
The gender pay gap in the health and care sector

A global analysis in the time of COVID-19



World Health
Organization

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Foreword

The COVID-19 pandemic, with its profound and devastating effects in terms of human suffering, economic losses and social disruptions,¹ has exposed the interconnectedness of our societies and the extent of inequalities within and between countries.

A common agenda,² as called for by the United Nations (UN) Secretary-General, is critical to rebuilding our world on more equal, inclusive and sustainable grounds. The declaration on the commemoration of the 75th anniversary of the UN advocates a renewed social contract, anchored in human rights.

A human-centred recovery from the pandemic requires increasing global investment in universal social protections, accelerating the creation of decent work and committing to closing gender inequalities. This entails, among others, reconsidering how we value women's work and the relative importance of sectors within the economy. In so doing, we need to do better in giving greater value to what matters most to people.

This report takes an important step in this direction by providing the most comprehensive and in-depth analysis of the gender pay gap in the health and care sector – a sector in which women predominate. Evidence shows that while being ever present, women wage earners are paid approximately 20% less than men and that only a small fraction of this gap is due to differences in the characteristics and endowments of women and men.

Occupational segregation along gender lines, the underrepresentation of women in the highest paid occupations and the “motherhood penalty” seem to play a more important role in gender pay disparities.

Not only is the gender pay gap large in the health and care sector, low pay is also prevalent and working conditions very demanding. This reflects the undervaluation of the sector and explains the growing difficulties that some countries face in filling the rising demand for health and care workers. This is unfair and unsustainable. The COVID-19 pandemic has shown how vital the sector and its workers are in keeping families, societies and economies going.

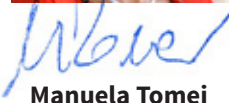
The time has arrived for policy-makers and governments, social partners, academia, civil society and individuals to drive effective action for the recognition and fairer valuation of the contribution of these workers to our health, well-being and resilience. The global call for large-scale investment in the care economy, including through the creation of more and better jobs, would go a long way towards achieving Sustainable Development Goals (SDGs) 3, 5 and 8, as recognized in the seminal work of the United Nations High Level Commission on Health Employment and Economic Growth.

We hope governments, workers' and employers' organizations, and other stakeholders will use the data and evidence in this report to generate the necessary policy dialogue and decisions that will eliminate the gender pay gap in the health and care sector.




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¹ See the World Health Organization (WHO) Coronavirus Disease (COVID-19) Dashboard (<https://covid19.who.int/>) for a count on the impact of the pandemic in terms of casualties, and the latest estimates from the International Labour Organization (ILO) that show the job and income loss due to COVID-19 across regions, as of February 2022 ([wcms_806092.pdf](https://www.ilo.org/public/eng/mediacentre/pressreleases/20220201.pdf) (ilo.org)).

² See *Our Common Agenda – Report of the Secretary-General* (https://www.un.org/en/content/common-agenda-report/assets/pdf/Common_Agenda_Report_English.pdf).

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Abbreviations

BMA	British Medical Association
COVID	coronavirus
CPS	Current Population Survey (United States)
EGGE	Expert Group on Gender and Employment Issues (European Commission)
ENOE	Encuesta Nacional de Ocupación y Empleo (Mexico)
EPSU	European Public Sector Union
Eurofound	European Foundation for the Improvement of Living and Working Conditions
Eurostat	Statistical Office of the European Communities
FTE	full-time equivalent
GPG	gender pay gap
G20	Group of 20 nations
HIC	high-income countries
HOSPEEM	European Hospital and Healthcare Employers' Association
HS/VOC	high school/vocational training
ICSE	International Classification of Status in Employment
ILO	International Labour Organization
ISCO	International Standard Classification of Occupations
ISIC	International Standard Industrial Classification of All Economic Activities
ISO	International Organization for Standardization
LCU	local currency unit
LFS	labour force survey
LIC	low-income countries
LMIC	low- and middle-income countries
NACE	Nomenclature Statistique des Activités Économiques (Statistical Classification of Economic Activities in the European Community)
NAICS	North American Industrial Classification System
OBD	Oaxaca-Blinder Decomposition technique
OECD	Organisation for Economic Co-operation and Development
SDGs	Sustainable Development Goals
SES	Structure of Earnings Survey
STEM	science, technology, engineering and mathematics
UN	United Nations
UNESCO	United Nations Educational, Scientific and Cultural Organization
+UNI	university or above
WEF	World Economic Forum
WESO	World Employment and Social Outlook (ILO)
WHO	World Health Organization

Executive summary

The health and care sector constitutes a major source of employment

The health and care sector is a major source of employment globally, in particular for women. The health and care workforce accounts for approximately 3.4% of total global employment, including approximately 10% of overall employment in high-income countries (HIC) and a little over 1% in low- and middle-income countries (LMIC). One feature that characterizes employment in this sector across the world is that it is a highly feminized sector – women make up about 67% of global employment in the sector – with a significant degree of gender segregation. However, the share of women among the workforce in the sector varies with the degree of economic development. In LMIC 63.8% of the sector workforce is women, compared with 75.3% in HIC. Estimates in this report show that the high degree of feminization in the sector is universal across countries and regions. Countries with a higher share of women working in the sector do not necessarily demonstrate higher health and care expenditure.

Gender pay gaps in the health and care sector are higher than in non-health sectors

Despite the high degree of feminization, the health and care sector faces gender inequalities, including with respect to pay. This report is the first of its kind: a global and sector-wide gender pay gap analysis using data from 54 countries, which together represent about 40% of the sector's wage employees across the world. Using weighted global estimates, the report finds that the gender pay gap in the health and care sector ranges from about 15% (in the case of median hourly wages) to about 24% (in the case of mean monthly earnings). Considering the range of values across four configurations of estimating the gap, women wage workers earn approximately 20% less than men in the health and care sector. Controlling for cluster effects – mainly due to gender segregation in employment in the sector – narrows the gender pay gap in the sector. The dampening of the gender pay gap after correcting for cluster effects is explained by the fact that women are overrepresented in lower (paid) occupational categories where the gender pay gap is narrower. Men, on the other hand, are overrepresented in higher (paid) occupational categories (e.g. medical

doctors) where the gender pay gap is wider. By comparing gender pay gaps in the health and care sector with those in other (non-health) economic sectors, the report finds that gender pay gaps in the health and care sector tend to be wider than in other sectors; this is particularly true when professional categories in the health and care sector are compared with professional categories in non-health sectors.

Key factors behind the gender pay gap in the health and care sector

What is the nature of the gender pay gap across the wage distribution? Do the labour market characteristics of women and men influence the gender pay gap? Gender segregation is a widespread feature of the health and care sector worldwide. The report shows that the gender pay gap varies significantly across the hourly wage distribution for all countries, with a tendency to widen as we move from lower to higher quantiles of the wage distribution. In spite of the relatively low participation of men in the health and care sector across countries, men are overrepresented at the top decile, especially at the top centile of the hourly wage distribution, where the gender pay gap is even wider. Women and men are not fundamentally different in terms of labour market characteristics, either within deciles of, or across, the hourly wage distribution. However, in some countries, men in the labour market tend to be older – and hence have more experience – and have more higher education compared with women, in particular at the top end of the wage distribution. Age, education and gender segregation across occupational categories are some of the factors that lie behind the gender pay gap in the health and care sector.

The gender pay gap in the health and care sector is largely unexplained by factors that determine wages in the labour market

The report decomposes the gender pay gap in the health and care sector into two parts: the part that can be explained by differences in labour market attributes of women and men, and the part that remains unexplained by differences in these attributes. The first part, which includes age,



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education, working time modality and institutional sectors, can explain a small part of the observed gender pay gaps in the sector. However, the largest part of the gender pay gap remains unexplained by available data on labour market attributes.

