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Employment Situation in Latin America and the Caribbean

Environmental sustainability
and employment in Latin America
and the Caribbean



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Employment Situation in Latin America and the Caribbean is a twice-yearly report prepared jointly by the Economic Development Division of the Economic Commission for Latin America and the Caribbean (ECLAC) and the Office for the Southern Cone of Latin America of the International Labour Organization (ILO), headed by Daniel Titelman and Fabio Bertranou, respectively. Work on the document was coordinated by Gerhard Reinecke, Senior Expert on Employment Policies of ILO, and Jürgen Weller, Chief of the Employment Studies Unit of the Economic Development Division of ECLAC.

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Foreword

After increasing year-on-year for seven consecutive semesters, the urban open unemployment rate posted a first —albeit very small— decline of 0.1 percentage point in Latin America and the Caribbean in the first half of 2018, reflecting a year-on-year rise of 0.2 percentage points in the employment rate and marginally slower growth in participation. The increases in both the employment and participation rates are being driven by women’s growing integration into the labour market.

An expansion of own-account work in 2018 indicates a fresh deterioration in average employment quality, since this category tends to be characterized by more precarious working conditions than wage employment, especially at times of slow growth, as at present. Real wages continued to post modest gains in most countries, but in general at lower rates than in 2017.

Throughout the year, unemployment has fallen less than had been projected at the end of 2017, amid weaker-than-expected economic growth in the region. The growth projection for the year came down from 2.2% at the end of 2017 to 1.3% in October 2018. In this less optimistic scenario, urban unemployment will change little in the average with respect to 2017, standing again about 9.3% for 2018 overall. In these conditions, labour market and social protection policies will remain crucial for safeguarding well-being.

The second part of this report addresses the region’s environmental challenges and their multiple linkages with the generation of productive employment and decent work. Latin America and the Caribbean, the world’s most biodiverse region, is losing its natural endowment to the environmental degradation caused by the prevailing development model. Environmental deterioration also does damage in the labour sphere, so a transition towards a more sustainable model is urgent from the standpoints of both the environment and employment.

Environmental and labour standards can often be improved simultaneously. For example, it is projected that transitioning towards energy sustainability would create over a million jobs in Latin America and the Caribbean by 2030. The transition to a circular economy —in which materials are made more efficient and given a longer useful life by promoting durability and capacities to repair, remanufacture, reuse and recycle goods— would also benefit employment in the region. Making the shift to a circular economy would create a net total of 4.8 million jobs in Latin America and the Caribbean by 2030. Job creation in sectors such as the reprocessing of wood, steel, aluminium and other metals would more than offset the job losses in sectors such as the extraction of minerals and other materials. However, environmental transitions also pose labour-related challenges and require the right skills to be developed.

There are already some standards, legal frameworks and policies existing at the national and international levels to support an environmental transition geared towards creating employment and decent work. In fact, a number of multilateral environmental conventions make direct reference to international labour standards: this is the case of the United Nations Convention on the Law of the Sea (1982), the International Tropical Timber Agreement (2006) and the Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships (2009). These Conventions treat international labour standards as relevant legal frameworks for implementation. The Paris Agreement adopted under the United Nations Framework Convention on Climate Change (2015) also alludes to key labour-related matters.

At the national level and returning to the example of the energy transition, including labour considerations in legal frameworks is the first step towards ensuring a just energy transition capable of providing decent work. In a sample of seven Latin American and Caribbean countries, six have legislation specific to the energy sector that make explicit mention of skills development and research and development; five have legal frameworks that make general reference to work; and four refer to job creation. However, none make reference to social dialogue, which is an important mechanism for moving towards a just transition.

Payments for environmental services can also contribute to the achievement of social and environmental objectives. Ecosystem services are generally not market-based and are provided at no cost; as a result, there is no incentive to maintain them. Payments for environmental services can thus generate incentives for environmental conservation while generating income for individuals and communities. In some circumstances, payments for environmental services can also help poverty eradication efforts. This is the rationale of the Payment for Environmental Services programmes in Costa Rica and Mexico and of Brazil's *Bolsa Verde* scheme, which provides cash transfers to households and vulnerable communities in exchange for forestry protection services.

Policy complementarity is key to bringing about a transition that is just for all and capable of generating decent work. Policies for environmental sustainability must be accompanied by integrated legal frameworks as well as social protection, skills development and gender equality policies that promote social dialogue.

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I. Employment situation in the first half of 2018

Introduction

After increasing year-on-year for seven consecutive semesters, the open urban unemployment rate posted a first —albeit very small— reduction of 0.1 percentage point in Latin America and the Caribbean, reflecting a moderate increase in the employment rate and slower growth in labour force participation. Projections at year-end 2017 were for continuous improvement of labour performance throughout 2018, with estimates of a drop in the region's open unemployment rate from 9.3% (2017) to 9.0% (ECLAC and ILO, 2018). However, the region posted a weaker economic performance than expected in 2018, with year-on-year growth rates falling from 1.9% in the first quarter to an estimated 1.5% in the second (ECLAC, 2018). In this context, the economic growth projection for the region overall for the year came down from 2.2% at the end of 2017 to 1.3% in October 2018.

In keeping with this slacker performance, labour trends showed no improvement for the first half of 2018 overall: year-on-year, unemployment came down by 0.1 percentage point in the first quarter but virtually stood still in the second. First-half projections for growth and labour trends led to a revision of unemployment expectations in the average for 2018, which will likely remain around 9.3%.

A. At the regional level, the slight increase in the employment rate impacted positively on the unemployment rate

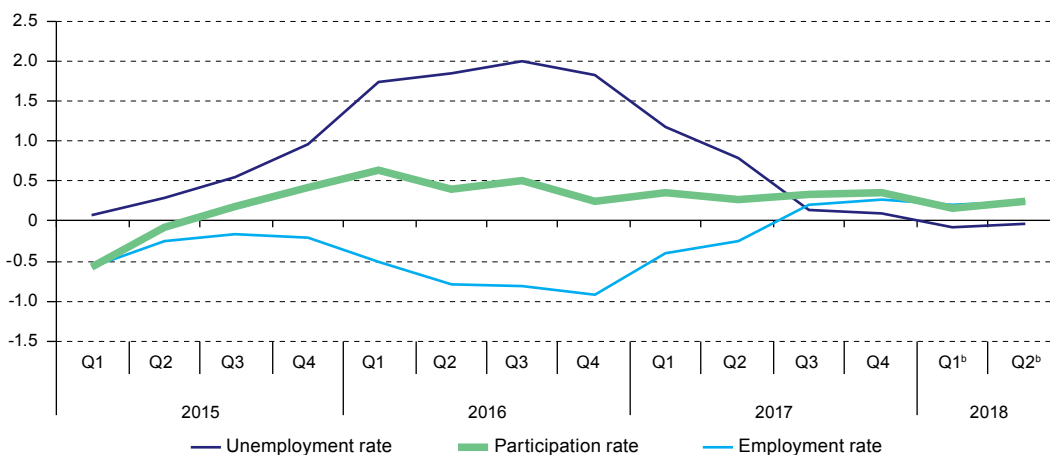
In those countries for which quarterly data are available,¹ the employment rate rose by 0.2 percentage points in the first half of 2018 compared to the year-earlier period. This represents an improvement with respect to the year-on-year drop of 0.35 percentage points in the first half of 2017 and of 0.1 points on average for 2017 overall.² The rise in the participation rate of this group of countries eased somewhat (+0.3 percentage points, both in the first half of 2017 and for 2017 as a whole, and +0.2 points in the first half of 2018), which boosted the positive impact of the employment rate on unemployment. Indeed, while the unemployment rate of this group of countries rose by 1.0 percentage point in the first half of 2017 and by 0.6 points on average in 2017 overall, it fell slightly in the first half of 2018 (see figure I.1).

¹ This group of countries represents 85% of the working-age population in Latin America and the Caribbean.

² Information coverage based on quarterly data is limited. The estimate for the region as a whole, which includes countries that have only six-monthly or annual information, indicates that the average urban unemployment rate for 2017 remained stable, at close to 2016 levels (ECLAC/ILO, 2018).

Figure I.1

Latin America and the Caribbean (11 countries):^a year-on-year variation in the employment, participation and unemployment rates, first quarter of 2015–second quarter of 2018
(Percentage points)



Source: Economic Commission for Latin America and the Caribbean (ECLAC) and International Labour Organization (ILO), on the basis of official figures.

^a The countries covered are Argentina, Brazil, Chile, Colombia, Costa Rica, Ecuador, Jamaica, Mexico, Paraguay, Peru and Uruguay.

^b Preliminary figures.

B. The main labour indicators varied little in most countries

In 3 of the 16 countries for which labour data are available for the first half of 2018,³ the unemployment rate remained stable with respect to the year-earlier period (between +0.1 and -0.1 percentage point). On the other hand, the rate rose in 6 of those countries and declined in 7, which confirms the absence of a clear dominant trend in labour market performance in the region.

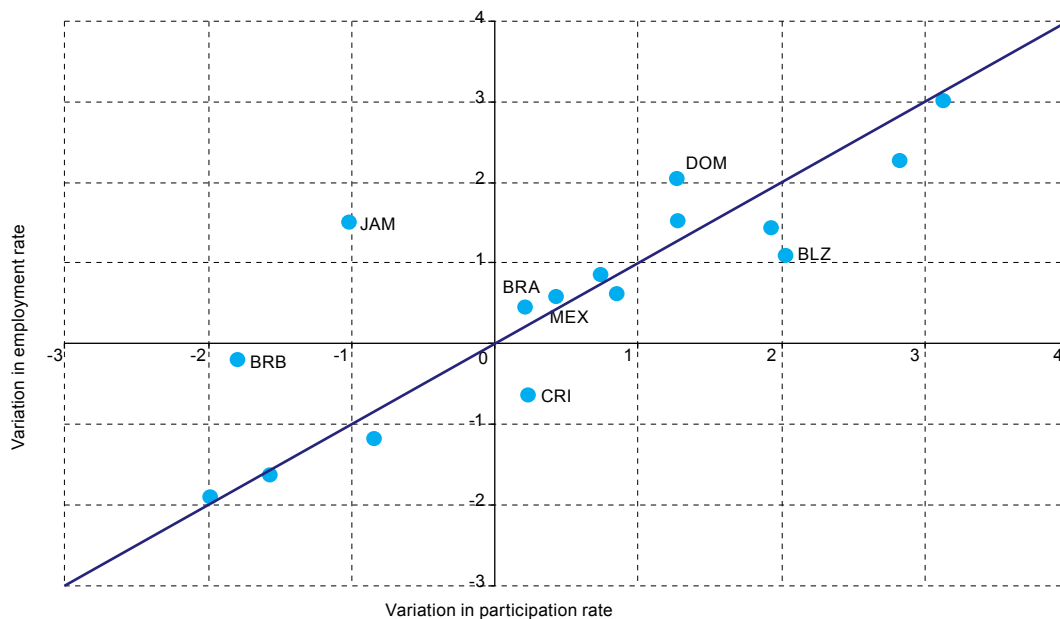
Nevertheless, in most countries the unemployment rate varied only moderately, as no major differences were observed in the variation of the participation and employment rates, as shown in figure I.2. There were a number of exceptions, however, with large declines in the unemployment rate. This was the case of the Dominican Republic, where the employment rate rose much more strongly than the participation rate, Jamaica, where employment grew while participation fell, and Barbados, where the participation rate dropped more sharply than the employment rate.⁴ At the other end of the spectrum are Belize —where the participation rate rose more than the employment rate— and Costa Rica —where the participation rate edged up, while the employment rate declined. These are the countries where unemployment was up the most.

³ This group includes, in addition to the countries mentioned above, the Bahamas, Barbados, Belize, the Dominican Republic and Panama.

⁴ Information on the Dominican Republic refers to the first quarter.

Figure I.2

Latin America and the Caribbean (16 countries):^a year-on-year variation in the urban employment and participation rates, first half of 2018
(Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC) and International Labour Organization (ILO), on the basis of official figures.

^a The countries covered are Argentina, Bahamas, Barbados, Belize, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, Jamaica, Mexico, Panama, Paraguay, Peru and Uruguay.

C. The unemployment rate has behaved more positively at the national level

Rural areas often have lower open unemployment rates than urban areas (ECLAC/ILO, 2016). This is particularly true in countries that have a high proportion of agricultural employment, because those working in agriculture are familiar with seasonal labour demand and do not seek employment during the low season. Accordingly, the statistics do not show these workers as unemployed, even if they are unemployed and willing to work. This phenomenon is more common among women than men because, in a context of rigid gendered labour division, women tend to be allocated chiefly reproduction-related work and to be viewed as a secondary workforce, so that many join the labour market only at times of high labour demand.

This type of hidden unemployment is less significant in situations where there is a high proportion of non-agricultural rural employment providing alternative work options.⁵ Another factor narrowing the gap between urban and rural unemployment rates is the integration of the labour markets of both areas, where there are nearby urban centres offering alternative sources of work for people residing rural areas. In these cases, the unemployment rate may be higher in rural than in urban areas.⁶

⁵ However, it must be borne in mind that a portion of non-agricultural rural employment is closely linked to the agricultural sector, both through the production chain (for example, the sale of inputs, transportation and processing of agricultural products) and through consumption by agricultural sector employees. Accordingly, the evolution of non-agricultural rural employment is not entirely delinked from the agricultural cycle.

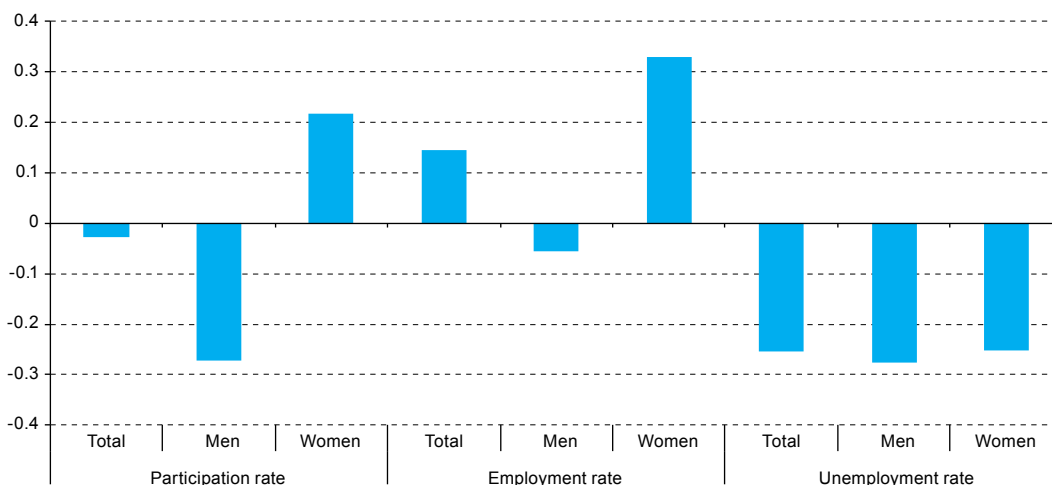
⁶ For example, in El Salvador, in 2017, the unemployment rate was 6.8% in urban areas and 7.4% in rural areas.

