1	19.8	20.0	20.3	20.8	21.8		
	14.9	14.6	14.7	14.8	14.6	14.6	14.3	14.3	14.6	15.3	15.5	15.8	16.4	17.9		
	24.6	24.2	24.2	24.4	24.4	24.1	23.5	23.7	23.7	24.3	24.6	24.9	25.2	25.7		
	30.3	30.5	31.4	32.5	33.1	33.7	33.8	34.9	36.1	38.4	40.0	41.8	43.9	47.4		
	11.5	11.5	11.9	12.3	12.4	12.8	12.9	13.2	13.8	14.9	15.6	16.3	17.4	19.6		
	18.9	19.0	19.5	20.1	20.7	20.9	20.9	21.6	22.3	23.5	24.4	25.4	26.4	27.8		
	52.2	51.2	51.3	50.0	47.8	46.2	45.6	44.8	44.5	44.1	43.2	42.3	41.4			
	24.9	25.4	25.4	25.9	26.7	27.0	27.1	27.2	27.2	27.1	26.8	26.7	26.4			
	37.5	37.6	38.2	37.6	36.7	35.8	35.7	36.1	36.9	37.4	37.6	37.7	37.8			
	17.9	18.7	18.9	19.5	20.5	20.9	21.2	21.9	22.5	23.0	23.4	23.8	24.1			

▶ Appendix D. The E3ME model of Cambridge Econometrics and the baseline scenario

Overview

E3ME is a computer-based model of the world's economic and energy systems and the environment. It was originally developed under the European Commission's research framework programmes and is now widely used in Europe and beyond for policy assessment, forecasting and research purposes. The global version of E3ME features:

- wider geographical coverage;
- improved modelling of interactions between individual European countries and other world economies;
- improved modelling of international trade, including bilateral trade between regions; and
- new submodules on technology diffusion.

The description in this appendix provides a short summary of the E3ME model.[1] For further details, the full technical manual available from https://www.e3me.com/ should be consulted.

Basic structure and data

The structure of E3ME is based on the system of national accounts, with further linkages to energy demand and environmental emissions. The labour market is covered in detail, including both voluntary and involuntary unemployment. In total there are 33 sets of econometrically estimated equations, also including the components of GDP (consumption, investment, international trade), prices, energy demand and materials demand. Each equation set is disaggregated by country and by sector.

The E3ME historical database covers the period 1970–2020 and the model gives projections for every year up to 2100. The main data sources for European countries are Eurostat and the International Energy Agency (IEA), supplemented by the OECD's STAN (Structural Analysis) database and other sources where appropriate. For regions outside Europe, additional data sources include the United Nations, the OECD, the World Bank, the International Monetary Fund (IMF), the ILO and national statistics. Gaps in the data are estimated using customized software algorithms.

Main dimensions of the model

The main dimensions of E3ME are:

- 70 global regions, including all G20 and EU Member States explicitly, plus a set of regions to meet global totals;
- 43 economic sectors in each region, with additional detail in Europe;
- a time frame covering every year from 1970 to 2050;
- 43 categories of household expenditure;
- 22 different users of 12 different fuel types; and
- 14 types of airborne emission (where data are available), including the six greenhouse gases (GHGs) monitored under the Kyoto Protocol.

[1] It is based on the description given in I²AM Paris (Integrating Integrated Assessment Modelling in Support of the Paris Agreement), "The E3ME-FTT Model". https://www.i2am-paris.eu/detailed_model_doc/e3me.

Standard outputs from the model

As a general model of the economy, based on the full structure of national accounts, E3ME is capable of producing a broad range of economic indicators. In addition, it features a range of energy and environment indicators. The following list provides a summary of the most common model outputs:

- GDP and the aggregate components of GDP (household expenditure, investment, government expenditure and international trade);
- sectoral output and gross value added, prices, trade and competitiveness effects;
- international trade by sector, origin and destination;
- consumer prices and expenditures;
- sectoral employment, unemployment, sectoral wage rates and labour supply;
- energy demand, by sector and by fuel, energy prices;
- CO_2 emissions by sector and by fuel;
- other airborne emissions; and
- materials demand.

This list is by no means exhaustive and the outputs delivered often depend on the requirements of the specific application of the model. In addition to the sectoral dimension mentioned in the list, all indicators are produced at the national and regional level and for every year up to 2100.

Economic module

Figure D.1 shows how E3ME's economic module is solved for each region. Most of the economic variables shown in the figure are solved at the sectoral level. The whole system is solved simultaneously for all industries and all regions, although single-country solutions are also possible.