On the one hand, the estimates show that for almost all countries and at almost all quantiles of the hourly wage distribution, the unexplained part of the gender pay gap in the health and care sector dominates and is positive. This implies that women working in this sector are underpaid for their labour market attributes relative to men who have similar labour market profiles. On the other hand, in most regions, the explained part of the gender pay gap is negative, meaning that, while in general women earn less than men for their labour market attributes (the unexplained component), women tend to have better labour market attributes than men within the same quantile of the wage distribution. Globally, the explained component is estimated as -3.5%, whereas the unexplained component is +22%.

Part of the unexplained gender pay gap can be attributed to the so-called “motherhood gap” (a measurement of the pay gap between mothers and non-mothers) and part can be attributed to

the fact that the sector is highly feminized. In most economies, workers in highly feminized sectors receive lower earnings, on average, compared with workers in non-feminized economic sectors. Despite the increasing number of men joining the health and care sector in recent times, the high degree of feminization contributes to the sector’s undervaluation by society, with average earnings lower than that of other sectors. This feature adds significantly to the persistence of the overall gender pay gap throughout the economy.

The recent evolution of the gender pay gap and changes in women’s and men’s labour characteristics in the health and care sector

Over the past two decades, the gender pay gap has increased in some countries, and declined or remained relatively static in others. Using data spanning the period from the early 2000s to 2019, the report shows that the share of men in the global health and care workforce is growing, but at a pace insufficient to reduce the significant degree of feminization that characterizes the sector. The report’s estimates provide some evidence of a

gradual shift among women to higher occupational categories in the sector, although in all countries women continue to be overrepresented in occupational categories associated with nursing and less-skilled health- and care-related functions.

COVID-19 has affected employment and earnings in the health and care sector

The health and care sector experienced fewer employment losses relative to non-health economic sectors as a result of the economic downturn associated with the COVID-19 pandemic. However, working conditions for the sector's workers have dramatically deteriorated, in particular for those at the forefront in the fight against the pandemic (most of whom are women); furthermore, their risk of infection is disproportionately high. While there was an almost complete recovery of employment in the health and care sector on average by December 2020, the recovery lagged behind for some types of workers in the sector, in particular women workers with less education and those in informal employment. The COVID-19 crisis disproportionately affected workers at the low end of the pay scale, most of whom are women, making the average hourly wages (or monthly incomes) of those workers who remained in the sector appear to have increased by the end of 2020. However, this is an artificial construct and the real total wage bill in the sector has actually fallen. Controlling for composition effects in terms of the characteristics of health and care workers before and after the onset of the pandemic, the gender pay gap in the sector appears to have declined only slightly between January 2019 and December 2020.

The way forward: expanding employment and eliminating gender pay gaps

The world faces a global shortage of health and care workers. One important question to ask when considering how to address this shortfall is: what can be done to make the health and care sector more resilient and reduce the gender pay gap in the global health and care workforce? This would, in turn, reduce the overall gender pay gap in the global economy. The findings of this report suggest that several interconnected strategies are needed.

- First, we need to collect and analyse sector-specific wage data with sufficient frequency to allow for timely assessments of the working conditions for the health and care workforce, including monitoring of the gender pay gap in the sector.
- Second, investing in decent health and care jobs, including formalizing informal jobs within the sector, would help make the sector more resilient and able to accommodate the growing global demand for health and care services fuelled by ageing populations worldwide (in particular in HIC).
- Third, to tackle the explained part of the gender pay gap, we need to reduce gender segregation (both horizontal and vertical) in employment in the health and care sector. This can be achieved by: attracting more men into middle-level occupational categories in the health and care sector; providing training and equal opportunities for upward mobility for women health and care workers; and, raising awareness of science, technology, engineering and mathematics (STEM) careers among young girls and women by organizing related job fairs and investing in STEM programmes that target women and girls (particularly through the promotion of internships and career counselling).
- Standardizing working conditions between women and men with respect to contracts (e.g. offering permanent rather than temporary contracts), formalizing informal jobs, and promoting collective pay agreements would also help reduce the explained part of the pay gap in the sector.
- Finally, instituting pay transparency and legal instruments to fight against pay discrimination, as well as efforts to change cultural gender norms and counter stereotypes, can be effective tools to reduce the unexplained part of the gender pay gap.

Closing the gender pay gap, promoting decent work opportunities and conditions, and achieving gender parity in the health and care sector are fundamental factors in ensuring that health and care systems remain resilient against the COVID-19 pandemic and future challenges.

Introduction

This report provides an analysis of the gender pay gap in the health and care sector using representative survey data from wage employees from countries in all geographic regions and income groups³ across the world (see Box 1).

In recent times, and particularly during the last two decades, we have all become increasingly aware of the need to eradicate gender inequalities in the world of work. Countries and the international community have taken concrete and coordinated steps towards this objective. Examples of these steps include the 1995 Beijing Declaration agreed during the 4th World Conference on Women and the target of reducing the gender gap in labour force participation by 25% in 2025 by the G20 leaders at the 2014 Summit in Brisbane, Australia. Within the framework of the UN 2030 Agenda for Sustainable Development, SDG Target 8.5 calls for, among other things, equal pay for work of equal value.

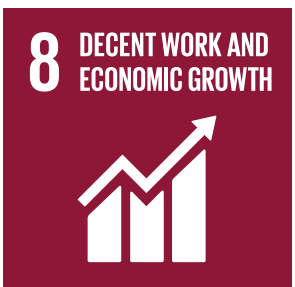
Despite these and other steps, inequalities between men and women persist, representing one of today's greatest social injustices. In a recent report the International Labour Organization (ILO) estimates that on average women are paid about 20% less per hour than men across the world (ILO, 2018a). Furthermore, the narrowing of the gap appears to have stalled in recent years (WEF, 2020), and the COVID-19 pandemic is likely to undermine some of the gains that have been achieved since the start of the 21st century (ILO Monitor, 2020a).

Closing the gender pay gap and ensuring gender parity in the world of work is fundamental for economies and societies to thrive. Ensuring the full and equal inclusion of women and girls in all spheres of society and across the world should be a key pillar in all economic recovery plans following the economic and social disruptions caused by the COVID-19 pandemic. Gender equity is a fundamental condition both for achieving the UN 2030 Agenda for Sustainable Development, and for achieving equitable, sustained, inclusive, and sustainable economic growth with full and productive employment and decent work worldwide (SDG 8).

TARGET 8.5



**FULL EMPLOYMENT
AND DECENT WORK
WITH EQUAL PAY**



³ The report uses the six geographic classification defined by WHO, namely: Africa, the Americas, Eastern Mediterranean, Europe, South-East Asia and the Pacific (see [WHO | Definition of regional groupings](#)). When estimating according to economic groups, the report uses the World Bank Classification, namely: high-income countries, middle-income countries and low-income countries (see [WDI – Classifying countries by income](#)).

BOX 1

Defining key terms: wage employees, gross earnings, health and care sector, occupational categories

This report focuses on the gross earnings of wage employees in the health and care sector and by occupational categories. Each of these four terms – gross earnings, wage employees, health and care sector, and occupational categories – needs to be clearly defined.

Wage employees, also known as wage or salaried workers, are those workers who hold the type of jobs defined as paid employment jobs, wherein the incumbents hold explicit (written or oral) or implicit employment contracts that give them a basic remuneration that is not directly dependent on the revenue of the unit for which they work (ILO, 1993).⁴ In this report we consider only wage employees (as opposed to other employment modalities such as employers, own account workers or unpaid family workers). This selection is consistent with the policy implications of wage inequality. Wage workers are subject to wage policies and a wage determination process that are often the result of social dialogue or internal enterprise policies. Through such policies, e.g. effective implementation of minimum wages, design and implementation of collective pay agreements, or even the designation of non-regular bonus profits at enterprise level, wages can be changed to effectively act upon wage inequality. Non-wage workers, and particularly own account workers, are not subject to such policies. Therefore, they have not been included in the analysis of gender inequalities in the labour market.