In summary, open unemployment rates are usually lower in rural areas, not because labour demand is stronger, but because of the nature of rural labour markets and the impact of agricultural employment on them. Consequently, the national open unemployment rate also tends to be lower than the rate for urban areas. However, both rates tend to move in the same direction. In a context of limited variations in unemployment rates, the differences tend to be small. For example, between 2013 and 2015, the difference between the year-on-year variations in the national and urban unemployment rates was only 0.1 percentage point. Conversely, in a crisis situation, the differences can become sharper; for example, in 2016, the urban unemployment rate in Latin America and the Caribbean overall rose by 0.3 percentage points more than the national rate, thereby widening the gap between the two (ILO, 2017).

Despite the initial slowdown in unemployment growth, in early 2018, the gap between the national and urban unemployment rates continued to widen. Whereas, in 2017, the urban rate rose more than the national rate; in the first half of 2018, the national rate slowed more than the urban rate. In effect, as noted above, the urban unemployment rate declined only very slightly. By contrast, at the regional level the national unemployment rate fell by 0.25 percentage points, as shown in figure I.3.

Figure I.3

Latin America and the Caribbean (16 countries):^a weighted averages of year-on-year variations in participation, employment and unemployment rates, by sex, first half of 2018
(Percentage points)



Source: Economic Commission for Latin America and the Caribbean (ECLAC) and International Labour Organization (ILO), on the basis of official figures.

^a The countries covered are Argentina, Bahamas, Barbados, Belize, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, Jamaica, Mexico, Panama, Paraguay, Peru and Uruguay.

This difference did not reflect greater employment generation in rural areas, as the urban and national employment rates increased in a similar manner (between 0.1 and 0.2 percentage points). However, while the participation rate rose in urban areas—possibly partly in response to the modest upturn in labour demand—it did not change significantly at the national level. Accordingly, at the national level, the increase in the employment rate impacted more positively on unemployment.

The extent of the fall in the national unemployment rate was similar for men and women, although the respective patterns were different. In the case of women, both the employment and the participation rates rose, the first (around 0.3 percentage points) by more than the second (around 0.2 percentage points), which helped to bring down the unemployment rate. In the case of men, however, there were no significant changes in the employment rate, while the participation rate declined by nearly 0.3 percentage points. It may be concluded that long-term trends regarding women's and men's employment have remained steady: gender gaps in employment and participation rates have narrowed, thanks to women's increasing integration into labour markets, while the gap in the unemployment rate to the detriment of women has persisted.

D. At the regional level, the upturn in wage employment creation was too weak to prevent a further deterioration in job quality

Between 2015 and 2017, labour demand was hurt by economic growth rates that were low or—in two of these three years— even negative, and wage employment climbed by just 0.3% in 2015 and 2017 and contracted by 0.4% in 2016. The modest economic recovery in the first half of 2018 helped to boost wage employment creation, which expanded by 1.4%. Because of their weight in the regional economy, this figure reflected mainly Brazil, where wage employment creation went from a contraction of 0.7% in 2017 to an increase of 0.7% in the first half of 2018, and Mexico, where it accelerated from 1.8% in 2017 to 2.6% in the first half of 2018.

However, despite this upturn, wage employment creation was insufficient to absorb all those entering the labour market, so that own-account work, as in the preceding five years, again expanded more than wage employment (2.8%, after increasing 2.0% in 2016 and 1.8% in 2017). Given that own-account work is often of poorer quality than wage employment, this now prolonged trend is a worrying signal in relation to the challenges of the Sustainable Development Goals, in particular Goal 8, which refers to full and productive employment and decent work for all.

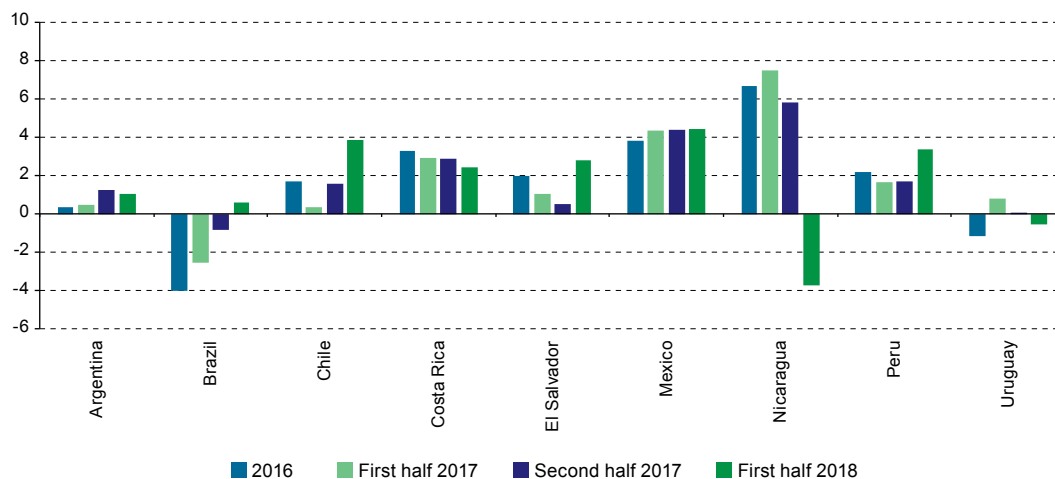
Another indicator of employment quality is the variation in the number of contributors to social security systems. This indicator is affected both by job creation or destruction and by the shift from informal employment towards formal employment (or vice versa). In this regard, a robust labour formalization policy, insofar as it could significantly increase the number of contributors, could help to improve employment quality without necessarily involving large-scale creation of new jobs (see figure I.4).

During the first half of 2018, countries of the region for which information is available reported different situations. In Brazil, Chile and Peru, the number of contributors clearly improved compared to 2016 and 2017. Brazil, in fact, posted the first year-on-year increase since 2014. In Argentina and Uruguay social security registration slackened, in the latter case falling outright—as in 2015 and 2016— showing that the upturn in 2017 was only temporary. Mexico showed a relatively strong increase in the number of contributors, while Costa Rica experienced a slight slowdown and in El Salvador the number of contributors increased slightly compared to the second half of 2017, albeit at a lower rate than that year. The largest variation was seen in Nicaragua, where

the number of contributors to the Nicaraguan Social Security Institute (INSS), after rising by over 5% every year between 2004 and 2017, except 2009, fell sharply in 2018 amid social and political conflict that erupted precisely over proposed pension system reform. In summary, formal wage employment creation is gradually improving in some cases, but not across the board.

Figure I.4

Latin America (9 countries): year-on-year variation in registered employment, 2016–first half of 2018 (Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC) and International Labour Organization (ILO), on the basis of official figures.

Note: Data refer to wage-earners contributing to social security systems, except in the case of Brazil, where they refer to private sector wage-earners reported by firms to the General Registry on Employment and Unemployment.

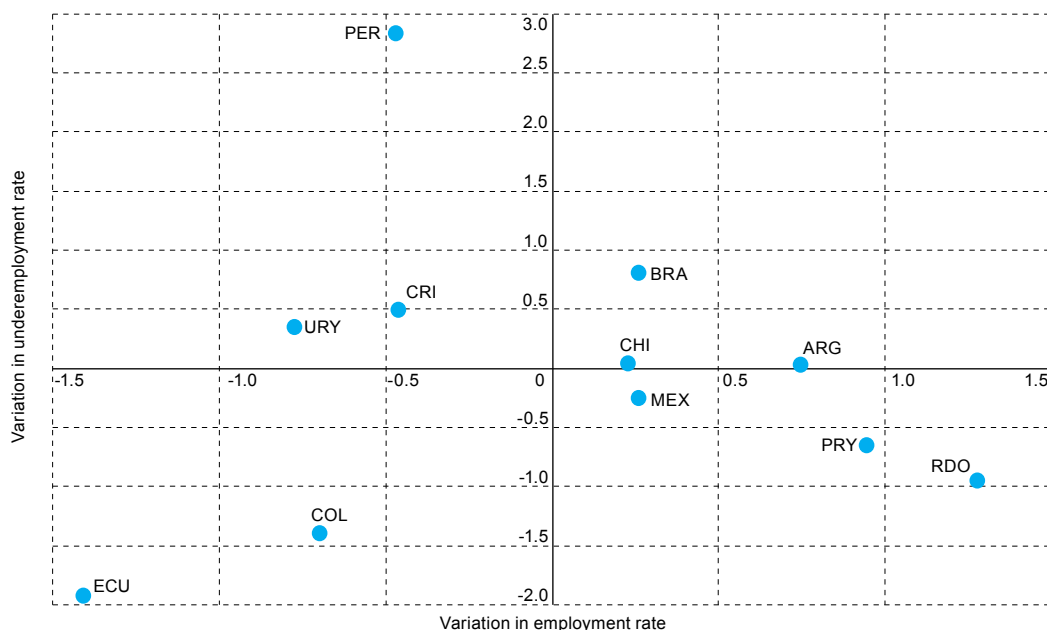
Another indicator of employment quality —underemployment— shows a mixed picture, having risen in 6 countries and fallen in 5 of the 11 for which data are available. To help interpret this evolution, figure I.5 shows the variation in both employment and underemployment rates.

Among these countries, the most beneficial combinations were seen in Mexico, the Dominican Republic and Paraguay, where an increase in the employment rate coincides with a drop in the rate of underemployment. In Argentina, Brazil and Chile, employment rose, but some of the new jobs did not meet people's needs in terms of paid hours, although in the cases of Argentina and Chile the increase in underemployment was very small. In Colombia and Ecuador, both employment and underemployment fell, which would indicate —possibly among other things— that poor quality jobs have been eliminated, especially those with too few hours to provide workers with an adequate livelihood.

Lastly, the least favourable combination was seen in Costa Rica, Peru and Uruguay, where the employment rate fell and underemployment rose; so not only were jobs lost, but hours were reduced in jobs that remained. However, under certain conditions, reducing working hours can help to contain unemployment and, in fact, at least in Peru and Uruguay, the unemployment rate did not increase significantly.

Figure I.5

Latin America and the Caribbean (11 countries): year-on-year variation in employment and unemployment rates, first half of 2018
(Percentage points)

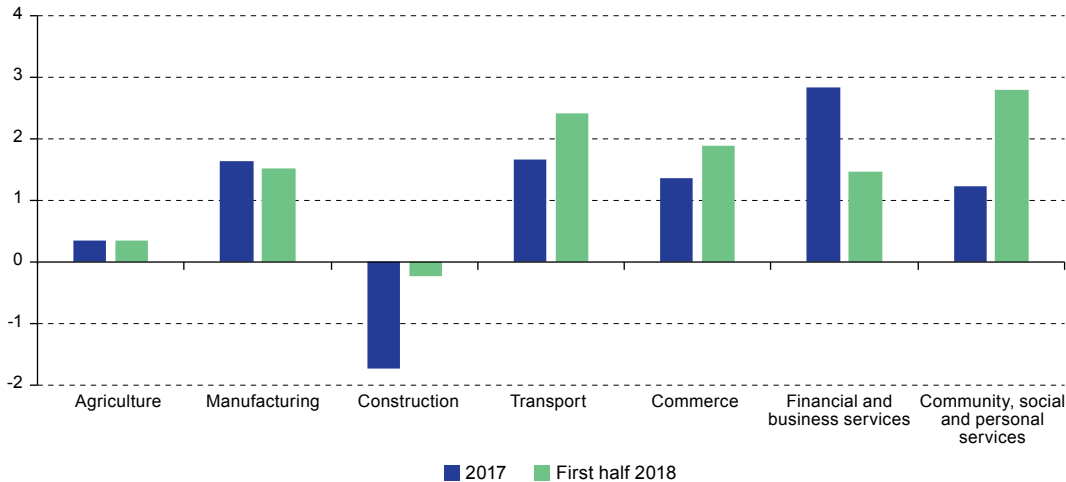


Source: Economic Commission for Latin America and the Caribbean (ECLAC) and International Labour Organization (ILO), on the basis of official figures.

E. Manufacturing employment showed another modest upturn, but the strongest growth rates again occurred in the services sector

In 2017, by branch of activity, employment was up in manufacturing, but down in construction. During the first half of 2018, both trends held steady in the weighted average, as manufacturing employment maintained a growth rate of about 1.5% and employment in construction, which had contracted sharply in 2017, fell again year-on-year, albeit only slightly, in the first half of 2018. However, the year-on-year rebound in construction in the second quarter augured a stronger performance for the year overall. As has become the norm in the region, most of the new jobs were created in the service sector, and the fastest rates of employment growth occurred in community, social and personal services and transport.

Figure I.6
Latin America (12 countries):^a year-on-year variation in employment by branch of activity,
2017 and first half of 2018
(Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC) and International Labour Organization (ILO), on the basis of official figures.

^a The countries covered are Argentina, Brazil, Chile, Colombia, Costa Rica, the Dominican Republic, Ecuador, Jamaica, Mexico, Panama, Paraguay and Peru.

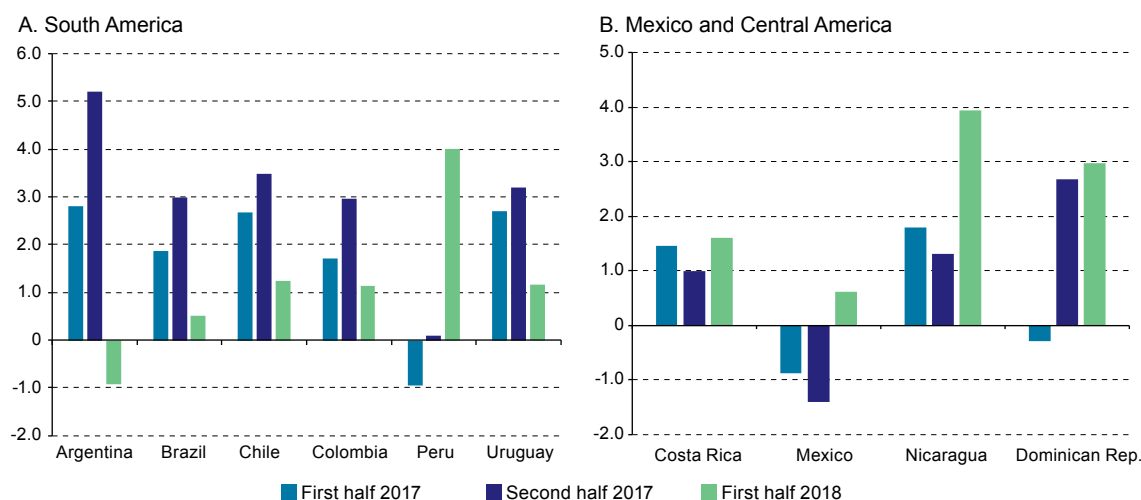
F. In most of the countries, real formal sector wages rose moderately, but often at lower rates than the previous year

Albeit with intraregional differences, real wage growth in registered employment tended to slow in the first half of 2018. In the median for the 10 countries for which data are available, real wages were up year-on-year by 1.8% in the first half of 2017, 2.3% in the second half of that year and only 1.2% in the first half of 2018. This slowdown was concentrated in the South American countries, where —especially in Argentina and Brazil, but also in other countries— higher inflation weakened the impact of rising nominal wages on workers' purchasing power. An exception to this was Peru, where lower inflation helped to boost real wages.