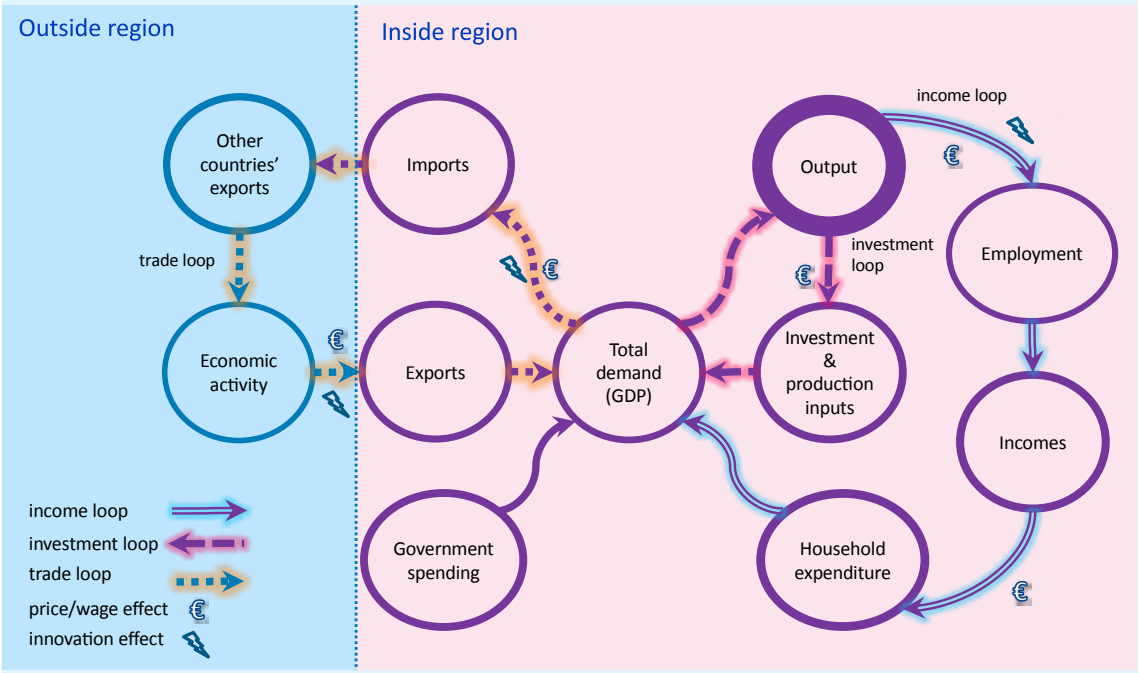
The loops of interdependency

As figure D.1 suggests, output and employment are determined by levels of demand, unless there are constraints on available supply. The figure shows three loops, or circuits, of economic interdependence, which are described below. In addition, there is an interdependency between the sectors that is not shown in the figure. The full set of loops comprises:

- Interdependency between sectors: if one sector increases output, it will buy more inputs from its suppliers, which will in turn purchase from their own suppliers. This is similar to a type I multiplier.
- The income loop: if a sector increases output, it may also increase employment, leading to higher incomes and additional consumer spending. This in turn feeds back into the economy, through a type II multiplier.
- The investment loop: when firms increase output (and expect higher levels of future output) they must also increase production capacity by investing. This creates demand for the production of the sectors that produce investment goods (such as construction and engineering) and their supply chains.
- The trade loop: some of the increase in demand described above will be met by imported goods and services. This leads to higher demand and production levels in other countries. Hence there is also a loop between countries.

A detailed description of how each component of demand is calculated can be found in the technical manual for the model. Below is a short summary of recently updated features.

▶ Figure D.1 Basic economic structure of the E3ME model



Source: I²AM Paris, "The E3ME-FTT Model". https://www.i2am-paris.eu/detailed_model_doc/e3me.

Treatment of international trade

An important part of the modelling concerns international trade. E3ME solves for detailed bilateral trade between regions (similar to a two-tier Armington model). Trade is modelled in three stages:

- econometric estimation of regions' sectoral import demand;
- econometric estimation of regions' bilateral imports from each partner; and
- forming exports from other regions' import demands.

Trade volumes are determined by a combination of economic activity indicators, relative prices and technology.

The labour market

Treatment of the labour market is an area that distinguishes E3ME from other macroeconomic models. E3ME includes econometric equation sets for employment, average working hours, wage rates and participation rates. The first three of these are disaggregated by economic sector, while participation rates are disaggregated by sex and five-year age band.