Gross earnings relates to gross remuneration, in cash and in kind, paid to wage employees. Typically, remuneration is paid at regular intervals for time worked or work done, together with remuneration for time not worked, such as annual vacation, other types of paid leave, or holidays. Earnings include: direct wages and salaries, remuneration for time not worked (excluding severance and termination pay), bonuses and gratuities, and housing and family allowances paid by the employer directly to the employee. Earnings exclude both employers' contributions to social security and pension schemes and the benefits received by employees under these schemes. Earnings also exclude severance and termination pay (see *A quick guide on sources and uses of labour statistics* [ILO, 2017]⁵). Surveys such as labour force surveys (LFS) and integrated household surveys include questions to elicit gross earnings from wage employees; respondents provide amounts (per hour, per day, per week, per month or annual) that adhere to such a definition. Estimates in this report aim at the identification of the hourly wage gender pay gap, thus allowing the disentanglement between remuneration and working time. Nevertheless, Section 3 of the report complements the estimated hourly wage gender pay gaps with estimates of the gender pay gap using monthly earnings. This addition allows for a broader and more complete analysis of pay inequality between women and men in wage employment.

The identification of wage employees in the **health and care sector** involves the use of international classification standards as provided by survey data. In most cases this is based on the Nomenclature Statistique des Activités Économiques (NACE), its equivalent in the Americas (the North American Industrial Classification System, NAICS or SCIAN for its French equivalent), or the International Standard Industrial Classification of All Economic Activities (ISIC) Rev 4 under letter Q, which correspond to codes 86, 87 and 88. In countries for which valid data for the analysis exist, the classification of respondents by NACE, NAICS or ISIC in the groups “health care and social assistance” does not allow for distinguishing the health sector from the care sector. This is the case for countries in Africa, Europe and South-East Asia. Therefore, even if it is possible to disaggregate further between subsectors in some countries, in order to make countries comparable our analysis selected all individuals working in the “health care and social sector”. In the cases of NACE and ISIC, this includes “human health activities”, “residential care activities” and “social work assistance without accommodation”. This is equivalent to the NAICS designation that includes “ambulatory health care”, “hospital work”, “nursing and residential care” and “social assistance”. In countries for which it is possible to disaggregate the sector further, estimates show that direct health care (i.e. human health activities which involve ambulatory health care and hospitals) accounts for about 70% of the sample. In this report, we have not considered health workers who operate in some other economic sector, for example, we do not include a medical doctor working in a mining and quarrying enterprise or a nurse working in schools or other sectors

⁴ ILO, 1993, Resolution concerning the International Classification of Status in Employment (ICSE), adopted by the Fifteenth International Conference of Labour Statisticians (January 1993).

⁵ *A quick guide on sources and uses of labour statistics* (ILO, 2017).

not classified in the “health care and social care” sector. Throughout the report we refer to our selection as workers in “the health and care sector” or, sometimes, “the sector” for short.

Finally, throughout the report the population of wage employees in the health and care sector are often clustered and compared across occupational categories. Survey data identify **occupational categories** using the latest International Standard Classification of Occupations (ISCO-08). Applying the ISCO-08 classification, in this report, wage workers in the health and care are classified in six groups:

- professional health care personnel in ISCO-08 groups 21 and 22 (e.g. medical doctors, advanced nurses, professional laboratory workers);
 - technical health care workers in ISCO-08 groups 31 and 32 (e.g. nurses, technical laboratory workers, paramedics);
 - support health care workers in ISCO-08 groups 51, 53 and 91 (e.g. auxiliary health care workers, caretakers, cleaners);
 - professional non-health workers in the health sector in ISCO-08 groups 1 and 2 (e.g. legal services, managers, professional workers other than medical doctors);
 - technical non-health workers in the health sector classified in ISCO-08 in the 1-digit group 3 (except those coded 31 and 32 based on 2 digits); and
 - all other support workers (i.e. those with codes in ISCO-08 above 40 using the 2-digit code, except for those classified as 51, 53 and 91).
-

The health and care sector is no different from other sectors; as is empirically shown in this report – gender inequalities, including gender pay gaps, persist in the sector across countries and over time. One feature that characterizes employment in the health and care sector across the world is that it is a highly feminized sector with a significant degree of gender segregation. The gender segregation is both horizontal within the sector, and vertical when compared with other economic sectors (see Box 2). Thus, in relation to the share of wage women in paid employment (about 45% worldwide), **women are overrepresented in the health and care sector, where approximately 7 out of 10 jobs are occupied by women** (ILO, 2017). Several empirical studies have shown that investment in highly feminized sectors is often lower than in male-dominated sectors, while feminized sectors suffer more from

austerity measures during crises. For example, the major cutbacks in public spending that followed the 2008–2010 financial crisis curtailed working conditions, such as earnings, within feminized sectors, including the health and care sector (Karamessini & Rubery, 2014). In general, studies have shown that earnings in female-dominated occupations (vertical segregation) and female-dominated sectors (horizontal segregation) remain significantly lower than in male-dominated ones (see e.g. Brynin & Perales, 2016; Leuze & Strauss, 2016; ILO, 2018b; Ochsenfeld, 2014). Altogether, the evidence indicates that the high degree of feminization in the health and care sector is a key factor behind the lower earnings for both women and men within the sector, and contributes to the overall prevailing gender pay gap in the economy.

BOX 2

Defining key terms: gender segregation in employment, horizontal segregation, vertical segregation

Gender segregation in employment refers to the tendency for women to work in different occupations and sectors than men. The literature distinguishes between two main types: horizontal and vertical segregation. Both types of gender segregation are understood to contribute to gender inequality and to the gender pay gap.

Horizontal gender segregation refers to the under- or overrepresentation of a particular gender in occupations or sectors not ordered by any criterion (EGGE, 2009). It can also be explained as a situation

where the workforce of a particular industry or sector is mostly made up of a single gender. One example of horizontal gender segregation is in the construction industry, where men make up the majority of the workforce. Another example is predominance of women in public sectors such as public administration, health, education and the care economy as a whole.

Vertical gender segregation refers to the under- or overrepresentation of a particular gender in occupations or sectors at the top end of a ranking based on “desirable” attributes such as higher income, prestige and job stability, regardless of the sector of activity (EGGE, 2009). It also denotes the situation whereby opportunities for career progression within an organization or sector are limited for a particular gender. In the literature, vertical segregation is sometimes referred to as a “glass ceiling”, which points to the existence of explicit or implicit obstacles that lead to the scarcity of women in power and decision-making positions in public organizations and enterprises, as well as in other types of organizations and trade unions (Laufer, 2002). The phenomenon of barriers that impede the upward mobility of women to the top of occupational hierarchies is completed by the concept of the “sticky floor”, which describes the forces that tend to keep women at the lowest levels in an organizational pyramid (Maron & Meulders, 2008). An example of vertical segregation within the health sector is the domination of physician occupations by men and the domination of nursing and midwifery occupations by women.

Despite women’s overrepresentation in the health and care sector, empirical evidence shows that **women are unevenly distributed across occupations within the sector, with an overrepresentation in middle-range occupational categories (horizontal segregation) and a marked tendency for women to be employed at the lowest levels in the organizational pyramid (vertical segregation)** (Maron & Mulders, 2008).