In Mexico, real wages suffered the impact of rising inflation in a context of currency depreciation in 2017, but this was reversed in the first half of 2018, leading to a slight real gain in average wages. Also possibly contributing to this was a policy aimed at gradually increasing the real minimum wage, which contrasts with the previous conservative policy stance. While Costa Rica and the Dominican Republic showed real increases of between 1% and 2%, in Nicaragua the average wage of contributors to INSS climbed sharply. However, this increase must be interpreted against the background of a sharp drop in the number of contributors, as noted earlier. This implies that the rise in the real average wage very likely reflects a change in the composition of contributors, as the contributions of low-income workers in particular have been lost.

Figure I.7

Latin America (selected countries): year-on-year variation in real wages from registered employment, first half of 2017–first half of 2018



Source: Economic Commission for Latin America and the Caribbean (ECLAC) and International Labour Organization (ILO), on the basis of official figures.

G. Conclusions

In the first half of 2018, the rise in the urban unemployment rate that had occurred over the three preceding years came to a halt. This reflected a slight increase in the employment rate, owing in part to a modest upturn in wage employment creation and greater integration of women in the labour market, and a smaller climb in the labour participation rate. However, the improvements have been modest at the regional level and did not occur across the board. In addition, Latin America and the Caribbean experienced a further deterioration in average job quality, as indicated by the growth in own-account work, which—especially amid lacklustre economic growth—often reflects poor working conditions. In most of the countries, real wages continued to see moderate increases, but generally at lower rates than in 2017.

Although they both showed moderate gains, employment and wages continued to sustain expanding household consumption, which remains the main driver of the small upturn in economic growth at the regional level. However, the unexpected weakening of growth in 2018 is reflected in less optimistic projections for GDP and labour indicators, according to which urban unemployment will change little in the average with respect to 2017, standing again about 9.3% for 2018 overall.

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II. Environmental sustainability and employment in Latin America and the Caribbean

Introduction

Latin America and the Caribbean, home to 12 of 14 terrestrial biomes, is the most biodiverse region in the world (Olson and others, 2001). There are 20 megadiverse countries in the world, 9 of which are located in the region: the Bolivarian Republic of Venezuela, Brazil, Colombia, Costa Rica, Ecuador, Guatemala, Mexico, Peru and the Plurinational State of Bolivia. In parallel, in 2013, the consumption of resources and generation of waste in Latin America and the Caribbean exceeded the Earth's annual capacity to regenerate these resources and absorb the related waste (Global Footprint Network, 2017).

Latin America and the Caribbean, like the world in general, is utilizing the resources of tomorrow to satisfy today's consumption needs. The region is losing its natural endowment as a result of the environmental degradation caused by the current development model. This degradation is expressed in terms of greenhouse gas emissions that contribute to climate change, atmospheric, soil and water pollution, overexploitation of resources, soil degradation and biodiversity loss. The limits within which humanity can operate with no irreversible effects on the Earth system have been exceeded (Steffen and others, 2015).

Environmental degradation in all its forms affects the world of work, in most cases negatively. This chapter underscores the link between employment and the environment to show that work benefits from being carried out in a healthy and stable environment and that, from the perspective of the world of work and social justice, environmental sustainability is urgently needed. It also explores the implications of a transition towards environmental sustainability for employment and underscores the positive impact on job numbers in the region. Lastly, it provides suggestions for the formulation of policies that contribute to both environmental sustainability and decent work.

A. The environment is intrinsically linked to the world of work

Work is fundamentally dependent on the environment, as expressed through four channels (ILO, 2018a). First, economic growth and jobs in the region rely largely on natural resource extraction and use, waste generation and greenhouse gas emissions. Second, ecosystem services, which are naturally occurring processes, support economic growth and jobs in key sectors such as agriculture, forestry and fisheries, pharmaceuticals, textiles and food. Third, environmental stability promotes jobs, while natural disasters, pollution and high temperatures limit the development of activities. Fourth, and last, environmental degradation has a negative impact on vulnerable populations in particular, exacerbating existing inequalities. Thus, from the perspective of the world of work and social justice, environmental sustainability is urgently needed.

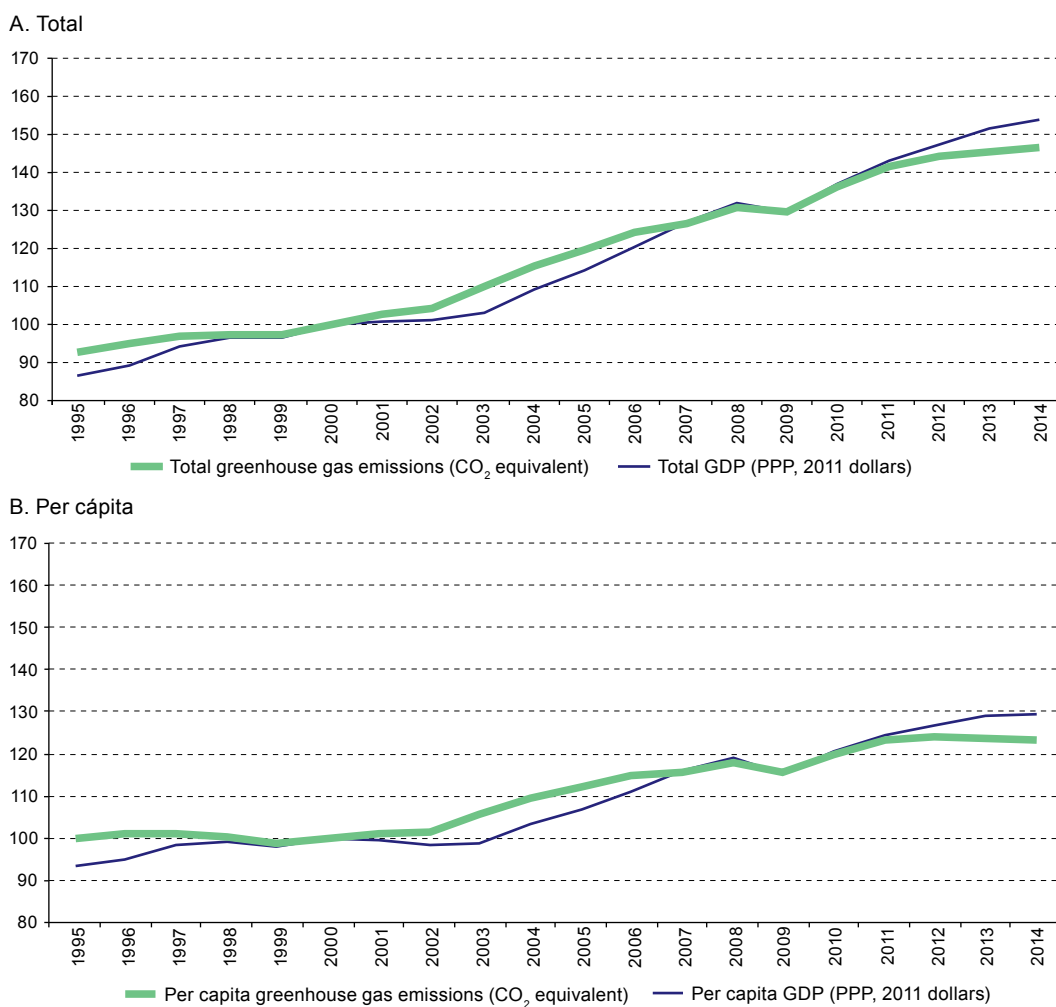
1. Resource extraction and greenhouse gas emissions

Economic growth in Latin America and the Caribbean relies heavily on natural resource extraction and greenhouse gas emissions. In 2015, income deriving from the extraction of fossil fuels and coal, minerals and wood accounted for 3.2% of the region's GDP. Natural resource rents, including contributions of capital and labour, represented more than 5% of GDP in Peru, the Plurinational State of Bolivia and Trinidad and Tobago, and more than 10% of GDP in Chile, Guyana and Suriname (World Bank, 2017a). In 2014, the region's greenhouse gas emissions were 47% higher than in 2000, a very similar trend to that seen in GDP growth, as shown in figure II.1. GDP grew faster than greenhouse gas emissions, indicating relative decoupling. In a green economy characterized by low greenhouse gas emissions and weak intensity of natural resource use, decoupling should be absolute (Ward and others, 2014). Since 2005, decoupling in Latin America and the Caribbean has been relative and weak, in line with the global trend, and attributable to improvements in energy efficiency (IEA, 2015a).

Figure II.1

Latin America and the Caribbean: GDP and greenhouse gas emissions, 1995–2014

(Percentages, 2010=100)



Source: International Labour Organization (ILO), on the basis of World Bank, World Development Indicators [online database] <https://data.worldbank.org/products/wdi>.

2. Natural processes sustain work in several industries

Next, economic growth in many sectors depends, directly and indirectly, on natural environmental processes (in other words, ecosystem services¹). These processes include purification of water and air, regeneration of soil, flora and fauna, regulation of climate and water flow, and protection against pests, diseases and storms (Kumar, 2010; Millennium Ecosystem Assessment, 2005). The contribution of ecosystems is not considered in the GDP estimates for a country or the world, although its value is much greater than economic activity measured in GDP.² In 2011, for example, ecosystem services contributed the equivalent of US\$ 124.8 trillion to the global economy, compared with a global GDP of US\$ 75.2 trillion that year (Costanza and others, 2014). In Costa Rica, the forestry sector accounted for 0.1% of GDP before taking into account non-monetary services (such as water flow regulation, which is key to the agricultural and hydropower sector; aesthetic and cultural value, which is fundamental to tourism; and the capacity to preserve biodiversity, which is crucial to the pharmaceutical sector), and 2.0% of GDP once these services are factored in (WAVES, 2015).

Table II.1 includes the industries that rely on ecosystem services and the number of jobs involved. Roughly one in five workers in the region works in an industry dependent upon these services.

Table II.1

Latin America and the Caribbean: jobs dependent upon ecosystem services, 2014
(Thousands)

Sector	Ecosystem services relevant to the sector	Number of jobs
Almost all of the sector's activities are related to biodiversity and ecosystem services		
Agriculture		40 821
Forestry	Genetic resources and replenishment of stocks, fresh water, pollination, seed dispersal	689
Fisheries		1 935
Food, drink and tobacco	Food, fibre and fresh water	8 203
Wood and paper	Fibre, water purification and waste control	2 647
Renewable energy	Fibre for biofuels	91
Hydropower	Availability of fresh water, recycling, regulation, purification and natural risk management	345
The sector's activities depend on biodiversity and ecosystem services, but do not determine the nature of the sector		
Textiles	Fibre, water purification and waste control	4 741
Chemicals	Genetic resources, biochemical diversity, fresh water	904
Tourism	Food, fresh water, air quality, education, cultural and aesthetic value	3 542
Regional total		63 918
Percentage of total employment in the region		19%

Source: International Labour Organization (ILO), on the basis of EXIOBASE Consortium, EXIOBASE [online database] <https://www.exiobase.eu/>; International Labour Organization (ILO), *Key Indicators of the Labour Market 2015. Ninth Edition*, Geneva, 2015; GHK Consulting, *Links between the Environment, Economy and Jobs*, London, 2007; K. Rademaekers and others, *The Number of Jobs Dependent on the Environment and Resource Efficiency Improvements*, Rotterdam, Ecorys, 2012.

Note: Only industries in which activities have a "significant and substantial" link with the environment are included. These links were obtained from GHK Consulting (2007). According to the same source, environment-related tourism accounted for 30% of hotel and catering services (GHK Consulting, 2007; Rademaekers and others, 2012).

¹ The concept of ecosystem services was popularized by the Millennium Ecosystem Assessment (2005) and *The Economics of Ecosystems and Biodiversity* (Kumar, 2010). The Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) aims to replace the notion of ecosystem services with that of nature's contributions to people and to consider both the positive and negative effects of nature as many contributions can be perceived as benefits or detriments depending on the cultural, socioeconomic or temporal context (Díaz and others, 2018).

² Several organizations have recognized the limited nature of GDP as a measure of progress. Some try to measure the value of biodiversity, ecosystem services and natural resources. These include the World Bank's concept of wealth accounting, the European Commission's Beyond GDP initiative and the United Nations System of Integrated Environmental and Economic Accounting (SEEA).

Environmental degradation at the global and local levels threatens the capacity of ecosystems to provide these services and the activities and jobs that depend on them. Two examples illustrate this idea: the overexploitation of marine resources and the change in temperature and precipitation patterns as a result of climate change.

The fishing industry, including aquaculture, employs around two million workers³ and depends on the ecosystem's ability to renew fish populations, a natural process, as long as exploitation remains below the maximum sustainable yield. Exploitation above this level leads to a collapse of the fish population. This has been the case, for example, of the Peruvian anchoveta in the 1970s and Chilean jack mackerel early in the 2010 decade. Once a fish population has collapsed, recovery is difficult, even for decades after (Pauly and others, 2002). Although the fishing industry is an important source of exports for Latin America and the Caribbean, between 41% and 50% of fish populations face overexploitation. This includes, for instance, the unsustainable fishing of squid (*Illex argentinus*) and sardinella (*Sardinella brasiliensis*) and explains the widespread decline in catches in the region (FAO, 2016a). The reduction of catch volumes would allow fish stocks to recover and, in the medium and long term, increase the sector's economic yield as it would not be necessary to travel as far to obtain the same volumes (World Bank, 2017b).

As regards the second example, climate change affects ecosystem services that are fundamental to all crops. Specifically, ideal coffee-growing areas will change as a result of variations in rainfall patterns, more frequent droughts, changes in temperatures and greater prevalence of diseases such as coffee rust. The global area suitable for growing coffee is expected to decrease by 50%, with significant losses for Brazil and other countries in the region, or to require the conversion of forests to coffee plantations to maintain current production volumes (Bunn and others, 2015; Schroth and others, 2009). Despite the expansion of some adaptation practices, such as the use of shade trees to lower temperatures or of mulch to increase the water retention of soil and reduce erosion (Bongase, 2017), some coffee growers have begun to swap coffee cultivation for cocoa farming, which requires fewer workers, or have sold their land to urban developers (Renteria, 2016).