The labour force is determined by multiplying labour market participation rates by population. Unemployment (including both voluntary and involuntary unemployment) is determined by taking the difference between the labour force and employment. This is typically a key variable of interest for policymakers.

There are important interactions between the labour market equations. They are summarized below:

- Employment = F (Economic output, Wage rates, Working hours...)
- Wage rates = F (Labour productivity, Unemployment...)
- Working hours = F (Economic output in relation to capacity...)
- Participation rates = F (Economic output, Wage rates, Working hours...)
- Labour supply = Participation rate * Population
- Unemployment = Labour supply – Employment

The full specification for the econometric equations can be found in the technical manual.

The role of technology

Technological progress plays an important role in the E3ME model, affecting all three E's: economy, energy and environment. The model's endogenous technical progress indicators, a function of research and development (R&D) and gross investment, appear in nine of E3ME's econometric equation sets, including trade, the labour market and prices. Investment in and R&D into new technologies also appear in the E3ME's energy and material demand equations to capture energy/resource savings technologies and pollution control equipment. In addition, E3ME also captures low-carbon technologies in the power sector through the FTT (Future Technology Transformations) power sector model.

Comparison with computable general equilibrium models and econometric specification

E3ME is often compared with computable general equilibrium (CGE) models. In many ways the modelling approaches are similar: they are used to answer similar questions and use similar inputs and outputs. However, there are important theoretical differences between them.

In a typical CGE framework, optimal behaviour is assumed, output is determined by supply-side constraints and prices adjust fully so that all the available capacity is used. In E3ME, output is determined on the basis of a post-Keynesian framework and it is possible to have spare capacity. The model is more demand-driven and it is not assumed that prices always adjust to market-clearing levels.

The differences have important practical implications, as they mean that, in E3ME, regulation and other policy interventions may lead to increases in output if they are able to draw on spare economic capacity. This is described in more detail in the technical manual for the model.

The econometric specification of E3ME gives the model a strong empirical grounding. E3ME uses a system of error correction, allowing short-term dynamic (or transition) outcomes, moving towards a long-term trend. The dynamic specification is important when considering short- and medium-term analysis (for example, up to 2020) and rebound effects, which are included by default in the model's results.

Key strengths of E3ME

In summary, the key strengths of E3ME are:

- the close integration of the economy, energy systems and the environment, with two-way linkages between each component;
- the detailed sectoral disaggregation in the model's classifications, allowing for the analysis of similarly detailed scenarios;
- its global coverage, while still allowing for analysis at the national level for large economies;
- the econometric approach, which provides a strong empirical basis for the model and means that it is not reliant on some of the restrictive assumptions common to CGE models; and
- the econometric specification of the model, which makes it suitable for the assessment of short-, medium- and longer-term trends.

Limitations of the approach

As with all modelling approaches, E3ME is a simplification of reality and is based on a series of assumptions. Compared with other macroeconomic modelling approaches, the assumptions are relatively non-restrictive, since most relationships are determined by the historical data in the model database. This does, however, present its own limitations, of which users must be aware:

- The quality of the data used in the modelling is very important. Substantial resources are invested in maintaining the E3ME database and filling gaps in the data. However, for developing countries in particular, there is some uncertainty in the results owing to the data used.
- Econometric approaches are also sometimes criticized for using the past to explain future trends. In cases where there is large-scale policy change, the "Lucas critique" that suggests the possibility of changes in behaviour is also applicable. There is no solution to this argument when using any modelling approach (as no one can predict the future), but it is important to be always aware of the uncertainty in results obtained from the model.

The other main limitation of the E3ME approach has to do with the model's dimensions. In general, it is very difficult to go into a level of detail beyond that offered by the model classifications. This means that subnational and subsectoral analysis are hard to perform. Similarly, although usually less relevant, attempting to assess impacts on a monthly or quarterly basis would not be possible.

Baseline scenario

The baseline scenario represents a business-as-usual case, and seeks to include most regional policies confirmed by 2020. The specific date may vary slightly between regions, depending on the sources of information used.