Such occupational segregation could lie behind the observed gender pay gap in the health and care sector. But what determines such gender segregation? And why does similar gender segregation occur in other (feminized) sectors? Labour market outcomes often result from specific rules, norms and culturally rooted stereotypes that accumulate over time and which drive the labour supply decisions of women and men, irrespective of women’s and men’s labour market endowments.⁶ Several theories attempt to provide explanations for the root causes of horizontal or vertical segregation in the labour market. The European Commission’s Expert Group on Gender and Employment (EGGE), for example, analysed an exhaustive list of publications to define six clusters of factors (or key root causes) behind the persistent segregation of women and men in the labour market. These clusters range from biological explanations to stereotypes about women and men, who are perceived as having inherited differential income and care roles in society (EGGE, 2009).⁷

Gender segregation, as well as the high degree of feminization of the health and care sector, are some of the reasons behind the gender pay gap in the sector. However, in a global analysis it is also important to highlight differences between countries, particularly with respect to norms and rules, as well as the economic context. In HIC, for example, women’s participation as wage employees in the (overall) labour market is higher than in LMIC; thus, their overrepresentation in the health and care sector is also higher. This is not necessarily the case in LMIC, where the opportunities for wage employment – particularly formal wage employment – are lower for both women and men in comparison with HIC. For example, in Australia, Canada, several European countries and the United States of America, the share of women among all workers employed in health and care sector is 70% or higher; in these countries the overall participation of women in paid employment is also 70% or higher. However, Bangladesh, the Democratic Republic of the Congo, Saudi Arabia and Yemen are examples of countries where women’s labour force participation is less than 30%; the share of women among all workers employed in health and care sector in such countries is less than 40% (ILO, 2020a). This means that the contribution of gender segregation to the gender pay gap is less pronounced in LMIC compared with the role it plays in HIC, whether in the health and care sector or any other sector.

⁶ In this report we use the term “endowment” of individuals in reference to the human capital that an individual possesses that can be put to use for productive purposes, such as education, abilities, skills or knowledge. The term “characteristics” of individuals refers to the attributes a person has, such as gender, age, family situation, regional location, etc.

⁷ The six clusters identified by the EGGE are: (i) comparative advantages; (ii) underinvestment (human capital theory); (iii) preferences and prejudices; (iv) socialization and stereotypes; (v) entry barriers and organizational practices; and (vi) differential income and care roles. For a detailed review of the theoretical analysis and empirical findings of gender segregation in the labour market see Anker, 1997; Bettio, 2008; Blau et al., 2014; Reskin & Bielby, 2005.

In LMIC, many workers have jobs in the informal economy – this is especially the case for women workers at the low end of the pay scale. **In LMIC, informal employment⁸ in the health and care sector remains significant, if lower, in this sector in comparison to other sectors.** This may seem contradictory to expectations, given that informal employment is often associated with sectors with lower investment in skills and lower training.⁹ In the health and care sector, after all, the skills and training requirements, including for low-skilled workers, are higher compared with other sectors (Howat & Lawrie, 2015). However, the data in this report show that informality is also notable within the health and care sector in LMIC. Furthermore, women are more likely than men to occupy informal jobs in the sector. For example, survey data from Mexico for the third quarter of 2019 show that 46% of all wage employees worked in informal employment in the overall Mexican economy; in the health and care sector the proportion falls to 20%. However, 22% of women wage employees in the health and care sector had informal jobs, while 17% of men wage employees did.¹⁰ Since informality is a key factor behind wage inequality (see ILO, 2020b), informality (and other factors that relate to each country's economic context) should be considered when analysing the gender pay gap in the health and care sector. This includes the relative participation of women and men in general, as well as differences in working conditions for women and men.

In a broader context – which is common to most countries to some extent – the gender pay gap is one more dimension of inequality between women and men in the labour market, including unequal shares in terms of unpaid work in care and family responsibilities. The disproportionate burden on women of unpaid household work has a negative impact on women's labour market participation, particularly in places where access to childcare or family-friendly workplace policies are lacking. This affects all women workers across all sectors, including the health and care sector. Although the incidence of work-life balance factors is greater among women of child-rearing age, the impact on women's earnings and promotions can be long-lasting. For example, data from the Canadian LFS (October, 2019)¹¹ show that 65% of part-time workers in the health and care sector are women. All part-

time workers in this survey were asked to declare the reason why they were employed part time; among part-time women, 17% declared they worked part-time due to “caring for children and other personal or family responsibility” while the proportion of men who worked part time due to childcare and family responsibilities was just 3.5%. Instead, 39% of men part-time workers stated they were in that working time modality to combine education with work (“going to school”), whereas 29% of part-time women claimed to be part-time due to education. This is one example that shows that women's participation in the health and care sector – and their potential growth within the sector based on further education – is conditioned by the ways that constraints imposed by work-life balance decisions affect women differently from men.

We have highlighted many individual factors that underpin the gender pay gap in the health and care sector, including factors that are also present in the determination of the gender pay gap in other sectors of the economy. How do these factors interact with each other in the determination of the gender pay gap at country level in the health and care sector? And how does the gender pay gap differ between countries? Furthermore, can the empirical evidence help us to frame key policy considerations for closing the gender pay gap in the health and care sector? Finally, what would such a reduction imply for the overall gender pay gap at country level? Our intention for this report is to use empirical evidence to explore the determinants of the gender pay gap for a selection of countries in order to shed some light on a path to reduce the gender pay gap within the health and care sector and between the health and care sector and other sectors in the economy.

1.1 Why a report on the gender pay gap in the health and care sector?

Given that the health and care sector remains one of the most feminized sectors, and considering that it is one of the largest and fastest growing employment sectors for women and men around the world (see Section 6), understanding the gender pay gap within this sector and putting forward targeted policies to address this gap would, to a great extent, reduce the aggregate pay differentials between men and women in the economy as a whole. Although

⁸ Informal employment in this context is defined in terms of the nature of employees' employment conditions rather than the type of employer or unit of production. Specifically, wage employees are defined as informal if they are employed by someone (including the State) but they are not registered with the social security system of the jurisdiction in which they work.

⁹ Upgrading the skills of workers in the informal economy, as well as reducing jobs and skills mismatches in the economy overall, are key strategies for engaging new labour market entrants directly in formal employment and for formalizing the informal economy (see Palmer, 2017).

¹⁰ The estimates for Mexico are based on survey data from the ENOE (Encuesta Nacional de Ocupación y Empleo). See Annex 1 for more details on the data and sources used to produce the empirical evidence in this report.

¹¹ See Annex 1.

evidence already exists for specific countries (see BMA, 2020; Boniol et al., 2019; Cohen & Kiran, 2020; Ganguli et al., 2020; Pillinger, 2010), there is a need to go further. In part, it is interesting to compare how estimates of the gender pay gap differ according to differences in the economic contexts of countries in different geographic and income regions, with a view to drawing policy implications from comparative analyses. In addition, there is a need to expand the methodology for estimating the gender pay gap to go beyond the classic “raw” gender pay gap to do a more detailed analysis on what factors create the gap. In particular, **this report applies the complete framework to analyse pay gaps that is detailed in the ILO Global wage report 2018/19** (ILO, 2018a). This framework allows: estimates of the gender pay gap controlling for cluster effects in the wage distribution (the factor-weighted gender pay gap); estimates of the gender pay gap at different quantiles of the hourly wage distribution; and the decomposition of the pay gap between explained and unexplained components at each quantile of the hourly wage distribution. In all, the framework helps us identify the reasons why the pay gap exists and to formulate policies that should help to substantially reduce (or eliminate) pay differences between women and men in the health and care sector.

For the purpose of this report, the gender pay gap in the health and care sector – expressed in its simplest form – refers to the difference in average wages between men and women who are engaged in paid employment in the sector. This definition aligns with the UN SDG 8 – Decent work and economic growth, Target 8.5, which sets out to achieve by 2030, “decent work for all women and men, and equal pay for work of equal value”. One of the important measures of progress on this SDG is equalizing the “average hourly earnings of female and male employees, by occupation, age and persons with disabilities” (indicator 8.5.1) (UN, 2017).

The general principle of equal remuneration for work of equal value is set out in the Preamble of the ILO Constitution,¹² and is further embodied in fundamental ILO Conventions. As early as 1951, gender pay equity was enshrined in the ILO Equal Remuneration Convention, 1951 (No. 100), which promotes the principle of equal remuneration for work of equal value between men and women workers across all sectors of the economy. Today, 71 years after it was formulated and ratified, this

Convention is more relevant than ever, as significant pay differences remain one of the underlying factors of gender inequalities around the world.