3. Climate stability and a healthy environment are fundamental to decent work

The world of work also requires climate stability and a healthy environment, given that these help to maintain human and physical capital and avoid the exacerbation of inequalities (ECLAC, 2014; ILO, 2018a). Three examples illustrate this relationship: natural disasters, increasing temperatures and air pollution.

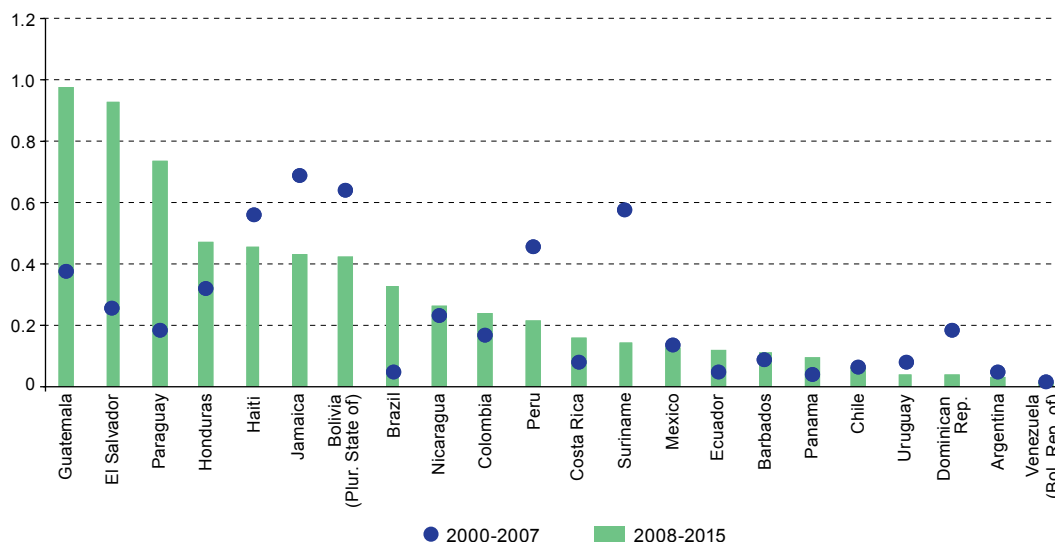
Natural disasters—which will grow in intensity and frequency as a result of climate change (IPCC, 2014)—only harm economic growth, as they destroy infrastructure, lower productivity and divert investment from areas that are more productive than reconstruction (Felbermayr and Gröschl, 2014; Noy, 2009). Some disasters are caused or worsened by human activity. Aside from the pain and suffering they cause in terms of death and injury, loss of life and infrastructure damage, there is an economic and labour dimension that can be measured as working-life years lost. Figure II.2 indicates the number of working-life years lost in the region owing to disasters caused or worsened

³ According to the Food and Agriculture Organization of the United Nations (FAO, 2016a), employment in the fishing sector in 2014 was estimated at 2.4 million workers, including those employed in aquaculture and capture fisheries.

by human activity. These disasters include the drought in Brazil in 2014, the worst in 80 years, which was linked to deforestation in the Amazon (Nazareno and Laurance, 2015), and which resulted in the loss of 2.8 million years of working life.

Figure II.2

Latin America and the Caribbean: working-life years lost by human-induced disasters, 2000–2015
(Years per person)



Source: International Labour Organization (ILO), on the basis of I. Noy, "A non-monetary global measure of the direct impact of natural disasters", SEF Working Paper, No. 04/2015, Wellington, Victoria University of Wellington, 2015; Centre for Research on the Epidemiology of Disasters (CRED), International Disaster Database EM-DAT [online] <https://www.emdat.be/>; World Health Organization (WHO), Global Health Observatory [online database] <http://www.who.int/gho/database/en/>; United Nations; International Labour Organization (ILO), ILOStat [online database] <https://www.ilo.org/ilostat/>.

Note: Estimates take into account deaths, persons affected and damage caused by weather events (storms, fog, extreme temperatures), hydrological events (flooding, mudslides, storm surges), climate events (drought, forest fires) and biological events (insect infestations) and certain technological threats (industrial or other types of accidents). Estimates do not include deaths, persons affected or damage caused by geophysical events (earthquakes, volcanic activity), biological events (viral, bacterial, parasitic and fungal epidemics or prion diseases and animal-related accidents) or extraterrestrial events (impact, space weather) or certain technological threats (transport accidents). The methods are based on Noy (2015), with adjustments for retirement age and the employment-to-population ratio.

Small island developing States (SIDS), 16 of which are located in the Caribbean, are particularly vulnerable to environmental impacts. They have a narrow resource base with comparatively greater difficulty accessing other markets, require a large amount of energy to import and export products and have limited capacity to benefit from economies of scale. The risks associated with climate change can be catastrophic: rising sea levels and storm surges will erode aquifers and result in the salinization of agricultural land (IPCC, 2014). There are other global environmental risks such as chemical contamination and dispersal, overexploitation and the introduction of invasive species that upset the delicate ecological balance and the economic activity that depends on it (UNEP, 2014). Most environmental risks that affect SIDS come from outside these countries' borders and affect key industries such as agriculture, fishing and tourism, and inflict serious damage on their economies. In the Caribbean, for example, almost 30% of major resort properties would be partially or fully inundated by a one-metre sea-level rise (UN-OHRLLS, 2015). The damage associated with natural disasters, annually and on average between 2000 and 2015, resulted in losses equivalent to 17% of the GDP of SIDS, while in middle-income countries (lower middle and upper middle), these losses were lower than 6% of GDP (OECD/World Bank, 2016).

The global increase in temperatures as a result of climate change (IPCC, 2014) will intensify the risk of heatstroke or heat stress in workers. The number of hours that workers must rest and cool down to maintain their body temperature below 38 °C and to avoid heat stroke will rise (Kjellstrom and others, 2016). Heat stress, resulting from atmospheric conditions and physical effort, is an occupational risk according to the Occupational Safety and Health Convention, 1981 (No. 155) and Recommendation No. 164 of that Convention. If global warming were limited to 1.5 °C, which is a conservative estimate, in 2030, 2.0% of working hours would be lost owing to days that are too hot to work (ILO, 2018a). In the region, these figures would amount to 0.8% in Central America, 0.6% in South America, and 0.5% in the Caribbean, and would be the equivalent of 433,000, 1,555,000 and 58,000 full-time jobs, respectively.

Air, water and soil pollution alone caused nine million premature deaths worldwide in 2015, more than 15 times the combined total of deaths attributed to AIDS, tuberculosis and malaria. Air pollution was responsible for 6.5 million of those deaths (Landrigan and others, 2018). Considering only the economic losses associated with premature deaths, air pollution cost US\$ 225 billion in lost labour income and US\$ 5 trillion in welfare losses (World Bank/IHME, 2016). Moreover, given the direct effect on health, air pollution also generates losses owing to work absenteeism. In Latin America and the Caribbean, as shown empirically in Chile (Montt, 2018) and in Peru (Aragon, Miranda and Oliva, 2016), air pollution damages health, particularly that of children and older persons. When children and older persons fall sick, women are the ones who care for them, and thus reduce their hours at work.⁴ Pollution exacerbates gender inequalities in the world of work.

4. Given that environmental degradation exacerbates inequalities, sustainability is an issue of social justice

It was mentioned briefly that air pollution accentuates gender inequalities; the fact is that environmental degradation worsens inequalities overall. People who are vulnerable because of social, economic, cultural, political or institutional factors are especially exposed to the negative effects of climate change and other forms of environmental degradation. At the global level, natural disaster risks are much more likely to materialize in low-income countries, and to further increase their vulnerability. The effects of climate change and environmental degradation on food prices will pose obstacles to food security and poverty-eradication efforts (Hallegatte and others, 2016). With respect to gender, the difficulty for women to access resources such as land, credit, agricultural inputs, decision-making bodies, technology, social protection and training hampers their capacity to adapt to climate change (ILO, 2009; IPCC, 2014).

Rural populations living in poverty and indigenous and tribal peoples are the most affected by the loss or deterioration of ecosystem services as their income, lives and culture depend on and are understood on the basis of their close link with nature. Forests are the lifeblood of 70 million of the 370 million members of indigenous or tribal groups. Almost 40 million people in Latin America and the Caribbean belong to one of these groups and, regardless of their ecosystem (for example, coastal, forest or Andean), will grow more vulnerable because of climate change and other forms of environmental degradation (ILO, 2017a; Kronik and Verner, 2010).

⁴ In Latin American countries, families —particularly women— care for dependent persons, including children and older persons (Martínez, 2008; Palacios, 2017).

B. A transition is urgently needed and will create employment opportunities

The previous section clearly highlighted the urgent need for environmental sustainability from the perspective of work. The following sections describe how Latin America and the Caribbean will benefit from the adoption of sustainability in the energy sector and a circular economy.

1. Sustainable energy will create employment in Latin America and the Caribbean

The International Energy Agency (IEA, 2015a) details the steps that must be taken in the energy sector of each country or region to limit global warming to 2 °C above pre-industrial levels. These steps would go some way, towards achieving energy sustainability,⁵ by increasing the share of renewable energy (for example, solar, wind and biomass), reducing the share of energy deriving from fossil fuels (for example, coal) and increasing energy efficiency.

Changes in employment will extend beyond the energy sector, given the latter's close link with other sectors of the economy (Bowen, Duffy and Fankhauser, 2016; World Economic Forum, 2012). The installation and operation of renewable energy sources requires alternative inputs and different degrees of work compared with the chain of hydrocarbon-based energy inputs (Bowen, Duffy and Fankhauser, 2016; Wei, Patadia and Kammen, 2010). This is also applicable to efforts to increase energy efficiency (Garrett-Peltier, 2017).

Figure II.3 includes projections that by 2030 and in net terms, more than one million jobs will have been created in Latin America and the Caribbean against the backdrop of an energy transition and global warming limited to 2 °C above pre-industrial levels (box II.1 includes methodological details of these projections). Roughly 450,000 of these jobs will be created in Brazil, 350,000 in Mexico and 250,000 in the rest of Latin America and the Caribbean. This net effect on employment is relatively small, given that the region added 2.5 million jobs between 2016 and 2017. Nonetheless, the transition effect will depend heavily on a restructuring of employment which will spread from some industries to others (Montt and others, 2018).

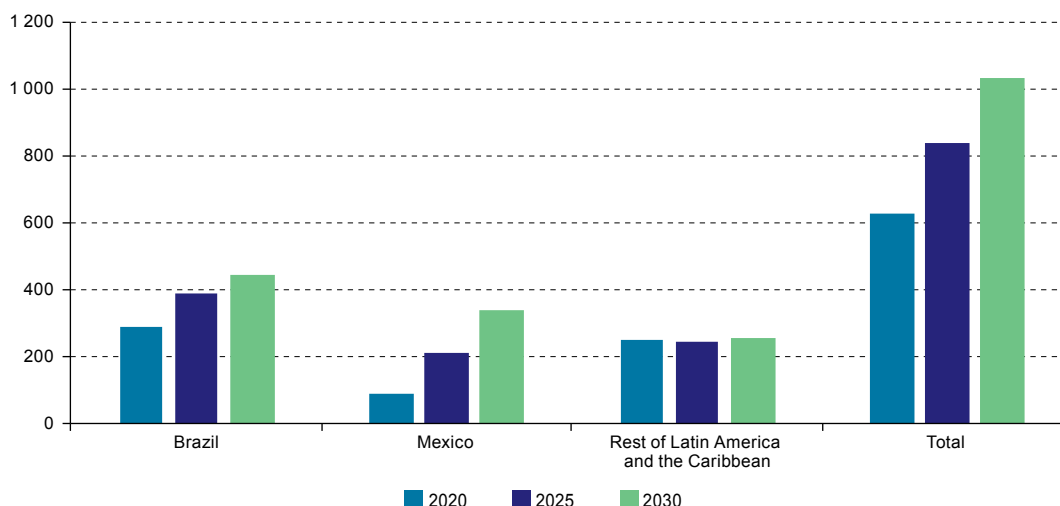
Greater energy efficiency will create more than 750,000 jobs in the construction sector, almost 100,000 in the renewable energy sector—with more than half in electricity generation through photovoltaic solar panels—and more than 50,000 in input manufacturing. More than 150,000 jobs will also be created in copper mining owing to greater demand for electronic parts and components. Job losses will be concentrated in the oil refinery and extraction sector (almost 300,000 jobs) and in carbon-based mining and electricity generation (almost 50,000 jobs).⁶

⁵ The signatory countries of the 2015 Paris Agreement agreed on a global warming target of 2 °C above pre-industrial levels. The same agreement also outlined 1.5 °C as a desirable target. The Intergovernmental Panel on Climate Change details the consequences for the planet, society and the economy of global warming of 1.5 °C above pre-industrial levels (IPCC, 2018).

⁶ An analysis of the bioenergy sector in the province of Santa Fe (Argentina) indicates that increasing the activity of bioelectricity plants to full capacity would create 1,731 new jobs directly and indirectly (FAO, 2017).

Figure II.3

Latin America and the Caribbean: net job creation against the backdrop of an energy transition, 2020–2030
(Thousands of jobs created)



Source: International Labour Organization (ILO), on the basis of EXIOBASE Consortium, EXIOBASE [online database] <https://www.exiobase.eu/>.

Note: Difference in the total number of employees in the case of an energy transition and in the case of a scenario in which current trends prevail.

Box II.1

Estimation of employment in sustainability scenarios with multi-regional input-output tables

EXIOBASE is a multi-regional supply and use and input-output table that provides information on the links between final consumption, the flow of intermediate and final goods and production input factors; it is a model of the global economy. It is based on the United Nations System of National Accounts (SNA) and provides detailed data on 44 countries and 5 regions of the world. The data allow a specific analysis of Brazil and Mexico, while the other countries in the region are grouped under “the rest of Latin America and the Caribbean”. The environmental and socioeconomic extensions, based on data from the International Energy Agency (IEA), the Emission Database for Global Atmospheric Research (EDGAR) of the European Commission, the Organization for Economic Cooperation and Development (OECD) and the International Labour Organization (ILO), among others, allow an analysis of the environmental and social impact of changes in global production systems. Tukker and others (2013), Wood and others (2014) and Stadler and others (2018) provide more details on EXIOBASE and its uses. The third version of EXIOBASE is based on 2011 data, updated to 2014 (Stadler and others, 2018). The projections for 2030 included in this chapter combine projections of the International Monetary Fund (IMF) up to 2022 for each country with regional projections of IEA.