Economic growth

The E3ME baseline scenario includes preliminary COVID-19 impacts (2020 only) based on official economic projections from the European Commission (specifically the Directorate-General for Economic and Financial Affairs), the IMF and the World Bank; the latest cost assumptions for renewable energy technologies from the IEA *World Energy Outlook 2019*; and stated energy and environmental policies before the COVID-19 crisis from the IEA *World Energy Outlook 2020*. For EU countries, the GHG emissions profile in the baseline scenario is similar to that of the baseline used in the European Commission's Climate Target Plan. In this baseline scenario, GHG emissions by 2030 are around 45 per cent below 1990 levels. For non-EU countries, the GHG emissions profile in the E3ME baseline is similar to that in the IEA *World Energy Outlook 2020*.

The short-term GDP growth forecasts are based on European Commission forecasts from May 2021 and IMF forecasts from January 2021, while the long-term forecasts are based on the European Commission's *2021 Ageing Report* and the IEA *World Energy Outlook 2020* for EU and non-EU countries, respectively.

Population

The population projection (by age group) in the baseline scenario is based on the EUROPOP2019 projections (produced by Eurostat in April 2020) for EU countries and the United Nations *2019 Revision of World Population Prospects* for non-EU countries.

Employment by age

The estimates of employment by age patterns within sectors are based on labour force survey data from ILOSTAT. It was assumed that the distribution of employment by age in a sector depends on wages received by each age group, hours worked by each age group and the labour force ratio between the age groups. Unfortunately, the low data availability for employment, wages and hours worked by age and sector does not allow for the use of multiple regression estimation of the share of youth employment in each economic sector (at the ISIC Rev.4 one-digit level) for all countries. Such data were available for fewer than 10 per cent of the countries in the sample. For the countries and sectors where data for employment by age were available for more than ten years, linear trend estimation was used to estimate the share of youth employment in each economic sector by 2030. For the countries where data covering fewer than ten years were available, the share of youth employment in each economic sector was estimated as the average of available data. For countries where data were not available, the distribution of youth employment in each sector was based on a neighbouring country.

Caveats

The chosen method of estimation delivers the most robust estimates considering the availability of data. The current projection of the share of youth employment in each sector should be regarded as conservative. The share of youth employment is expected to increase in sectors where the demand for digital skills is higher, while sectors that are expected to shrink will be less attractive for young people. Moreover, in developing countries, where the share of young people in the labour force is increasing, a more rapid change in the age distribution of sectoral employment should be expected compared with these projections.

Employment by sex

The estimates of employment by age and sex patterns within sectors were based on labour force survey data from ILOSTAT. In each country, the distribution of youth employment by sex by 2030 was estimated on the basis of the average share of each sex and age group in each sector in the last five years, depending on the data availability. As with employment by age, for countries where data were not available, the sex-disaggregated distribution of youth employment in each sector was based on a neighbouring country.

Caveats

The method for estimating the share of each sex in youth sectoral employment depends on the data availability when disaggregating by sex and the method used to estimate the age distribution in each sector. This method does not take into account the possible changes in the sex-disaggregated distribution of sectoral employment that may result from gender equality measures intended to help achieve SDG 5.

Appendix references

I2AM Paris (Integrating Integrated Assessment Modelling in Support of the Paris Agreement). n.d. "The E3ME-FTT Model". https://www.i2am-paris.eu/detailed_model_doc/e3me-ftt.

▶ Appendix E. Correspondence between ILO countries/country groupings/sectors and E3ME regions/sectors

▶ Table E.1 Correspondence between E3ME regions and ILO countries and territories

REG order	E3ME region name	E3ME code	ILO country or territory name
1	Belgium	BE	Belgium
2	Denmark	DK	Denmark
3	Germany	DE	Germany
4	Greece	EL	Greece
5	Spain	ES	Spain
6	France	FR	France
7	Ireland	IE	Ireland
8	Italy	IT	Italy
9	Luxembourg	LX	Luxembourg
10	Netherlands	NL	Netherlands
11	Austria	AT	Austria
12	Portugal	PT	Portugal
13	Finland	FI	Finland
14	Sweden	SW	Sweden
15	UK	UK	United Kingdom of Great Britain and Northern Ireland
16	Czech Republic	CZ	Czechia
17	Estonia	EN	Estonia
18	Cyprus	CY	Cyprus
19	Latvia	LV	Latvia
20	Lithuania	LT	Lithuania
21	Hungary	HU	Hungary
22	Malta	MT	Malta
23	Poland	PL	Poland
24	Slovenia	SI	Slovenia
25	Slovakia	SK	Slovakia
26	Bulgaria	BG	Bulgaria
27	Romania	RO	Romania
28	Norway	NO	Norway
29	Switzerland	CH	Switzerland
30	Iceland	IS	Iceland
31	Croatia	HR	Croatia
32	Turkey	TR	Türkiye