The workforce in the health and care sector makes an essential contribution to the pursuit of global and national targets on a range of health priorities, including SDG 3 – Ensuring healthy lives and promoting well-being for all at all ages. **Decent work in the health and care sector is fundamental to ensuring effective and resilient health systems, and to achieving the goal of equal access to quality health care, which has become central for the fight against the COVID-19 pandemic across the world.** Inequality in pay in the sector can hinder the contributions of the health and care workforce, in particular of women, undermining progress towards “leaving no one behind” in global efforts to achieve the UN 2030 Agenda for Sustainable Development. This report, therefore, is in line with various global strategies and compacts, including the Global Strategy on Human Resources for Health: Workforce 2030 (WHO, 2016); the Five-Year Action Plan for Health Employment and Inclusive Economic Growth: 2017–2021 (WHO, 2018; WHO, 2022); Work for a Brighter Future: Global Commission on the Future of Work (ILO, 2019a); and the ILO Centenary Declaration for the Future of Work 2019 (ILO, 2019b). It also addresses one of the key areas for gender equity in the global health workforce (WHO, 2019).

Finally, the COVID-19 crisis has shown unequivocally how dependent the rest of the economy is on essential sectors, including health, care, and social assistance, and how vital the work performed by the people who provide these services is, particularly in alleviating suffering and saving lives. As of January 2022, more than 360 million confirmed COVID-19 cases had been reported around the world, along with more than 5.6 million deaths from the disease.¹³ The COVID-19 pandemic has put enormous pressure on the health and care sector and its employees, a majority of whom are women and a disproportionate number of whom have been infected by the virus.¹⁴ Therefore, this empirical assessment of gender pay gaps in the health and care sector is well-timed. It is our hope that the empirical evidence presented supports the promotion of policies that lead to more equitable pay outcomes for all workers in the health and care sector around the world.

¹² ILO Constitution. Geneva: International Labour Organization, 1919 (http://www.ilo.ch/dyn/normlex/en/f?p=1000:62:0::NO:62:P62_LIST_ENTRIE_ID:2453907:NO).

¹³ WHO Coronavirus Disease (COVID-19) Dashboard (<https://covid19.who.int/>).

¹⁴ For example, while health workers represent less than 3% of the population in the large majority of countries and less than 2% in almost all LMIC, around 14% of COVID-19 cases reported to WHO are among health workers. In some countries, the proportion can be as high as 35% (WHO, 2020a).

The contents of the report and the nature of the data

The main intention of this report is to provide a detailed quantitative analysis of the gender pay gap in the health and care sector (i.e. among workers classified with ISIC Rev 4 code 86-87-88) following the methodological treatment applied in the ILO Global wage report 2018/19 (ILO, 2018a). This methodological treatment involves the decomposition of the gender pay gap to identify how factors such as age, education, occupation, etc. contribute to the gap at different locations along the wage distribution. Readers will find that countries within the same region can show very different decomposition profiles across the wage distribution. Comparing countries' profiles serves to illustrate the main policy considerations presented in the final section of the report (Section 8) – this is why the narrative and corresponding illustrations are often country-specific and include a number of examples for comparison. Having said this, and as it could not be otherwise in a global report, whenever possible we also present regional aggregates to allow for a wider picture of the gender pay gap and its decomposition.

A global report should cover as many countries as possible so that its findings, conclusions and policy considerations can be said to have a truly global perspective. All estimates presented in Sections 3–7 are based on micro-data collected through representative surveys that are either LFS or integrated household surveys. In Sections 3–5, the estimates are based on cross-sectional data, i.e. all estimates take the latest point in time for which data were collected (in most cases 2019) and provide estimates that reflect that point in time (see Annex 1). Sections 6 and 7 are based on the analysis of data between time periods to estimate the evolution of the gender pay gap (Section 6) and the effect of COVID-19 on the health and care sector (Section 7) (see Annex 1 for the source and name of datasets used in the analysis). Because our analysis focuses only on the health and care sector, we selected data on wage employees from this sector. Compared with an analysis that included all survey respondents (all wage employees in the economy, irrespective of sector), this inevitably had an impact on our sample sizes. After reviewing all available surveys that cover recent years (about 100 countries), we arrived at a list of 54 countries that met our requirements for sound empirical analysis. These were the most recent surveys at the micro-economic level to cover the health and care sector (see Box 1), with enough wage employees that the proposed analysis could be carried out without sample size problems.

These 54 countries (see the complete list in Annex 1) cover all the regions in the world. However, the separation of countries into the six WHO regions would have left some regions with very few examples. Thus our regional aggregates gather countries in four groups: Africa and the Eastern Mediterranean regions together; South-East Asia and Western Pacific regions together; the Americas; and Europe. When two regions are displayed together, the estimates show the weighted average for each of the six regions separately. In all cases references to regions refer to the WHO definition and income groups follow the definitions used by ILO publications.

The 54 datasets employed in the production of the empirical analysis in the report are all surveys collected and validated by national statistics offices and provided to ILO for the purpose of producing empirical evidence for policy recommendations. Survey data for European countries were harmonized, validated and provided by the Statistical Office of the European Communities (Eurostat) under contract number RPP_28_2020_EUSILC_SES_HBS_ILO_ID_2013.2018.

The health workforce across the world

This section provides estimates that show the relative importance of the health and care sector across the world, as well as the relationship between employment in the health and care sector and women's overall share in the workforce. The estimates, based on national accounts, show that the health and care sector is a major source of employment in most countries – particularly for women. The statistics reviewed in the section corroborate findings presented in other sections of the report, where estimates are based on survey (micro) datasets.

Women make up approximately 67% of global employment in the health and care sector; this percentage varies with the degree of economic development: it is 63.8% in LMIC and 75.3% in HIC. The lower proportion of women employees in the health and care sector in LMIC is partly due to the fact that women's participation in paid employment (in aggregate) is lower in these countries than in HIC. Overall, the figures presented in this section show that the high degree of feminization in the sector is present across countries and regions. However, countries with an increased proportion of women working in the sector do not necessarily show significant increases in health and care expenditure. The health and care sector, which is a human capital-intensive sector, has an overrepresentation of low-paid workers, most of whom are women.

2.1 Global and regional employment in the health and care sector

In almost all countries and territories across the world, the health and care sector constitutes a major source of employment. Health and care workers together account for approximately 3.4% of total global employment.¹⁵ However, there is considerable variation among regions. Fig. 2.1 shows that the health and care sector constitutes about 10% of overall employment in HIC, compared with less than 1.0% in low-income countries (LIC). Across regions, the proportion of employment in the health and care sector in relation to total employment is lowest in Africa, Asia, and the Pacific (1.6%) and highest in Europe and Central Asia (8.8%) and represents 3.7% and 7.4% in the Arab States and the Americas, respectively.

Fig. 2.2 shows the estimated distribution of employment between women and men in the health and care sector in 189 countries and territories disaggregated by both region and income group. The estimates clearly show that the health and care sector is an important source of employment for women in regions where they account for 40% or more of the workforce. However, the figure also shows that there is significant variation among countries and across regions. For example, in high-income Eastern Mediterranean countries, women account for 41.6% of all health and care workers,

while in high-income European countries, their share is 77.9%. **Globally, about 67.2% of workers in the sector were women in 2020. This is a slight decrease from the estimate of 70.3% in 2013 (see ILO, 2017). This change indicates that proportionately more men joined the health and care sector during this period.**

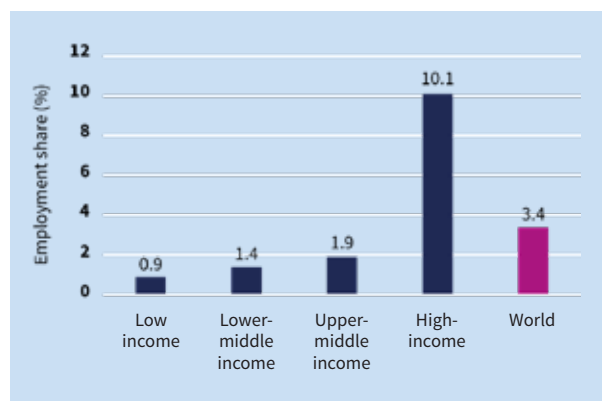
Despite the fact that women are slowly diversifying to less feminized sectors, the health and care sector remains highly feminized throughout the world. Fig. 2.3 shows this by plotting the fraction of women in employment against the share of women in the health and care sector in the 189 countries and territories for which we have national accounts. As the fraction of women in the workforce increases, the proportion of women in the health and care sector increases beyond 50%, the point that would imply gender parity in the sector. In countries with a proportion of women in the overall workforce above 60%, the fraction of women employed in the health and care sector is generally also around 60–70% of all workers in the sector. This finding is consistent with the fact that historically, and particularly in post-industrial societies, women have typically taken jobs that were traditionally associated with women, even as their participation in the labour market increased, instead of moving into jobs that were traditionally considered as male-dominated (Ballarin et al., 1997).