The transition towards a sustainable economy requires structural and technological change. The estimates presented in this chapter follow the methodology proposed by Wiebe (2017), which details how to incorporate technological and structural change into a multiregional input-output table for the future.

The scenario of energy sustainability includes the implementation of the necessary changes to limit the global temperature rise to 2 °C above pre-industrial levels (IEA, 2015a). This 2 °C scenario includes the substitution of energy derived from fossil fuels with renewable energy in electricity generation, industry, transport and construction, in addition to the improvement of energy efficiency in these sectors. It also includes the use of electric vehicles and more energy-efficient buildings, which go hand in hand with changes in energy sources and overall demand. UBS Research (2017) details changes in inputs related to the replacement of vehicles with internal combustion engines with electric vehicles, and their sales projections. Lastly, under the 2 °C scenario, all energy efficiency savings are invested in the construction of more efficient buildings.

Box II.1 (concluded)

A circular economy prioritizes the reuse, repair, recycling and shared use of goods through services and greater durability of goods (Ellen MacArthur Foundation, 2013). The scenario of a circular economy estimated in this chapter forecasts an annual increase of 5% in the recycling of plastic, pulp, glass, metal and minerals. The increase in availability of recycled materials replaces the primary extraction of these products. Under the scenario, recycling rates increase to 65%, equivalent to the targets proposed by the European Parliament (2016), as many materials cannot be recycled indefinitely. It also includes annual growth of 1% in rental and repair services, instead of the ownership and replacement of goods.

The 2 °C scenario of sustainability in the energy sector and the scenario of a circular economy are compared with the 6 °C scenario, which follows current trends (business as usual). As in all exercises which use multiregional input-output tables, the relative prices and trade structure of the global economy are fixed. Although these methodologies do not take adjustment effects into account, they allow the clear identification of the most affected sectors and regions. These adjustment effects include the technological change associated with the maturity of an industry and its impact on labour demand or the capacity of employment to adjust to the change in industrial demand. In order to isolate the effect of the transition towards sustainability, estimates do not take into account other drivers of work in the future, such as automation, globalization or alternative business models.

Source: A. Tukker and others, "EXIOPOL: development and illustrative analyses of a detailed global MR EE SUT/IOT", *Economic Systems Research*, vol. 25, No. 1, Abingdon, Taylor and Francis, 2013; R. Wood and others, "Global sustainability accounting: developing EXIOBASE for multi-regional footprint analysis", *Sustainability*, vol. 7, No. 1, Basel, MDPI, 2014; K. Stadler and others, "EXIOBASE3: developing a time series of detailed environmentally extended multi-regional input-output tables", *Journal of Industrial Ecology*, vol. 22, No. 3, Hoboken, Wiley, 2018; K. Wiebe, "Global renewable energy diffusion in an input-output framework", *Environmental and Economic Impacts of Decarbonization: Input-Output Studies on the Consequences of the 2015 Paris Agreements*, Ó. Dejuán, M. Lenzen and M. Cadarso (eds.), London, Routledge, 2017; International Energy Agency (IEA), *Energy Technology Perspectives 2015: Mobilising Innovation to Accelerate Climate Action*, Paris, 2015; UBS Research, "UBS Evidence Lab electric car teardown: disruption ahead?", *Q-Series*, Zurich, 2017; Ellen MacArthur Foundation, *Towards the Circular Economy*, vol. 2, Cowes, 2013; European Parliament, "Circular economy package: four legislative proposals on waste", *EU Legislation in Progress*, Brussels, 2016 [online] <http://www.europarl.europa.eu/EPRS/EPRS-Briefing-573936-Circular-economy-package-FINAL.pdf>.

2. Employment opportunities in a circular economy

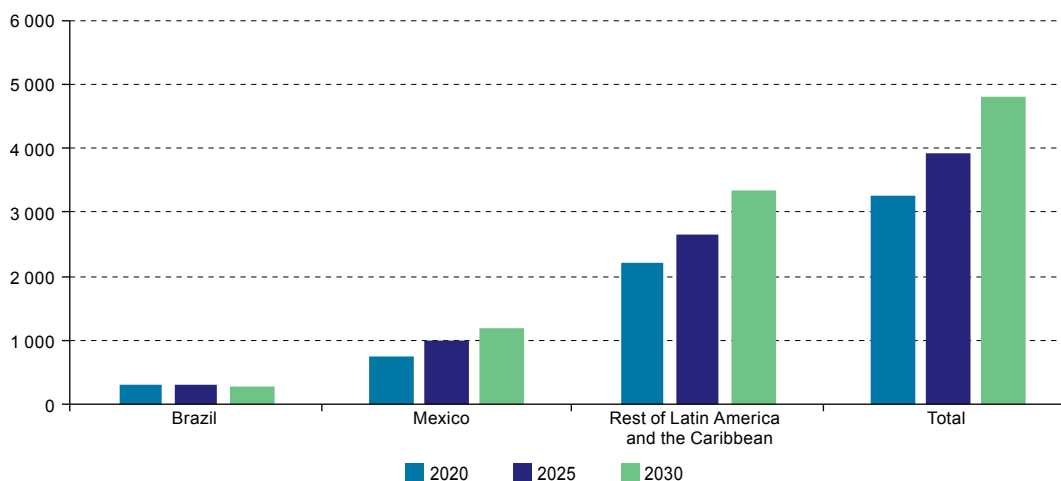
Environmental sustainability also means increasing efficiency in extracting and using resources in an economy and reducing the production of waste. In a circular economy, efforts are made to improve efficiency and the useful life of materials by promoting durability and the capacity to repair, remanufacture, reuse and recycle goods. These changes are promoted through product design and business models, to ensure easier and more profitable repair, recycling, remanufacturing or shared use through services (Ellen MacArthur Foundation, 2013).

A circular economy scenario is particularly relevant to the Latin American and Caribbean region, given the economic weight of the extractive sectors. A scenario including an increase in recycling rates implies reduced extraction demand, but an increase in demand for services associated with waste management and remanufacturing of materials. Figure II.4 shows that following the adoption of a circular economy scenario, a net total of 4.8 million jobs would be created by 2030 in Latin America and the Caribbean. Job creation in sectors such as the reprocessing of wood, steel, aluminium and other metals would more than offset the losses associated with the extraction of minerals and other materials. This is because the value chain in reprocessing is longer and more employment-intensive than in mining. In Latin America and the Caribbean, a large share of recycling activities are informal and represent a source of precarious work which poses health and safety risks (Medina, 1999). Adopting a circular economy would increase the valuation of waste and, with the implementation of complementary measures, improve working conditions in the sector, as discussed later on.

Figure II.4

Latin America and the Caribbean: net job creation in a circular economy scenario, 2020–2030

(Thousands of jobs created)



Source: International Labour Organization (ILO), on the basis of EXIOBASE Consortium, EXIOBASE [online database] <https://www.exiobase.eu/>.

Note: Difference in the total number of employees in the case of an energy transition and in the case of a scenario in which current trends prevail.

3. Sustainable agriculture can bring about a sea change in rural employment

The agricultural sector requires change to advance towards sustainability, food security and decent work. The sector faces serious environmental challenges, including those specific to climate change (changes in rainfall and temperature patterns) and others such as soil degradation, water scarcity, biodiversity loss, pest resistance and water and soil pollution. Agriculture is also a source of environmental damage as it generates roughly one quarter of total greenhouse gas emissions, in addition to contributing to biodiversity loss, soil degradation, deforestation and eutrophication (Alexandratos and Bruinsma, 2012; Pingali, 2012; Swaminathan and Kesavan, 2016).

Many of these environmental and productivity problems stem from the adoption of conventional techniques (such as intensive farming, single-crop farming and deep ploughing), land use change, and poor management of land, water and chemical inputs. A sustainable and productive future in agriculture is only possible with a transformation of production techniques and infrastructure investment (for example, irrigation, roads, storage, extension services and research) to improve efficiency and resilience in the face of climate change (ELD Initiative/UNEP, 2015; FAO, 2015 and 2016b; Headey and Jayne, 2014; Jayne, Kwame and Henry, 2018; Jayne, Chamberlin and Headey, 2014; OECD, 2017; Pagiola, 1999).

Conservation agriculture (FAO, 2001 and 2011a; Friedrich, Derpsch and Kassam, 2016) and organic agriculture (Etingoff, 2016; Merfield and others, 2016; Muller and others, 2017) are considered sustainable alternatives to conventional agriculture. Both involve changes in the way the land is worked and in the use of inputs, including the distribution and use of human capital throughout the year. Both techniques promise an increase in income for those who adopt them, but this is only possible with training and investment in materials and machinery, in addition to changes in markets that adapt to the mode and calendar of organic production.

Conservation agriculture is promoted as a sustainable technique as it eliminates or minimizes ploughing, promotes crop rotation and maintains a permanent soil cover. It helps to maintain soil quality, reduces water consumption and increases the capacity for carbon sequestration in soil. Organic agriculture, meanwhile, forgoes synthetic chemical fertilizers, herbicides and pesticides. Both techniques promise advancement towards sustainability in the agricultural sector, but this requires suitable management of nutrients, pest and disease control, and sufficient crop rotation to improve soil quality and fertility (ILO, 2018a).

Argentina, Brazil, Paraguay and Uruguay are leading the way in the adoption of conservation agriculture around the world. More than 70% of arable land is cultivated using these techniques (Friedrich, Derpsh and Kassam, 2016), which increase crop resilience in the face of climate change, particularly drought. They also increase yield and earnings for those who adopt them. According to its proponents, conservation agriculture requires less work as ploughing is not needed (or kept to a minimum). As a result, it can displace a large portion of wage earners in the sector, and complementary policies would be required to absorb this labour. At the same time, for family farmers, the adoption of conservation agriculture can free up labour demand, which would allow these households to diversify their income, but only if there are sufficiently flexible, decent and suitable labour opportunities available to them.⁷

Meanwhile, organic agriculture tends to require more labour and crops are sold at higher prices. Given lower yields, massive adoption of this method could increase pressure on land use change and food security if efficiencies are not achieved at other levels of the food production chain, as more than 30% of agricultural production is ultimately wasted (FAO, 2011b). As it requires more work, organic agriculture can increase labour opportunities in the agricultural sector, but these must be accompanied by complementary policies to ensure that they are decent.⁸

4. Adaptation will also be necessary and will have a knock-on effect on employment

The negative effects of climate change and environmental degradation will endure for decades, regardless of current efforts to avoid greater damage (IPCC, 2014; Steffen and others, 2015). This is why all mitigation efforts must go hand in hand with adaptation efforts, in order to minimize harm to the population and the effects on the world of work (Harsdorff and others, 2011; ECLAC, 2014). Adaptation measures can involve infrastructure (natural or built), capacity development or financial support. While it is important to consider the opportunity costs of each adaptation project, in general, all adaptation efforts have a positive impact on employment (ILO, 2018b).

Investment in natural infrastructure (for example, using natural processes and elements to reduce flood damage or to purify and store water, among other things) leads to direct job creation and indirectly protects work by protecting related ecosystem services. Investment to adapt the existing

⁷ Conservation agriculture is promoted as a technique requiring less work, which has been shown in experimental studies. However, according to studies examining the situation of smallholders who have adopted these techniques, this is not necessarily the case. In Ethiopia, Kenya, Malawi, Mozambique and the United Republic of Tanzania, for example, conservation agriculture requires more work. Although work is not needed in the ploughing phase, more of it is required during harvest, given the larger yields, and for weeding, owing to more limited access to herbicides in these countries (Montt and Luu, 2018). Conservation agriculture generally requires greater use of herbicides (Holgado and González, 2005).

⁸ Most studies that compare the labour requirements of organic and conventional agriculture focus on developed countries, where agriculture is technified and organic agriculture tends to require more work on tasks that cannot be technified. In general, there is also greater demand for labour in organic agriculture in developing countries, such as Ghana and India (Forster and others, 2013; Kleeman, 2016).

built infrastructure or to ensure the adaptability of new infrastructure also spurs direct job creation, as happens in construction or in research and development, although such work is often temporary. The development of natural or built infrastructure fosters indirect job creation through industries that provide the respective inputs (ILO, 2018b). To the extent that these inputs are produced locally and depending on labour productivity in these sectors, infrastructure development will have a multiplier effect on employment. In Brazil, for example, for every job created in construction, 4.38 are created in the total economy. This multiplier effect is 3.45 in Paraguay and 2.35 in Mexico (Ernst and Sarabia, 2015). Other adaptation policies, which are discussed below in the light of their broader contribution to facilitating a just transition towards sustainability, include social protection and capacity development.

C. Policies for advancing sustainability and decent work

The preceding sections illustrate the connection between the world of work and the environment. On the one hand, environmental degradation is harmful to the world of work and, on the other hand, the shift towards environmental sustainability requires changes in the world of work. To ensure that progress in sustainability can be passed on in the area of decent work, it is imperative to implement a range of policies aimed at, inter alia, a coherent legal framework for environmental and labour matters, social dialogue, social protection policies that take into account environmental risks, development of green jobs, the role of business, the environmental conservation potential of indigenous and tribal peoples, gender policies and capacity development. All these policies help to ensure a fair transition towards environmental sustainability.⁹

1. An integrated legal framework facilitates decent work

International labour standards provide a regulatory framework for promoting decent work as part of a transition towards environmental sustainability. Their universality and flexibility render them applicable to all workers, sectors and workplaces and they are part and parcel of the just transition (ILO, 2015b). In the context of the transition towards environmental sustainability, standards ensure decent work in emerging sectors. Some standards, in particular the fundamental Conventions, contribute to the proper functioning of the labour market. For example, the Freedom of Association and Protection of the Right to Organise Convention, 1948 (No. 87) and the Tripartite Consultation (International Labour Standards) Convention, 1976 (No. 144) ensure the joint participation of workers and employers in decision-making on environmental matters, climate change and related policies likely to affect the workplace.¹⁰ International labour standards can also protect migrants displaced by climate change or natural disasters (for example, the Migration for Employment Convention (Revised), 1949 (No. 97)). The recently adopted Employment and Decent Work for Peace and Resilience Recommendation, 2017 (No. 205) contains relevant measures for building resilience to environmental crises or problems associated with climate change.

While the aim is to promote decent work, international labour standards also bolster environmental sustainability, to some extent. The Indigenous and Tribal Peoples Convention, 1989 (No. 169) strengthens

⁹ The *Guidelines for a just transition towards environmentally sustainable economies and societies for all* (ILO, 2015b), the outcome of a tripartite meeting of experts, outlines key policy areas for a just transition, which include: macroeconomic and growth policies, industrial and sectoral policies, enterprise policies, skills development, occupational safety and health, social protection, active labour market policies, rights, and social dialogue and tripartism.