REG order	E3ME region name	E3ME code	ILO country or territory name
33	Macedonia	MK	North Macedonia
34	USA	US	United States of America
35	Japan	JA	Japan
36	Canada	CA	Canada
37	Australia	AU	Australia
38	New Zealand	NZ	New Zealand
39	Russian Federation	RS	Russian Federation
40	Rest of Annex I	RA	Belarus
41	China	CN	China
42	India	IN	India
43	Mexico	MX	Mexico
44	Brazil	BR	Brazil
45	Argentina	AR	Argentina
46	Colombia	CO	Colombia
47	Rest of Latin America	LA	Bolivia (Plurinational State of)
47	Rest of Latin America	LA	Chile
47	Rest of Latin America	LA	Ecuador
47	Rest of Latin America	LA	Peru
47	Rest of Latin America	LA	Costa Rica
47	Rest of Latin America	LA	Cuba
47	Rest of Latin America	LA	Ecuador
47	Rest of Latin America	LA	El Salvador
47	Rest of Latin America	LA	Guatemala
47	Rest of Latin America	LA	Guyana
47	Rest of Latin America	LA	Haiti
47	Rest of Latin America	LA	Honduras
47	Rest of Latin America	LA	Nicaragua
47	Rest of Latin America	LA	Panama
47	Rest of Latin America	LA	Paraguay
47	Rest of Latin America	LA	Peru
47	Rest of Latin America	LA	Puerto Rico
47	Rest of Latin America	LA	Suriname
47	Rest of Latin America	LA	Trinidad and Tobago
47	Rest of Latin America	LA	Uruguay
47	Rest of Latin America	LA	Venezuela (Bolivarian Republic of)
48	Korea	KR	Republic of Korea
49	Taiwan	TW	Taiwan, China

REG order	E3ME region name	E3ME code	ILO country or territory name
50	Indonesia	ID	Indonesia
51	ASEAN	AS	Thailand
51	ASEAN	AS	Cambodia
51	ASEAN	AS	Lao People's Democratic Republic
51	ASEAN	AS	Myanmar
51	ASEAN	AS	Philippines
51	ASEAN	AS	Singapore
51	ASEAN	AS	Viet Nam
52	OPEC (excl. Venezuela)	OP	Iran (Islamic Republic of)
52	OPEC (excl. Venezuela)	OP	Iraq
52	OPEC (excl. Venezuela)	OP	Kuwait
52	OPEC (excl. Venezuela)	OP	Qatar
53	Rest of world	RW	Everything else not specified elsewhere
54	Ukraine	UE	Ukraine
55	Saudi Arabia	SD	Saudi Arabia
56	Nigeria	NG	Nigeria
57	South Africa	SA	South Africa
58	North Africa OPEC	ON	Algeria
58	North Africa OPEC	ON	Libya
59	Central Africa OPEC	OC	Angola
59	Central Africa OPEC	OC	Congo
59	Central Africa OPEC	OC	Equatorial Guinea
59	Central Africa OPEC	OC	Gabon
60	Malaysia	MY	Malaysia
61	Kazakhstan	KZ	Kazakhstan
62	Rest of North Africa	AN	Morocco
62	Rest of North Africa	AN	Sudan
62	Rest of North Africa	AN	Tunisia
62	Rest of North Africa	AN	Western Sahara
63	Rest of Central Africa	AC	Cameroon
63	Rest of Central Africa	AC	Central African Republic
63	Rest of Central Africa	AC	Chad
63	Rest of Central Africa	AC	Sao Tome and Principe
64	Rest of West Africa	AW	Benin
64	Rest of West Africa	AW	Burkina Faso
64	Rest of West Africa	AW	Cabo Verde
64	Rest of West Africa	AW	Côte d'Ivoire