¹⁵ In Section 2, employment refers to all working modalities, including employers, self-employed or own account workers, and wage employees. This is because national accounts data are not disaggregated by working modality in all countries. For all other sections in the report, however, the term employees refers exclusively to wage employees, as defined in Box 1 (see Introduction).

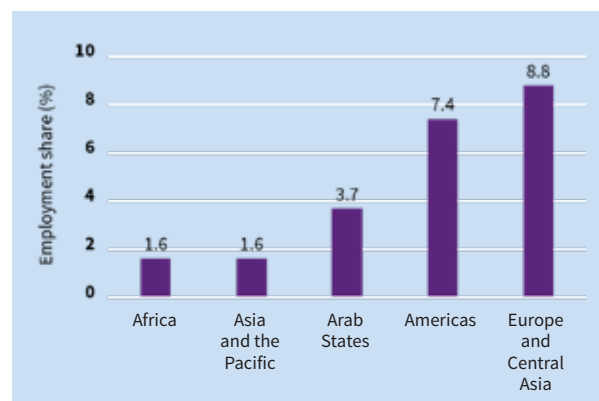
FIG. 2.1

Share of health and care employment as a percentage of total employment, by income groups and ILO regions, 2013

By income groups



By ILO regions



Note: ILO estimates. Data source includes 174 countries and territories for which there are comparable data (<http://www.ilo.org/global/research/global-reports/weso/2015/lang--en/index.htm>).

Source: *World Employment and Social Outlook – Trends 2015* (ILO WESO database, 2015). Taken directly from ILO (2017).

FIG. 2.2

Shares of women and men among all workers employed in health and care work in 189 countries, 2020

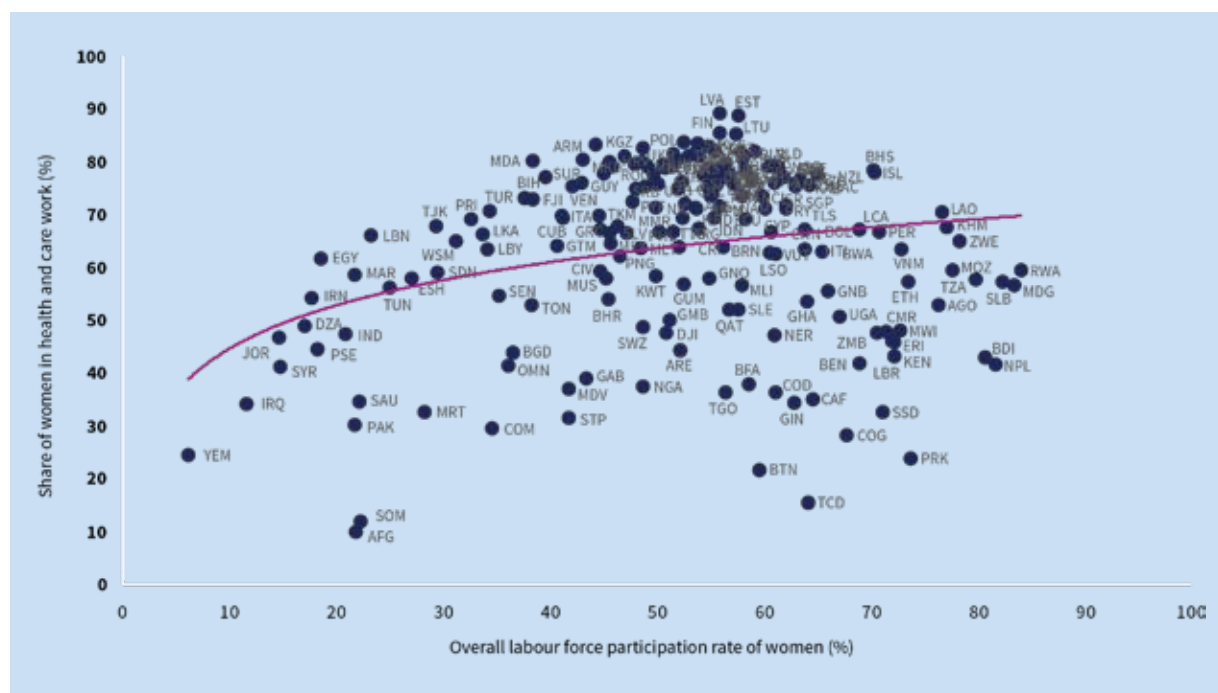


Notes: ILO estimates based on data from ILOSTAT (2020). Estimates are based on data from 189 countries and territories and weighted by the total number of wage employees in each country. AFR – African Region; AMR – Americas Region; EMR – Eastern Mediterranean Region; EUR – European Region; SEAR – South-East Asia Region; WPR – Western Pacific Region.

Source: ILOSTAT, 2020

FIG. 2.3

Women's participation in the health and care sector in relation to their overall participation rate in the labour market, 2020



Note: ILO, WHO estimates based on data from 189 countries and territories. Country codes are based on the three-digit country code of the International Organization for Standardization (ISO) (see [ISO 3166-1 alpha-3](https://www.iso.org/standard/3166-1.html)).

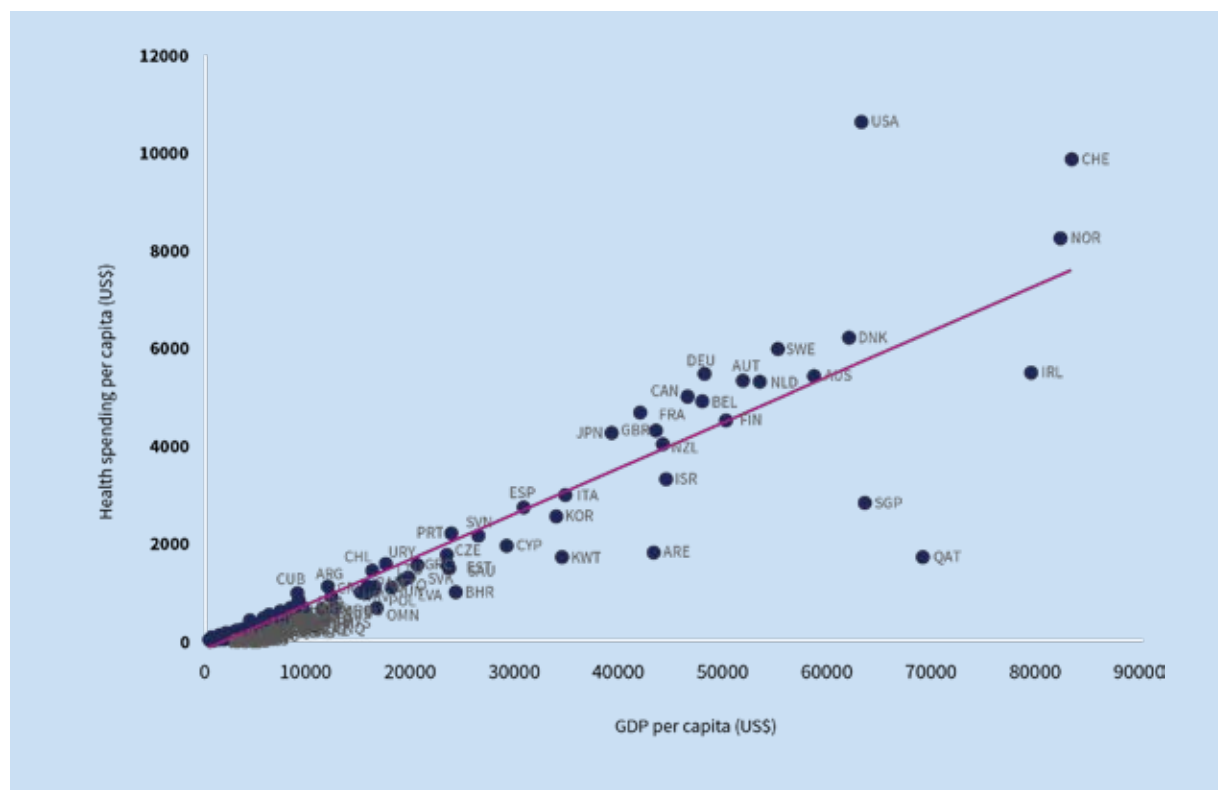
2.2 Employment in the health and care sector and degree of economic development