¹⁰ Without the public participation ensured by these conventions, society cannot be inclusive, equitable and democratic (Olsen, 2009).

the role of indigenous and tribal peoples in managing the environment and offers a legal framework for evaluating the environmental impact of projects likely to affect them. It also includes provisions to protect and conserve the environment of the lands they inhabit. The Prevention of Major Industrial Accidents Convention, 1993 (No. 174) places environmental protection on a par with the protection of workers and of the community. Conventions that promote health and safety at work—such as the Working Environment (Air Pollution, Noise and Vibration) Convention, 1977 (No. 148) and conventions on the management of hazardous materials—also prevent, albeit indirectly, environmental damage resulting from workplace operations.¹¹

More explicit reference is made to environmental goals in multilateral environmental agreements. While such agreements proliferated on the heels of the 1972 United Nations Conference on the Human Environment, it was only from the 1990s onward that environmental agreements and instruments began to include social and economic issues such as labour and decent work. Table II.2 below illustrates the multilateral environmental agreements that incorporate labour issues. However, the treatment of these issues in such agreements is neither full nor comprehensive.

Table II.2

Labour issues covered in multilateral environmental agreements

Labour issue	Multilateral environmental agreement
Decent work	<ul style="list-style-type: none"> - United Nations Convention on the Law of the Sea (1982) - Convention on the Protection of the Marine Environment of the Baltic Sea Area (1992) - International Tropical Timber Agreement, 2006 - Paris Agreement (2015)
Promotion and protection of employment	<ul style="list-style-type: none"> - United Nations Convention to Combat Desertification in Those Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa (1994) - Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks (1995) - International Tropical Timber Agreement, 2006
Environmental rights at work	<ul style="list-style-type: none"> - Protocol on Pollutant Release and Transfer Registers (2003)
Just transition	<ul style="list-style-type: none"> - Paris Agreement (2015)
Occupational health and safety	<ul style="list-style-type: none"> - Convention on Nuclear Safety (1994) - Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management (1997) - Protocol to the 1979 Convention on Long-Range Transboundary Air Pollution on Heavy Metals (1998) - Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade (1998) - Stockholm Convention on Persistent Organic Pollutants (2001) - International Convention on the Control of Harmful Anti-fouling Systems on Ships (2001) - Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships, 2009 - Minamata Convention on Mercury (2013)
Rules on the resolution of employees' compensation disputes	<ul style="list-style-type: none"> - Vienna Convention on Civil Liability for Nuclear Damage (1963) - International Convention on Liability and Compensation for Damage in connection with the Carriage of Hazardous and Noxious Substances by Sea (1996) - Convention on Supplementary Compensation for Nuclear Damage (1997)

Source: International Labour Organization (ILO).

¹¹ A number of standards relating to occupational health and safety and the handling of hazardous materials refer explicitly to the protection of the environment: Guarding of Machinery Convention, 1963 (No. 119); Working Environment (Air Pollution, Noise and Vibration) Convention, 1977 (No. 148); Asbestos Convention, 1986 (No. 162); Chemicals Convention, 1990 (No. 170); Prevention of Major Industrial Accidents Convention, 1993 (No. 174); Safety and Health in Mines Convention, 1995 (No. 176); Safety and Health in Agriculture Convention, 2001 (No. 184); Asbestos Recommendation, 1986 (No. 172); Safety and Health in Construction Recommendation, 1988 (No. 175); Safety and Health in Agriculture Recommendation, 2001 (No. 192) and Chemicals Recommendation, 1990 (No. 177).

One way to align global environmental goals with social objectives is for multilateral environmental conventions to refer directly to international labour standards. This happens in some cases, such as the United Nations Convention on the Law of the Sea of 1982, the International Tropical Timber Agreement, 2006 and the Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships, 2009, which include labour standards as key legal frameworks for implementation. The Paris Agreement of 2015 encompasses essential aspects of the world of work and the importance of labour issues has been maintained in the negotiations which have continued after the adoption of the Agreement. At its twenty-third session, the Conference of the Parties to the United Nations Framework Convention on Climate Change adopted a gender action plan to promote gender-responsive climate policy (UNFCCC, 2017a).

Various strategies are in place at the national level to integrate labour goals with environmental goals. Some countries have adopted comprehensive frameworks which allow for an integrated approach to sustainability and include provisions concerning employment. This is the case with the Framework Act on Low-Carbon Green Growth (2010) of the Republic of Korea, which focuses on job creation as one of the basic principles of sustainable growth. Article 35 of the Act also establishes that the Government must play an active role by providing technical support and creating jobs in green industries so that all citizens can benefit from green growth and have access to new technologies.

In other countries, efforts to steer the country towards sustainability are spread among frameworks governing specific issues, such as climate change, or particular sectors, such as energy, agriculture, forestry, transport or waste management. In some cases, these sectoral frameworks include provisions concerning the world of work. Mexico's Climate Change Act of 2012 identifies a number of measures for reducing emissions levels, particularly in transport, and promotes programmes that reduce the movement of workers (for example, teleworking). In Brazil, Law No. 12.305 establishing the National Solid Waste Policy recognizes the value of waste as an economic asset capable of creating employment and income and in promoting civic ideals. It requires all municipal waste management plans to include mechanisms for creating business, work and income through the recovery of waste.

Table II.3 shows which aspects of the world of work are considered in energy legislation in selected Latin American and Caribbean countries. The energy sector will be directly affected by a transition towards an environmentally sustainable economy, necessarily transforming the types and conditions of work in the sector. Including labour considerations in legislation is the first step towards ensuring a just energy transition that would provide decent work. Of the seven countries of the region examined, six have legislation specific to the energy sector that make explicit mention of skills development and research and development; five have legal frameworks that make general reference to the world of work; and four have frameworks that refer to job creation. Among the countries considered, Chile is the only one that does not address any aspects of the world of work in energy sector legal frameworks. In none of the countries is reference made to social dialogue, which, as discussed below, is a mechanism for moving towards a just transition.

Table II.3

Latin America and the Caribbean (selected countries): labour considerations in energy legislation

	General reference to the world of work	Job creation	Research and development	Skills development	Social dialogue
Argentina	☑	☑	☑	☑	☒
Brazil	☑	☑	☑	☑	☒
Chile	☒	☒	☒	☒	☒
Colombia	☒	☒	☑	☑	☒
Costa Rica	☑	☑	☑	☑	☒
Mexico	☑	☑	☑	☑	☒
Trinidad and Tobago	☑	☒	☑	☑	☒

Source: International Labour Organization (ILO), *World Employment and Social Outlook 2018: Greening with jobs*, Geneva, 2018.

Note: Only the seven countries from the region included in the source document (ILO 2018a) are shown.

2. Social protection policies can also play a role in achieving environmental goals

Social protection can be used as an adaptation mechanism to prevent households, particularly poor rural households, from losing income or falling into poverty as a result of environmental problems or events. It is also key to protecting workers, households and communities dependent on industries likely to be negatively impacted by the transition towards an environmentally sustainable economy (ILO, 2015b). Specifically, cash transfers, unemployment benefits, public employment programmes and payments for environmental services are some of the support instruments that enable households and individuals to deal with the potentially negative consequences of environmental degradation. These protection mechanisms are essential for the transition towards a sustainable economy (ILO, 2018a). The instruments that are adopted or adapted must consider labour market characteristics and environmentally at-risk populations; in Latin America, this means taking into account the high percentage of workers in informal employment and in low-productivity sectors (ILO, 2017b).

Efforts to limit deforestation in China at the end of the 1990s saw the imposition of quotas on wood extracted from natural forests, putting at risk the income source of thousands of workers. These workers received cash transfers and training and entrepreneurship opportunities as compensation. Those who were unable to find work in other industries received basic unemployment benefits (ILO/AFD, 2017b). Such support policies are key to the success of environmental mitigation efforts. In the Philippines, projects to close coal mines have been suspended until compensation measures for the affected workers can be guaranteed (ILO, 2018a). Thus, sustainability efforts in Latin America and the Caribbean may be severely constrained by the fact that only one out of every eight unemployed workers receive unemployment benefits (ILO, 2017b).

Some countries—developed, emerging and developing alike—have been adapting their social protection systems to incorporate climate, environmental and natural disaster risk (ILO, 2017b; ILO/AFD, 2017b; UNEP, 2016). For example, transfers help poor households affected by environmental and climatic events such as droughts or floods when these are recognized as potential risks. There is reduced incentive for households in vulnerable situations to adopt strategies that go against

sustainability (such as cutting down trees to earn additional income). Lastly, there are fewer incentives to migrate in the wake of serious weather or environmental events (ILO, 2018a; Wood, 2011).¹²

Furthermore, social protection promotes environmental protection at the local level. While the main sources of environmental degradation are manufacturing and consumer demand, the risk of poverty and food or energy insecurity can prompt households to overexploit local resources (WCED, 1987). For example, rural households living in poverty often lack access to social protection and must resort to unsustainable resource extraction to generate income immediately, whether through timber extraction, overgrazing, overfishing, informal or illegal mining or overexploitation of agricultural land.

Lastly, public employment programmes and payments for environmental services can contribute to the achievement of social goals and environmental goals alike. Such programmes combine the goals of job creation, the provision of income security, poverty reduction and the provision of public goods and services (for example, infrastructure). In many cases, the latter goal may also include an environmental component, in the form of climate adaptation infrastructure or conservation, preservation and mitigation projects (Harsdorff, Lieuw-Kie-Song and Tsukamoto, 2011; Lieuw-Kie-Song and others, 2010).¹³ In Latin America and the Caribbean, the 10 public employment programmes implemented since 2000 and which have been reviewed in Subbarao and others (2013) focus on infrastructure development. Of these, five have a specific component aimed at preventing poverty, while only three link infrastructure development to programmes for adaptation to or mitigation of environmental damage.

Payments for environmental services can also contribute to the achievement of social and environmental objectives. As noted above, ecosystem services are generally not market-based and are provided at no cost. As a result, there is no incentive to maintain such services, even if they are an integral part of economic activity. By this logic, payments for environmental services are meant to create incentives for environmental conservation while generating income for individuals and communities. In some circumstances, payments for environmental services can help poverty eradication efforts (Barbier and Markandya, 2013; Gómez-Baggethun and others, 2010; Pagiola, Arcenas and Platais, 2005). This is the rationale of the Payment for Environmental Services programmes in Costa Rica and Mexico or the Bolsa Verde in Brazil. The latter gives cash transfers to households and vulnerable communities in exchange for services that protect forests. Although it is households or communities that receive monetary benefits, more generally, it is the whole country that profits from the ecosystem services provided by preservation of the forest (ILO, 2018a; Schwarzer, Panhuys and Diekmann, 2016).

3. There can be no transition without development of corresponding skills

The transition towards a sustainable economy implies changes in economic structure, which necessarily translates into a change in the skills required by each economy. Greening the economy is impossible without workers who have the requisite skills (Bowen, Duffy and Fankhauser, 2016; Bowen and Kuralbayeva, 2015; ILO, 2012; Strietska-Ilina and others, 2011). For this to happen, the strategy for moving towards environmental sustainability must be integrated with a skills development strategy. In other words, it is imperative to implement a system that evaluates and anticipates the skills that will be needed in the future and the capacity to develop them quickly and in line with each country's

¹² The Hunger Safety Net Programme in Kenya and the Productive Safety Net Programme in Ethiopia are two examples. Both increase social benefits in times of drought or when there are threats to food security (ILO, 2018a).

¹³ The Working for Water programme in South Africa and the Mahatma Gandhi National Rural Employment Guarantee Act in India provide job opportunities in the area of environmental improvement (Das, 2013; Schwarzer, van Panhuys and Diekmann, 2016).

sustainable development strategies. France, India, the United Kingdom and South Africa are some of the countries that have developed or begun to develop such systems. In many such countries, there exists a high level of public and political acceptance of sustainability, combined with national policies for the development of skills needed for the green transition and instruments for intersectoral coordination in skills development (ILO, 2018a).¹⁴

Costa Rica has developed a decarbonization strategy to boost national competitiveness. The National Institute for Learning assessed the skills needed for the green transition, but these were limited to the sectors of carbon neutrality management, environmental management and transport. Other sectors that could play an important, albeit indirect, role in the transition were excluded. Barbados has developed partnerships between government agencies, the private sector, non-governmental organizations and international agencies to define its strategy for transition towards sustainability, but has not leveraged these partnerships to formulate a national skills development policy. It has, however, done so at the sectoral level. The National Energy Policy 2017—2037 identifies specific aspects of skills development needed, including qualification standards, curricula for various levels of education, innovation, technical and vocational programmes, systems for sharing information between educational institutions and the energy sector, and study grants in the energy sector.

Often, the training programmes on offer are sector-specific. This is the case with programmes for developing skills in sustainable or climate-resilient agricultural practices in Barbados, Costa Rica and Guyana, or in reforestation in Guyana. In some cases, the private sector implements skills development policies. In Brazil, for example, the *RenovAção* project provides training for sugarcane industry workers who have lost their jobs as a result of the greening of the sector. These training programmes have helped them to find work in other sectors.

4. Companies are driving the transition

Companies play a key role in any transition towards environmental sustainability as they are a source of innovation, promote the adoption of new technologies, provide financing for projects and foster development strategies. As the primary source of job creation, companies are well placed to drive the green transition that translates into decent work and their positions in supply chains means their influence extends beyond an enterprise to the entire sector (ILO, 2018a; ITC, 2016).

Like the wider world of work, companies stand to gain from a healthy and stable environment. Environmental degradation entails risks and instability, and while there may be opportunities for some, it has a negative impact on most companies' interests (UNEP, 2013).¹⁵

Greening companies means adapting their processes to make them more compatible with environmental sustainability (for example, improving energy efficiency or producing goods and services that directly raise environmental quality). For many companies, it pays to embrace sustainability. For example, 22% of large firms saw an increase in sales when they reduced their greenhouse gas emissions. At the same time, 65% of investments companies make to reduce emissions are

¹⁴ This section is based on the 27 countries examined by ILO (2018a). Barbados, Brazil, Costa Rica and Guyana were the participating countries from the Latin American and Caribbean region.

¹⁵ By way of example, and in view of the risks associated with an environment that is rendered more unstable by climate change, on 26 April 2017, a group of large multinational firms in the technology, food, oil, chemical, pharmaceutical, consumer goods, retail, energy and mining sectors expressed their support for the 2015 Paris Agreement. These companies were Apple, BHP Billiton, BP, DuPont, General Mills, Google, Intel, Microsoft, National Grid, Novartis Corporation, PG&E, Rio Tinto, Schneider Electric, Shell, Unilever and Walmart. See [online] <https://c2es.org/site/assets/uploads/2017/04/business-letter-white-house-paris-agreement-final-04-26-2017-1.pdf>.

amortized in three years or less as a result of higher sales or lower costs (ILO, 2018a). Micro-, small and medium-sized enterprises can adopt energy efficiency measures and have a positive impact on the environment while reducing their costs (IEA, 2015b). In the long term, sustainability lowers risks, cuts capital costs and increases both income and operational efficiency (ITC-ILO, 2016). Investors appreciate sustainability efforts because they send strong signals that companies are factoring in the multiplicity of risks to which they are exposed (Unruh and others, 2016).