REG order	E3ME region name	E3ME code	ILO country or territory name
64	Rest of West Africa	AW	Gambia
64	Rest of West Africa	AW	Ghana
64	Rest of West Africa	AW	Guinea
64	Rest of West Africa	AW	Guinea-Bissau
64	Rest of West Africa	AW	Liberia
64	Rest of West Africa	AW	Mali
64	Rest of West Africa	AW	Mauritania
64	Rest of West Africa	AW	Niger
64	Rest of West Africa	AW	Senegal
64	Rest of West Africa	AW	Sierra Leone
64	Rest of West Africa	AW	Togo
65	Rest of East Africa	AE	Burundi
65	Rest of East Africa	AE	Comoros
65	Rest of East Africa	AE	Djibouti
65	Rest of East Africa	AE	Eritrea
65	Rest of East Africa	AE	Ethiopia
65	Rest of East Africa	AE	Mauritius
65	Rest of East Africa	AE	Rwanda
65	Rest of East Africa	AE	Seychelles
65	Rest of East Africa	AE	Somalia
65	Rest of East Africa	AE	South Sudan
65	Rest of East Africa	AE	United Republic of Tanzania
65	Rest of East Africa	AE	Uganda
66	Rest of Southern Africa	ZA	Botswana
66	Rest of Southern Africa	ZA	Eswatini
66	Rest of Southern Africa	ZA	Lesotho
66	Rest of Southern Africa	ZA	Madagascar
66	Rest of Southern Africa	ZA	Malawi
66	Rest of Southern Africa	ZA	Mozambique
66	Rest of Southern Africa	ZA	Namibia
66	Rest of Southern Africa	ZA	Zambia
66	Rest of Southern Africa	ZA	Zimbabwe
67	Egypt	EG	Egypt
68	Democratic Republic of Congo	DC	Democratic Republic of the Congo
68	Kenya	KE	Kenya
70	United Arab Emirates	UA	United Arab Emirates

ASEAN = Association of Southeast Asian Nations; OPEC = Organization of the Petroleum Exporting Countries.

▶ Table E.2 Correspondence between ILO geographical regions and E3ME regions

ILO region	E3ME region
Africa	Central Africa OPEC
Africa	Democratic Republic of Congo
Africa	Egypt
Africa	Kenya
Africa	Nigeria
Africa	North Africa OPEC
Africa	Rest of East Africa
Africa	Rest of Central Africa
Africa	Rest of North Africa
Africa	Rest of Southern Africa
Africa	Rest of West Africa
Africa	South Africa
Americas	Argentina
Americas	Brazil
Americas	Canada
Americas	Colombia
Americas	Mexico
Americas	Rest of Latin America
Americas	USA
Arab States	OPEC (excl. Venezuela)
Arab States	Saudi Arabia
Arab States	United Arab Emirates
Asia and the Pacific	ASEAN
Asia and the Pacific	Australia
Asia and the Pacific	China
Asia and the Pacific	India
Asia and the Pacific	Indonesia
Asia and the Pacific	Japan
Asia and the Pacific	Korea
Asia and the Pacific	Malaysia
Asia and the Pacific	New Zealand
Asia and the Pacific	Taiwan
Europe and Central Asia	Austria
Europe and Central Asia	Belgium
Europe and Central Asia	Bulgaria
Europe and Central Asia	Croatia
Europe and Central Asia	Cyprus
Europe and Central Asia	Czech Republic
Europe and Central Asia	Denmark
Europe and Central Asia	Estonia
Europe and Central Asia	Finland
Europe and Central Asia	France
Europe and Central Asia	Germany
Europe and Central Asia	Greece
Europe and Central Asia	Hungary
Europe and Central Asia	Iceland
Europe and Central Asia	Ireland
Europe and Central Asia	Italy
Europe and Central Asia	Kazakhstan
Europe and Central Asia	Latvia
Europe and Central Asia	Lithuania
Europe and Central Asia	Luxembourg
Europe and Central Asia	Macedonia
Europe and Central Asia	Malta
Europe and Central Asia	Netherlands
Europe and Central Asia	Norway
Europe and Central Asia	Poland
Europe and Central Asia	Portugal
Europe and Central Asia	Rest of Annex I
Europe and Central Asia	Romania
Europe and Central Asia	Russian Federation
Europe and Central Asia	Slovakia
Europe and Central Asia	Slovenia
Europe and Central Asia	Spain
Europe and Central Asia	Sweden
Europe and Central Asia	Switzerland
Europe and Central Asia	Turkey
Europe and Central Asia	UK
Europe and Central Asia	Ukraine
Rest of the World	Rest of world

ASEAN = Association of Southeast Asian Nations; OPEC = Organization of the Petroleum Exporting Countries.