Fig. 2.4 shows that there is positive relationship between spending in the health and care sector (using spending in health as a proxy) and a country's degree of economic development, i.e. higher per capita spending in health is associated with higher GDP per capita. However, the relationship between employment levels and health expenditure is somewhat weaker, particularly when we compare women's employment with measures of spending in the health. This is evident in Fig. 2.5, which plots the share of women employed in the health and care sector against two measures of expenditure on health: (a) percentage of GDP; and (b) per capita spending. Chart (a) shows there is a positive but rather weak relationship between expenditure in health and care and the share of women working in the sector. Latvia, Nepal, Poland and Uganda, for example, have a similar health and care expenditure as a percentage of GDP: around 6%. However, the share of women in the health and care workforce varies widely among them, ranging from 42% in Nepal to 89% in Latvia.

The positive relationship weakens further in chart (b), which compares the proportion of women in the health and care sector with per capita expenditure in health. **These charts demonstrate that increasing the number of workers in the health and care sector does not bring about an equal (or greater) increase in expenditure. Given that women make up the vast majority of workers in the sector, this indicates that the sector has an overrepresentation of low-paid workers, while the high degree of feminization in the sector clearly points to the fact that these low-paid workers are likely to be mostly women.** These two features – a highly feminized sector and many low paid workers – characterize the health and care sector in almost all countries. As will be clearly corroborated in the subsequent sections of this report, these are key characteristics driving the gender pay gap in the health and care sector.

FIG. 2.4

Relation between GDP per capita and health spending per capita, 2018



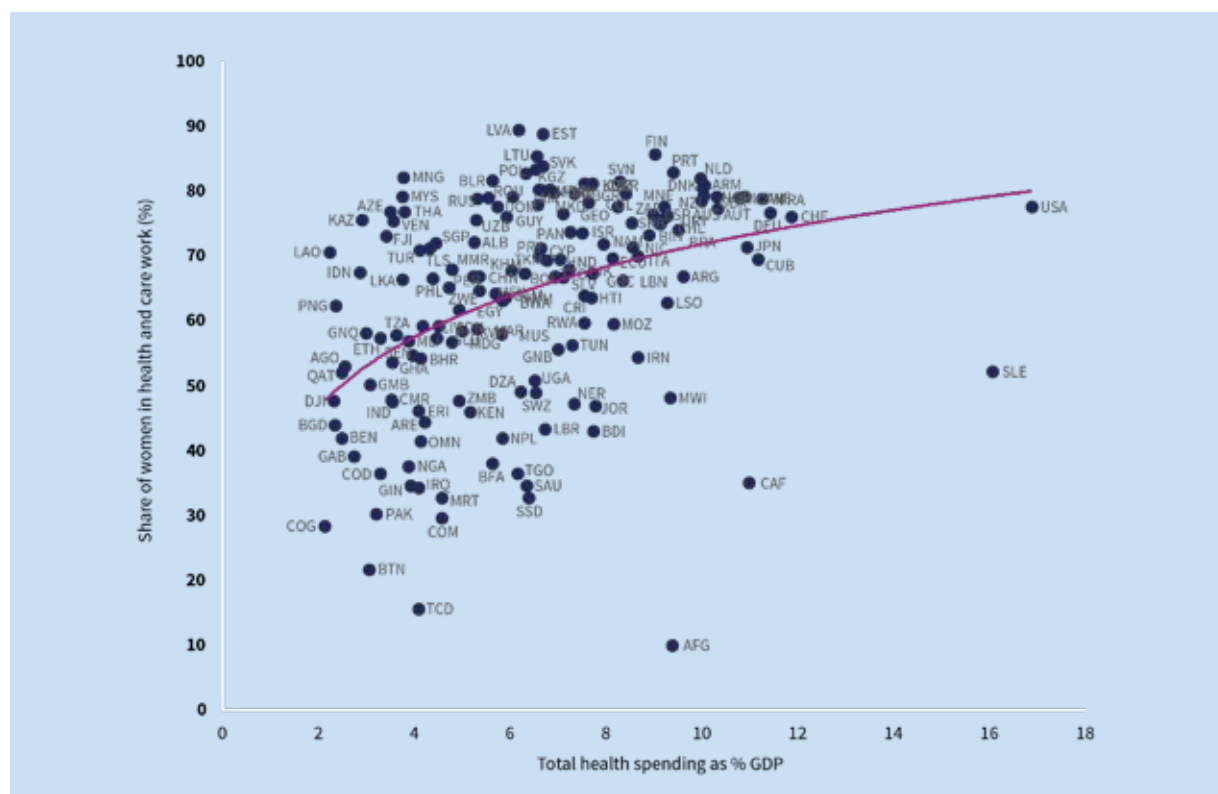
Note: ILO, WHO estimates, based on data from 157 countries and territories. Country codes are based on the three-digit country code of ISO (ISO 3166-1 alpha-3).

Source: Data taken from *Global spending on health* (WHO, 2020b) and *World Employment and Social Outlook: Trends 2020* (ILO, 2020c).