5. Green jobs must be decent jobs

Workers are also catalysts in the transition towards sustainability. Green jobs —jobs which reduce energy and materials consumption, limit greenhouse gas emissions, minimize waste and pollution and conserve and restore ecosystems— are essential to all sustainability efforts. However, for them to be green, these jobs must also be decent (ITC-ILO, 2016; UNEP, 2008); in sectors such as recycling, this is not always the case. With appropriate policies in place, such jobs can become decent and genuinely green jobs. This was the case with waste picker cooperatives in Argentina, Brazil, Colombia and other countries in the region (Medina, 1999). In Buenos Aires, waste picker cooperatives were able to reduce child labour, formalize employment and improve occupational health and safety.

6. Social dialogue is a mechanism for moving towards a just transition

As noted earlier, businesses and employers' organizations can actively contribute to the transition through the development and implementation of sustainable practices. Trade unions also play an important role, as they can identify challenges and opportunities for workers in a transition towards sustainability. Indeed, much of the research on the effects of climate change and mitigation on employment has been conducted by union groups (Glynn, Cadman and Maraseni, 2017).

Social dialogue between workers and employers can help to prevent and reduce the environmental footprint of business activity; apply environmental policies, plans and measures within the company; improve working conditions in an uncertain environmental context and minimize health risks for workers; preserve the quality of work and promote the quality of green jobs; and strengthen public participation in environmental decisions. In this regard, international labour standards lay the foundation for this dialogue.

At the national level, there are examples of joint efforts by employers and unions to identify areas, such as the reduction of greenhouse gas emissions, where progress in corporate sustainability is possible without job loss, salary cuts or deterioration in working conditions.¹⁶ In some cases, productivity bonuses have been tied to lower water consumption or specific clauses have been included to reduce the company's environmental footprint.^{17 18} Similar clauses have been adopted in international conventions between multinational enterprises and international trade union federations. Of the framework international agreements analysed by ILO (2018a), 59% include environmental provisions in their preambles. While the majority of these agreements make reference to environmental matters, more recent instruments tend to be more precise and specific with regard to the content and scope of their clauses.¹⁹

¹⁶ See, for example, the agreement signed on 30 October 2015 in Italy between Luxottica Group and its workers' union.

¹⁷ This is the case of the agreement established in Italy between MarpoSS, individual and union representatives and trade union organizations on 1 September 2017.

¹⁸ See, for example, the library of collective agreements established in Canada with clauses intended to reduce the environmental impact of corporate activity [online] https://www.zotero.org/green_agreements/items.

¹⁹ Some international framework agreements, such as those signed with multinationals like GDF SUEZ (2010), AEON (2014), Lukoil (2014), Total (2015), Tchibo (2016) and PSA Peugeot-Citroën (2017) make specific reference to environmental issues.

For example, in Brazil, under the framework agreement signed between Petrobras and the International Federation of Chemical, Energy, Mine and General Workers' Unions, Petrobras committed to conducting its activities in a socially and environmentally responsible manner, contributing to sustainable development. In addition, it undertook to contribute to the preservation and restoration of biodiversity by managing the environmental impact of its activities, improve energy efficiency and increase the use of renewable energies; invest in sustainable projects, taking into account economic, social and environmental returns; promote the sustainable use of water, oil, natural gas and energy, cutting consumption, recycling and reducing the generation of solid waste and polluting gases; and to report any environmental damage that may occur in a timely manner (Petrobras, 2011). In Argentina, the collective agreement signed between energy company YPF and the oil workers' union established, inter alia, the concept of environmental delegates, through which workers are included in discussions on the company's environmental sustainability. The environmental delegate is responsible for verifying compliance with environmental legislation and monitoring production processes to reduce the use of raw materials, natural resources and energy.

7. To be just, all transitions must include gender issues

As stated earlier, environmental degradation worsens inequalities. This is seen in gender inequalities in the world of work, in the form of differences in labour market participation, wages and incomes, participation in formal employment, access to social protection (ILO, 2017b), as well as exposure to the risk of exploitation, precarious employment and labour rights violations (ILO, 2018d and 2017c). The shift towards sustainability will help to limit these inequalities. However, in Latin America and the Caribbean, the industries where sustainability will bring the most growth tend to be those in which women are under represented. If specific action is not taken to reduce gender inequality, the growth of these industries and green jobs could widen this form of inequality in the world of work (ILO, 2015c and 2018c).

8. Indigenous and tribal peoples play a key role in conservation

As mentioned above, indigenous and tribal peoples are one of the groups that are most affected by climate change and environmental degradation. However, they play a vital role in the conservation of ecosystems. Although they make up 5% of the world population, indigenous and tribal peoples care for and protect 22% of the Earth's surface and 80% of its biodiversity (ILO, 2017a). Indigenous and tribal peoples are also vital for the transition towards sustainability. Their economies are based on principles of sustainability and with their knowledge and skills, they can actively contribute to climate action and environmental protection. Deforestation rates in Brazil were recorded at 0.6% on indigenous lands, compared to 7.0% on other lands (Stevens and others, 2014). The United Nations Framework Convention on Climate Change, recognizing this fundamental role in the context of climate change, facilitates the active participation of indigenous and tribal peoples in negotiations on and the development and implementation of policies (UNFCCC, 2017b).

D. Conclusions

The natural environment, work and inequality are intrinsically linked. The activity of millions of workers depends on natural processes that can be disrupted by environmental degradation. Among their many other inherent risks, pollution, natural disasters and global warming endanger health, occupational safety and productivity. Environmental degradation in any form accentuates existing inequalities, affecting mainly women, people living in poverty and indigenous and tribal peoples, among other groups. From the perspective of the world of work and social justice, environmental sustainability is urgently needed.

If sustainability is urgently needed, the next question is how it affects the world of work. The analyses presented in this chapter show that improvements in two aspects of sustainability—the decarbonization of the energy sector and the circular economy—create opportunities for job creation. While the aggregate result points to net job creation, jobs will be lost in some industries in the process.

The challenge, therefore, is not only to move towards sustainability, but to embark on a transition that creates decent jobs and is just for all. For this to happen, complementarity between policies is imperative. Policies aimed at environmental sustainability must be accompanied by integrated legal frameworks as well as social protection, skills development and gender equality policies that promote social dialogue, among other things.

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Annex A1

Table A1.1

Latin America and the Caribbean: annual average urban unemployment rate, 2007–first half of 2018
(Percentages)

Country	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017 ^a	2017 ^a 2018 ^a	
												First half	
Latin America													
Argentina ^b	8.5	7.9	8.7	7.7	7.2	7.2	7.1	7.3	6.5	8.5	8.4	9.0	9.4
Bolivia (Plurinational State of)	7.7	6.7	6.8	...	3.8	3.2	4.0	3.5	4.4	4.9	4.6	...	...
Brazil ^c	9.3	7.9	8.1	6.7	6.0	8.2	8.0	7.8	9.3	13.0	14.5	14.9	14.7
Chile ^d	7.6	8.2	10.2	8.5	7.4	6.7	6.2	6.7	6.4	6.8	6.9	7.1	7.3
Colombia ^e	12.2	12.1	13.2	12.7	11.8	11.4	10.7	10.0	9.8	10.3	10.5	11.0	11.3
Costa Rica ^f	4.8	4.8	8.5	7.1	7.7	9.8	9.1	9.5	9.7	9.6	9.0	8.6	9.4
Cuba ^g	1.8	1.6	1.7	2.5	3.2	3.5	3.3	2.7	2.5	2.0	2.4	...	...
Dominican Republic ^h	5.4	5.3	5.8	5.7	6.7	7.2	7.9	7.2	7.9	7.9	6.1	6.4	5.7
Ecuador ⁱ	6.9	6.9	8.5	7.6	6.0	4.9	4.7	5.1	5.4	6.8	5.6	5.7	5.5
El Salvador ^j	5.8	5.5	7.1	6.8	6.6	6.2	5.6	6.7	6.5	6.9	6.8	...	...
Guatemala ^k	...	...	...	4.8	3.1	4.0	3.8	4.0	3.2	3.4	3.2	...	...
Honduras	3.9	4.2	4.9	6.4	6.8	5.6	6.0	7.5	8.8	9.0	8.2	...	...
Mexico ^l	4.0	4.3	5.9	5.9	5.6	5.4	5.4	5.3	4.7	4.3	3.8	3.7	3.5
Nicaragua ^m	6.9	8.0	10.2	10.5	8.1	8.7	7.7	8.5	7.7	6.3	5.2	...	...
Panama ⁿ	7.8	6.5	7.9	7.7	5.4	4.8	4.7	5.4	5.8	6.4	6.9	6.4	6.9
Paraguay ^o	7.2	7.4	8.2	7.4	6.9	7.9	7.7	7.8	6.5	7.7	8.3	7.6	7.4
Peru	6.3	6.0	5.9	5.3	5.1	4.7	4.8	4.5	4.4	5.2	5.0	6.0	5.7
Uruguay ^p	9.8	8.3	8.2	7.5	6.6	6.7	6.7	6.9	7.8	8.2	8.3	8.7	8.8
Venezuela (Bolivarian Republic of) ^q	8.3	7.4	7.8	8.6	8.3	8.1	7.8	7.2	7.0	7.3	...	...	...
The Caribbean													
Bahamas ^r	7.9	8.7	14.2	...	15.9	14.4	15.8	14.8	13.4	12.2	10.0	9.9	10.0
Barbados ^s	7.4	8.1	10.0	10.8	11.2	11.6	11.6	12.3	11.3	9.7	10.0	10.4	9.0
Belize ^t	8.5	8.2	13.1	12.5	...	15.3	13.2	11.6	10.1	9.5	9.3	9.0	9.4
Jamaica ^u	9.9	10.6	11.4	12.4	12.6	13.9	15.2	13.7	13.5	13.2	11.7	12.4	9.7
Trinidad and Tobago ^v	5.5	4.6	5.3	5.9	5.1	5.0	3.7	3.3	3.5	4.0	5.0	...	...
Latin America and the Caribbean ^s	8.5	7.8	9.1	8.4	7.7	7.3	7.1	6.9	7.3	8.9	9.3	10.3	10.2

Source: Economic Commission for Latin America and the Caribbean (ECLAC) and International Labour Organization (ILO), on the basis of information from household services conducted in the respective countries.

^a Preliminary figures.

^b Thirty-one urban agglomerations. The National Institute of Statistics and Censuses (INDEC) of Argentina does not accept the data corresponding to the period 2007–2015, and is reviewing them. Therefore, these data are only preliminary and will be replaced when the new official data are published. 2015 data refer to an average for the first three quarters, and 2016 data refer to an average for the second, third and fourth quarters.

^c Until 2011, six metropolitan regions; after 2012, 20 metropolitan regions. Data not comparable with previous years.

^d New measurement as from 2010. Data not comparable with previous years.

^e Municipal capitals. Includes hidden unemployment.

^f New measurements as from 2009 and 2012. Data not comparable with previous years.

^g National total.

^h A new survey was applied as from 2015. Data not comparable with previous years. Data for the first half of 2017 and 2018 refer to the first quarter.

ⁱ Includes hidden unemployment.

^j As from 2011, the definition of working-age population was changed from 10 years to 15 years.

^k Areas of high urbanization, medium urbanization and low urbanization.

^l A new survey was applied as from 2010. Data not comparable with previous years.

^m Includes hidden unemployment. Data for the first half of 2017 and 2018 refer to March.

ⁿ From 2010 to 2017, data refer to Asunción and urban areas in the Central Department. Data for 2017 refer to an average for the first three quarters. Data for the first half of 2017 and 2018 refer to the urban total.

^o Localities with 5,000 inhabitants or more.

^p National total. Includes hidden unemployment.

^q National total. Includes hidden unemployment. Data for the first half of 2017 and 2018 refer to April.

^r National total. Includes hidden unemployment. Data for 2017 refer to an average for the first three quarters.

^s Weighted average adjusted for lack of information and methodological differences and changes. Includes an adjustment of data for the exclusion of hidden unemployment in Colombia, Ecuador, Jamaica and Panama. The half-yearly data refer to a small number of countries, so are not comparable with the annual data.

Table A1.2
Latin America and the Caribbean: annual average urban participation rate, 2007–first half of 2018
(Percentages)

Country	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017 ^a	2018 ^a	
												2017 ^a	2018 ^a
												First half	
Latin America													
Argentina ^b	59.5	58.8	59.3	58.9	59.5	59.3	58.9	58.3	57.7	57.5	57.8	57.3	58.4
Bolivia (Plurinational State of)	57.1	58.8	60.5	...	59.6	57.0	58.5	59.4	56.2	59.4	56.8	...	...
Brazil ^c	56.9	57.0	56.7	57.1	57.1	63.1	63.4	62.8	62.8	63.7	64.6	64.5	64.6
Chile ^d	55.4	56.6	56.5	59.0	60.3	59.9	59.7	60.0	59.9	59.6	59.9	59.6	60.1
Colombia ^e	60.2	60.6	62.9	64.1	65.2	66.0	65.8	66.0	66.3	65.9	65.6	65.7	65.1
Costa Rica ^f	58.5	58.6	62.3	60.7	62.6	64.5	63.3	64.0	62.7	59.3	59.5	60.1	60.2
Cuba ^g	73.7	74.7	75.4	74.9	76.1	74.2	72.9	71.9	69.1	65.2	...	...	...
Dominican Republic ^h	62.1	62.3	60.0	61.1	62.5	63.6	63.7	63.5	62.2	62.8	62.6	62.3	63.1
Ecuador ⁱ	69.1	67.7	66.3	64.2	62.2	62.8	61.8	62.2	64.1	65.7	65.8	65.6	64.2
El Salvador ^j	63.6	64.1	64.3	64.4	63.7	64.6	65.1	64.6	63.5	63.8	63.3	...	...
Guatemala ^k	...	...	...	65.2	61.0	65.5	61.9	62.7	62.9	62.4	62.8	...	...
Honduras	51.7	52.7	53.1	53.7	52.5	51.2	54.3	55.7	57.1	57.4	58.1	...	...
Mexico ^k	61.4	61.3	61.1	60.8	61.0	61.6	61.6	60.9	60.8	60.8	60.5	60.4	60.7
Nicaragua ^l	50.7	53.8	52.1	71.3	73.7	74.7	74.5	73.2	71.6	72.2	72.1	...	...
Panama ^m	62.6	64.4	64.4	64.0	63.2	63.6	64.1	64.3	64.5	64.6	64.2	64.7	66.6
Paraguay ⁿ	59.6	61.5	62.3	63.9	64.7	64.7	66.6	65.5	66.0	66.3	66.0	70.8	71.7
Peru	71.0	71.1	71.2	71.6	71.6	71.5	71.2	70.0	69.4	70.5	70.7	59.5	70.0
Uruguay ^o	62.9	62.8	63.6	63.5	65.0	64.0	63.6	64.8	64.0	63.8	63.4	63.6	62.7
Venezuela (Bolivarian Republic of) ^p	64.8	64.8	65.0	64.6	64.4	64.0	64.3	65.1	63.7	64.0	...	...	...
The Caribbean													
Bahamas ^q	76.2	76.3	73.4	...	72.1	72.5	73.2	73.7	74.3	77.1	80.5	80.0	82.5
Barbados ^q	67.8	67.6	67.0	66.6	67.6	66.2	66.7	63.9	65.1	66.5	65.3	65.4	64.2
Belize ^q	61.2	59.2	...	...	...	65.8	64.0	63.6	63.2	64.0	64.1	64.3	65.5
Jamaica ^q	64.9	65.4	63.5	62.4	61.7	61.9	63.0	62.8	63.1	64.8	65.1	65.2	64.2
Trinidad and Tobago ^r	63.5	63.5	62.7	62.1	61.3	61.8	61.3	61.9	60.6	59.7	59.5	...	...
Latin America and the Caribbean ^s	...	...	62.5	62.7	63.0	63.3	63.2	62.9	62.6	63.0	63.2	63.1	63.3

Source: Economic Commission for Latin America and the Caribbean (ECLAC) and International Labour Organization (ILO), on the basis of information from household services conducted in the respective countries.