▶ Table E.3 Correspondence between E3ME regions and ILO country income groups

E3ME region	ILO country income group
Australia	High income
Austria	High income
Belgium	High income
Canada	High income
Croatia	High income
Cyprus	High income
Czech Republic	High income
Denmark	High income
Estonia	High income
Finland	High income
France	High income
Germany	High income
Greece	High income
Hungary	High income
Iceland	High income
Ireland	High income
Italy	High income
Japan	High income
Korea	High income
Latvia	High income
Lithuania	High income
Luxembourg	High income
Malta	High income
Netherlands	High income
New Zealand	High income
Norway	High income
Poland	High income
Portugal	High income
Saudi Arabia	High income
Slovakia	High income
Slovenia	High income
Spain	High income
Sweden	High income
Switzerland	High income
Taiwan	High income
UK	High income
United Arab Emirates	High income
USA	High income
Democratic Republic of Congo	Low income
Rest of East Africa	Low income
Rest of Central Africa	Low income
ASEAN	Lower-middle income
Central Africa OPEC	Lower-middle income
Egypt	Lower-middle income
India	Lower-middle income
Indonesia	Lower-middle income
Kenya	Lower-middle income
Nigeria	Lower-middle income
Rest of North Africa	Lower-middle income
Rest of Southern Africa	Lower-middle income
Rest of West Africa	Lower-middle income
Ukraine	Lower-middle income
Rest of world	Rest of the world
Argentina	Upper-middle income
Brazil	Upper-middle income
Bulgaria	Upper-middle income
China	Upper-middle income
Colombia	Upper-middle income
Kazakhstan	Upper-middle income
Macedonia	Upper-middle income
Malaysia	Upper-middle income
Mexico	Upper-middle income
North Africa OPEC	Upper-middle income
OPEC (excl. Venezuela)	Upper-middle income
Rest of Annex I	Upper-middle income
Rest of Latin America	Upper-middle income
Romania	Upper-middle income
Russian Federation	Upper-middle income
South Africa	Upper-middle income
Turkey	Upper-middle income

ASEAN = Association of Southeast Asian Nations; OPEC = Organization of the Petroleum Exporting Countries.

▶ Table E.4 Correspondence between sectoral aggregation and E3ME sectors

Sectoral aggregation	E3ME sector
Agriculture and forestry	▶ Agriculture etc. ▶ Forestry
Extractive industries	▶ Coal ▶ Oil and gas etc. ▶ Other mining
Other manufacturing	▶ Food, drink and tobacco ▶ Textiles, clothing and leather ▶ Wood and paper ▶ Printing and publishing ▶ Manufacture not elsewhere specified ▶ Motor vehicles ▶ Other transport equipment
Manufacture of chemicals, metallic, non-metallic and related products	▶ Manufacture of fuels ▶ Pharmaceuticals ▶ Chemicals not elsewhere specified ▶ Rubber and plastics ▶ Non-metallic mineral products ▶ Basic metals ▶ Metal goods
Manufacture of electronic and related products	▶ Mechanical engineering ▶ Electronics ▶ Electrical engineering and instrumentation
Energy and utilities	▶ Electricity ▶ Gas supply ▶ Water supply
Construction	▶ Construction
Distribution, retail, hotels and catering	▶ Distribution ▶ Retailing ▶ Hotels and catering
Transport and storage	▶ Land transport etc. ▶ Water transport ▶ Air transport
Communications	▶ Communications ▶ Computing services
Other services	▶ Banking and finance ▶ Insurance ▶ Professional services ▶ Other business services ▶ Miscellaneous services
Education	▶ Education
Health and social work	▶ Health and social work
Public administration and defence	▶ Public administration and defence

Appendix F. ILO Digital and Creative micro-database

The ILO's Digital and Creative micro-database was constructed using two distinct taxonomies, presented in Calvino et al. (2018) and UNESCO (2014), which involve identifying digital and creative workers, respectively, on the basis of economic activity and categorizing workers into "digital employment" , corresponding to employment in sectors of economic activity characterized by high digital intensity, and "creative employment" using the two-digit codes from Revision 4 of the International Standard Industrial Classification of All Economic Activities (ISIC Rev.4).[1] As shown in table F1, economic activities have been broken down according to the level of digital intensity (high, medium or low); creative sectors have been marked in red.

Table F.1 Taxonomies used in the ILO Digital and Creative micro-database

Sectoral aggregation	Sectors	Digital intensity and creative economic sectors based on ISIC Rev.4 two-digit codes		
		High digital intensity	Medium digital intensity	Low digital intensity
Agriculture	A			01–03
Industry	B, C, D, E, F	**29–30**	13–17, 18, 19–28, 31–33	05–12, 35–39, 41–43
Trade, transport and accommodation	G, H, I		45–47	49–56
Communications, financial and professional services	J, K, L, M, N	**61, 62–66, 69–73, 74, 75-82**	58, 59, 60	68
Care services	P, Q		85–88	
Other non-market services	O, R, S	**94-96**	84, 90, 91, 92, 93	

Note: The ISIC Rev.4 two-digit codes of digital (HDI) sectors are shown in bold and creative sectors are shown in red.

Countries had to meet two conditions to be included in the micro-database and thus in the analysis. First, for each country, labour force surveys or household surveys had to be available for 2013 (or the nearest year), 2018 and 2020 to ensure that the countries in the sample and, in turn, sample estimates are comparable over different periods. Second, among the countries with microdata for those years, only those that had data at the ISIC Rev.4 two-digit level were included.

As a result of applying these criteria, the Digital and Creative micro-database ended up containing a diverse set of 28 countries, implying a total of 84 surveys. Table F2 indicates the surveys used for each country for each of the three years.

When constructing the Digital and Creative micro-database, all countries' microdata were aggregated for each year before conducting any estimations, so as to obtain population-weighted estimates and thus correct for imperfections in the sample that might lead to significant divergence between the sample and the reference population. It is important to note that although the results of the analysis are indicative of digital and creative employment in terms of quantity and characteristics, the sample coverage is by no means representative of global employment in digital and creative sectors.

[1] For a more detailed description of how digital and creative employment are estimated, see boxes 3.1 and 3.3 in Chapter 3, respectively.

▶ Table F.2 Countries and territories included in the ILO Digital and Creative micro-database and surveys consulted

Country/territory	ILO region	Country income group	Survey
Austria	Europe and Central Asia	High-income	Labour force survey
Bolivia (Plurinational State of)	Americas	Lower-middle income	Encuesta Continua de Empleo (LFS)
Bosnia and Herzegovina	Europe and Central Asia	Upper-middle income	Labour force survey
Brazil	Americas	Upper-middle income	Pesquisa Nacional por Amostra de Domicílios Contínua (HS)
Colombia	Americas	Upper-middle income	Gran Encuesta Integrada de Hogares (LFS)
Cyprus	Europe and Central Asia	High-income	Labour force survey
Dominican Republic	Americas	Upper-middle income	Encuesta Nacional Continua de Fuerza de Trabajo (LFS)
Ecuador	Americas	Upper-middle income	Encuesta Nacional de Empleo, Desempleo y Subempleo (LFS)
France	Europe and Central Asia	High-income	Labour force survey
Greece	Europe and Central Asia	High-income	Labour force survey
Italy	Europe and Central Asia	High-income	Labour force survey
North Macedonia	Europe and Central Asia	Upper-middle income	Labour force survey
Mali	Africa	Low-income	Enquête Emploi Permanente Auprès des Ménages (LFS)
Mexico	Americas	Upper-middle income	Encuesta Nacional de Ocupación y Empleo (LFS)
Mongolia	Asia and Pacific	Lower-middle income	Labour force survey
Myanmar	Asia and Pacific	Lower-middle income	Labour force survey
Occupied Palestinian Territory	Arab States	Lower-middle income	Labour force survey
Peru	Americas	Upper-middle income	Encuesta Nacional de Hogares (HS)
Philippines	Asia and Pacific	Lower-middle income	Labour force survey
Portugal	Europe and Central Asia	High-income	Labour force survey
Seychelles	Africa	High-income	Labour force survey
Slovakia	Europe and Central Asia	High-income	Labour force survey
Switzerland	Europe and Central Asia	High-income	Enquête suisse sur la population active (LFS)
Thailand	Asia and Pacific	Upper-middle income	Labour force survey
Türkiye	Europe and Central Asia	Upper-middle income	Labour force survey
United Kingdom	Europe and Central Asia	High-income	Labour force survey
United States	Americas	High-income	Current Population Survey (LFS)
Viet Nam	Asia and Pacific	Lower-middle income	Labour force survey

HS = household survey; LFS = labour force survey.

Note: Instead of 2013, survey data are from 2015 for the Dominican Republic and Myanmar, and from 2014 for Seychelles. For all other countries, surveys from 2013, 2018 and 2020 were used.

Appendix references

Calvino, Flavio, Chiara Criscuolo, Luca Marcolin and Mariagrazia Squicciarini. 2018. "A Taxonomy of Digital Intensive Sectors", OECD Science, Technology and Industry Working Paper No. 2018/14.

UNESCO (United Nations Educational, Scientific and Cultural Organization). 2014. *Culture for Development Indicators: Methodology Manual*.

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