^a Preliminary figures.

^b Thirty-one urban agglomerations. The National Institute of Statistics and Censuses (INDEC) of Argentina does not accept the data corresponding to the period 2007–2015, and is reviewing them. Therefore, these data are only preliminary and will be replaced when the new official data are published. 2015 data refer to an average for the first three quarters, and 2016 data refer to an average for the second, third and fourth quarters.

^c Until 2011, six metropolitan regions; after 2012, 20 metropolitan regions. Data not comparable with previous years.

^d New measurement as from 2010. Data not comparable with previous years.

^e Municipal capitals. Includes hidden unemployment.

^f New measurements as from 2009 and 2012. Data not comparable with previous years.

^g National total.

^h A new survey was applied as from 2015. Data not comparable with previous years. Data for the first half of 2017 and 2018 refer to the first quarter.

ⁱ Includes hidden unemployment.

^j As from 2011, the definition of working-age population was changed from 10 years to 15 years.

^k Areas of high urbanization, medium urbanization and low urbanization.

^l A new survey was applied as from 2010. Data not comparable with previous years.

^m Includes hidden unemployment. Data for the first half of 2017 and 2018 refer to March.

ⁿ From 2010 to 2017, data refer to Asunción and urban areas in the Central Department. Data for 2017 refer to an average for the first three quarters. Data for the first half of 2017 and 2018 refer to the urban total.

^o Localities with 5,000 inhabitants or more.

^p National total. Includes hidden unemployment.

^q National total. Includes hidden unemployment. Data for the first half of 2017 and 2018 refer to April.

^r National total. Includes hidden unemployment. Data for 2017 refer to an average for the first three quarters.

^s Weighted average adjusted for lack of information and methodological differences and changes. Includes an adjustment of data for the exclusion of hidden unemployment in Colombia, Ecuador, Jamaica and Panama. The half-yearly data refer to a small number of countries, so are not comparable with the annual data.

Table A1.3

Latin America and the Caribbean: annual average urban employment rate, 2007–first half of 2018
(Percentages)

Country	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017 ^a	2017 ^a	2018 ^a
												First half	
Latin America													
Argentina ^b	54.5	54.2	54.2	54.4	55.2	55.0	54.7	54.0	53.9	52.6	52.9	52.2	53.0
Bolivia (Plurinational State of)	52.7	56.2	57.5	...	57.3	55.2	56.1	57.3	53.8	56.5	54.2	...	...
Brazil ^c	51.6	52.5	52.1	53.2	53.7	57.9	58.3	57.9	57.0	55.4	55.3	54.8	55.1
Chile ^d	51.2	52.0	50.7	54.0	55.8	55.9	56.1	56.0	56.0	55.6	55.8	55.4	55.7
Colombia ^e	52.9	53.2	54.6	56.0	57.5	58.5	58.8	59.4	59.8	59.2	58.8	58.4	57.8
Costa Rica ^f	55.7	55.7	57.0	56.4	57.8	58.2	57.5	57.9	56.6	53.6	54.2	54.9	54.6
Cuba ^g	72.4	73.6	74.2	73.0	73.6	71.6	70.5	70.0	67.5	63.8	...	...	...
Dominican Republic ^h	58.7	59.0	56.5	57.6	58.3	59.0	58.6	58.9	57.2	57.9	58.8	58.3	59.5
Ecuador	64.3	63.1	60.7	59.3	58.5	59.7	58.9	59.0	60.7	61.2	62.1	61.9	60.7
El Salvador	59.9	60.6	59.7	60.0	59.5	60.6	61.5	60.3	59.4	59.4	59.0	...	...
Guatemala ⁱ	...	...	...	62.0	59.0	62.8	59.5	60.2	60.9	60.2	60.8	...	...
Honduras	49.7	50.5	50.5	50.3	48.9	48.3	51.1	51.5	52.1	52.3	53.4	...	...
Mexico ^j	58.9	58.7	57.5	57.2	57.5	58.3	58.3	57.6	57.9	58.2	58.2	58.2	58.5
Nicaragua ^k	47.1	49.5	46.6	63.8	67.8	68.2	68.8	66.9	66.1	67.6	68.3	...	...
Panama ^l	57.7	60.2	59.3	59.1	59.8	60.6	61.1	60.9	60.7	60.4	59.8	60.6	62.0
Paraguay ^m	55.3	57.0	57.1	59.2	60.2	59.6	61.5	60.4	61.8	61.2	60.5	65.4	66.4
Peru	66.5	66.8	67.0	67.9	67.9	68.1	67.8	66.8	66.4	66.9	67.2	65.5	66.0
Uruguay ⁿ	56.7	57.6	58.4	58.8	60.7	59.6	59.5	60.4	59.0	58.6	58.1	58.1	57.2
Venezuela (Bolivarian Republic of) ^o	59.4	60.0	59.9	59.0	59.0	58.8	59.3	60.4	59.2	59.3	...	...	...
The Caribbean													
Bahamas ^q	70.2	69.7	63.0	...	60.6	62.1	61.6	62.8	64.4	67.1	72.5	72.1	74.3
Barbados ^q	62.8	62.1	60.3	59.5	60.0	58.5	58.9	56.0	57.7	60.0	58.8	58.6	58.5
Belize ^q	56.0	54.3	...	...	...	55.7	55.7	56.3	56.8	57.9	58.1	58.5	59.0
Jamaica ^q	58.6	58.5	56.3	54.7	54.4	53.3	53.4	54.2	54.6	56.2	57.5	57.1	58.0
Trinidad and Tobago ^q	59.9	60.6	59.4	58.4	58.2	58.8	59.1	59.9	58.5	57.4	56.5	...	...
Latin America and the Caribbean ^q	...	...	57.1	57.7	58.3	58.7	58.8	58.5	58.1	57.4	57.4	56.6	56.8

Source: Economic Commission for Latin America and the Caribbean (ECLAC) and International Labour Organization (ILO), on the basis of information from household services conducted in the respective countries.

^a Preliminary figures.

^b Thirty-one urban agglomerations. The National Institute of Statistics and Censuses (INDEC) of Argentina does not accept the data corresponding to the period 2007–2015, and is reviewing them. Therefore, these data are only preliminary and will be replaced when the new official data are published. 2015 data refer to an average for the first three quarters, and 2016 data refer to an average for the second, third and fourth quarters.

^c Until 2011, six metropolitan regions; after 2012, 20 metropolitan regions. Data not comparable with previous years.

^d New measurement as from 2010. Data not comparable with previous years.

^e Municipal capitals.

^f New measurements as from 2009 and 2012. Data not comparable with previous years.

^g National total.

^h A new survey was applied as from 2015. Data not comparable with previous years. Data for the first half of 2017 and 2018 refer to the first quarter.

ⁱ As from 2011, the definition of working-age population was changed from 10 years to 15 years.

^j Areas of high urbanization, medium urbanization and low urbanization.

^k A new survey was applied as from 2010. Data not comparable with previous years.

^l Data for the first half of 2017 and 2018 refer to March.

^m From 2010 to 2017, data refer to Asunción and urban areas in the Central Department. Data for 2017 refer to an average for the first three quarters. Data for the first half of 2017 and 2018 refer to the urban total.

ⁿ Localities with 5,000 inhabitants or more.

^o Data for the first half of 2017 and 2018 refer to April.

^q National total. Data for 2017 refer to an average for the first three quarters.

^r Weighted average adjusted for lack of information and methodological differences and changes. The half-yearly data refer to a small number of countries, so are not comparable with the annual data.

Table A1.4. Latin America and the Caribbean (16 countries): urban rates of activity, employment and unemployment, by sex first half of 2017 and first half of 2018 (Percentages)

Country	Unemployment rate						Activity rate						Employment rate					
	Total			Men			Women			Total			Men			Women		
	First half 2017	First half 2018	First half 2018	First half 2017	First half 2018	First half 2018	First half 2017	First half 2018	First half 2018	First half 2017	First half 2018	First half 2018	First half 2017	First half 2018	First half 2018	First half 2017	First half 2018	First half 2018
Argentina	9.0	9.4	8.4	8.4	9.9	10.7	57.3	58.4	69.4	69.7	46.5	48.5	52.2	53.0	63.7	63.8	41.9	43.4
Bahamas (national total)	9.9	10.0	8.0	10.1	10.9	10.0	80.0	82.5	83.1	85.0	74.0	76.1	72.1	74.3	76.5	76.4	65.9	68.5
Barbados (national total)	10.4	9.0	10.3	8.5	10.6	9.4	65.4	64.2	69.3	69.4	62.4	59.5	58.6	58.5	62.2	63.5	55.8	53.9
Belize (national total)	9.0	9.4	4.8	5.6	15.6	14.9	64.3	65.5	79.0	78.3	49.7	52.9	58.5	59.0	75.2	73.5	41.9	44.8
Brazil (20 metropolitan regions)	14.9	14.7	13.4	13.0	16.6	16.7	64.5	64.6	73.9	74.4	56.2	56.2	54.8	55.1	64.0	64.7	46.8	46.8
Chile	7.1	7.3	6.7	6.7	7.6	8.0	59.6	60.1	71.1	70.7	48.8	50.1	55.4	55.7	66.3	66.0	45.1	46.1
Colombia (municipal capitals)																		
Broad measurement ^a	11.0	11.3	9.0	9.3	13.4	13.7	65.7	65.1	74.4	74.1	57.7	56.9	58.4	57.7	67.7	67.2	50.0	49.1
Open unemployment	10.4	10.7	8.6	8.9	12.5	12.8												
Costa Rica (national total)	8.8	9.5	7.5	7.6	11.0	12.5	59.4	59.3	73.4	73.7	45.2	44.8	54.2	53.7	67.9	68.1	40.3	39.2
Dominican Republic ^b	6.4	5.7	5.0	3.6	8.3	8.5	62.3	63.1	75.6	75.9	50.4	51.4	58.3	59.5	71.8	73.2	46.2	47.0
Ecuador																		
Broad measurement ^a	5.7	5.4	4.7	4.4	7.1	6.9	65.6	64.2	77.9	77.4	54.4	52.0	61.9	60.7	74.3	74.0	50.5	48.4
Open unemployment	5.1	5.0	4.3	4.1	6.2	6.4												
Jamaica (national total)																		
Broad measurement ^a	12.4	9.7	9.3	7.4	16.1	12.3	65.2	64.2	71.5	70.5	59.1	58.2	57.1	58.0	64.9	65.2	49.6	51.0
Open unemployment	8.3	6.1	6.3	4.9	10.8	7.5												
Mexico	3.7	3.5	3.7	3.6	3.8	3.4	60.4	60.7	76.5	76.3	46.1	46.7	58.2	58.5	73.7	73.5	44.3	45.1
Panama ^c																		
Broad measurement ^a	6.4	6.9	5.5	5.4	7.6	8.8	64.7	66.6	76.3	78.0	54.1	56.0	60.6	62.0	72.1	73.8	50.0	51.1
Open unemployment	5.4	5.6	4.4	4.0	6.6	7.6												
Paraguay	7.6	7.4	6.7	6.8	8.7	8.1	70.8	71.7	81.9	82.5	60.5	61.6	65.4	66.4	76.4	77.0	55.2	56.2
Peru (Metropolitana Lima)	7.3	7.1	6.6	6.0	8.2	8.5	68.4	67.7	77.6	76.4	59.8	59.7	63.4	62.9	72.4	71.8	54.9	54.6
Uruguay	8.6	8.7	7.2	7.6	10.2	10.1	63.6	62.7	71.8	70.5	56.4	55.6	58.1	57.2	66.6	65.2	50.6	50.0

Source: Economic Commission for Latin America and the Caribbean (ECLAC) and International Labour Organization (ILO), on the basis of information from household services conducted in the respective countries.

^a Includes hidden unemployment as part of the economically active population and in unemployment.

^b Data refer to the first quarter.

^c Data to March.

After increasing year-on-year for seven consecutive semesters, the urban open unemployment rate posted a first —albeit very small— decline of 0.1 percentage point in Latin America and the Caribbean in the first half of 2018. This improvement reflected a rise of 0.2 percentage points in the employment rate, driven partly by stronger wage employment creation and partly by women's growing integration into the labour market, as well as a slight let-up in labour force expansion. However, the outlook for both economic growth and employment have deteriorated in the course of the year and urban open unemployment will remain around 9.3% for 2018 overall.

The second part of this report addresses the region's environmental challenges and their multiple linkages with the generation of productive employment and decent work. The environmental degradation caused by the prevailing development model damages employment too, so a transition towards a more sustainable model is urgent from the standpoints of both the environment and employment. Although such a transition will cost jobs in unsustainable activities, it will bring multiple opportunities to create new productive jobs and decent work. For example, it is estimated that the transition to a circular economy —in which materials are made more efficient and given a longer useful life by promoting durability and capacities to repair, remanufacture, reuse and recycle goods— would create a net total of 4.8 million jobs in Latin America and the Caribbean by 2030. Policy complementarity is key to bringing about a transition that is just for all and capable of generating decent work. Policies for environmental sustainability must be accompanied by integrated legal frameworks as well as social protection, skills development and gender equality policies that promote social dialogue.