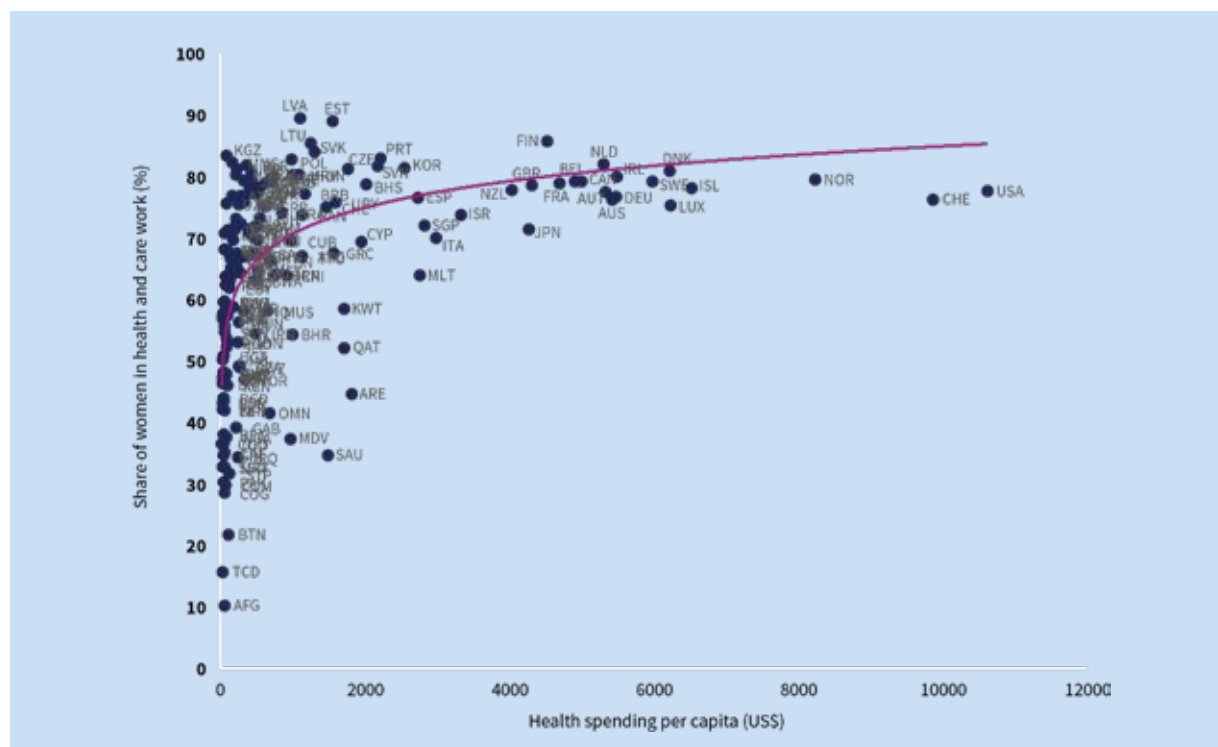
FIG. 2.5

Share of women in the health and care sector and health spending, 2018

(a) Share of women employed in the health and care sector and health spending as percentage of GDP



(b) Share of women in the health and care sector and health spending per capita, 2018



Notes: ILO, WHO estimates based on data from 173 countries (chart a) and 157 countries and territories (chart b). Country codes are based on the three-digit country code of ISO (ISO 3166-1 alpha-3).

Source: Data on share of women from ILO (2020). Data on GDP per capita taken from *Global spending on health* (WHO, 2020b).

The gender pay gap in the health and care sector

Using data from 54 countries in all geographic and income regions, the report shows that gender pay gaps in the health and care sector are overwhelmingly “positive”, i.e. men earn more than women, and large. Using weighted global estimates, we find that gender pay gaps in the health and care sector range from approximately 15% (in the case of median hourly wages) to approximately 24% (in the case of mean monthly earnings). However, this range of values disregards the unequal distribution of women and men across occupational categories in the health sector, which can lead to unreliable estimates of the gender pay gap. Thus, this section of the report also shows that controlling for clusters of workers around occupational categories lowers the gender pay gap. The dampening of the gender pay gap after correcting for cluster effects is explained by the fact that women are overrepresented in lower (paid) occupational categories, where the gender pay gap is narrower. Men, on the other hand, are overrepresented in higher (paid) occupational categories (e.g. medical doctors), where the gender pay gap is much wider. Finally, this section finds that gender pay gaps in the health and care sector tend to be wider than the gaps found in other (non-health) economic sectors, and, in particular, between professional categories.

3.1 The raw gender pay gap in the health and care sector

The “raw” gender pay gap is perhaps the most widely used indicator of the pay difference between women and men; it uses a time-related measure of pay (e.g. hourly wages, weekly pay, monthly earnings). Because women almost universally earn less than men in labour markets around the world, the raw gender pay gap measures the margin by which women’s pay falls short of men’s pay. For example, if women’s pay is 80% of men’s, it is said that the gender pay gap is 20%. There is, of course, not a single rate of women’s (or men’s) pay – the indicator is formulated using a range of values that together define the pay distribution (or pay structure) of women and men in the economy. Estimates of the gender pay gap therefore rely on summary measures of these distributions. The two most commonly used measures to summarize pay distributions are the *mean* (the average of all values in the distribution) and the *median* (the value located in the middle of the distribution). Thus, the *mean gender pay gap* compares the average of the women’s pay distribution with the average of the men’s pay distribution, and the *median gender pay gap* compares the value located in the middle of the women’s pay distribution with the value located in the middle of the men’s pay distribution.¹⁶

Figs 3.1 and 3.2 show various estimates of the gender pay gap in the health and care sector for 54 countries drawn from all regions in the world. Together, these countries include about 40% of wage employees worldwide in all economic sectors. Each figure presents estimates of both the mean and the median gender pay gaps in four geographic regions. Fig. 3.1 shows the gender pay gaps in hourly wages, an indicator consistent with SDG indicator 8.5.1, which has the advantage of disentangling working time from earnings. Fig. 3.2 shows estimates of pay gaps using monthly earnings. This measure, which is often publicly available from national statistics offices and disaggregated by sex, represents the sum of two gaps: the gap in hourly pay and the gap between women’s and men’s working time. The two figures together present four configurations of the gender pay gap in the health and care sector: mean hourly, median hourly, mean monthly, and median monthly, and compares each with the estimated overall gender pay gap at country level excluding the health and care sector.

The first observation arising from Figs 3.1 and 3.2 is that the gender pay gap in the health and care sector is overwhelmingly estimated as a positive value, indicating that overall and across the world men earn more than women in the health and care sector. Each of the figures shows subregional and global estimates based on weighted values that take into account the number of wage employees in each of

¹⁶ Whereas the mean considers all values across the wage distribution, the median does not take into account outliers at the extreme of the distribution. Thus, the two measures are usually close to each other when the wage distributions is compressed with very few outliers that do not have a significant effect on the mean.

the countries covered. As shown in Fig. 3.1, 50 of the 54 countries show a positive gender pay gap in mean hourly wage in the health and care sector; this is also the case in 46 of the 54 countries if we consider the median hourly gender pay gap. The weighted global estimates of the hourly gender pay gap in the health and care sector range from about 15% (in the case of median hourly wages) to about 24% (in the case of mean monthly earnings). Combining the range of values across all four configurations, women wage workers in the health and care sector earn approximately 20% less than men in the sector. However, there is wide and important variation among countries. The mean hourly gender pay gap, for example, ranges from 37% in Chile to -7.5% in Mongolia; later in the report we will examine why some countries show negative raw gender pay gaps (that is, a pay gap that favours women). For the moment, however, this finding would be interpreted to show that, in Mongolia, women working in the health sector earn on average 7.5% more than men working in the sector.

The second observation arising from Figs 3.1 and 3.2 is that the gender pay gap is higher when estimated based on monthly earnings (rather than hourly wages) for almost all of the 54 countries included in the analysis. This is true for 48 countries in the case of mean gender pay gaps, and for 51 of the 54 countries in the case of median pay gaps. This finding reflects that part-time work is more prevalent among women than among men in the health and care sector in most countries; this fact also applies to all other economic sectors and in most economies (Fagan et al., 2014). In fact, on average in the health and care sector in the 54 countries, about 14% of men work part time compared with 20% of women. In South-East Asian and African economies, the prevalence of part-time workers in the health and care sector (and in all sectors) is lower than in other parts of the world; however, even in these countries the average proportion of women part-time workers in the health and care sector is 3 percentage points greater than that of men. Overall, the results for the 54 countries suggest that part-time employment in the health and care sector across the world prevails more among women health care workers compared with men. It is therefore a factor that helps explain the observed difference between women and men in monthly earnings.

Our third observation from Figs 3.1 and 3.2 is that, irrespective of which of the four configurations we observe, **for a large number of countries the gender pay gap in the health and care sector is higher than that in other sectors of the economy.** Considering the hourly mean gender pay gap, this is true for 44 of the 54 countries. In some of these countries, the difference in the gender pay gap in the sector is marginal compared with other sectors; for example, in France and the Netherlands the hourly mean gender pay gaps in the health and care sector are 14.1% and 23%, respectively, whereas in the rest of the economy these estimates are 13.6% and 20%, respectively. However, in 18 of the 54 countries the mean hourly gender pay gap in the health and care sector is estimated to be at least twice as high than in other sectors of the economy. This is the case, for example, in Bangladesh (14.8% compared with 6.9%), Brazil (41% compared with 12.3%), Chile (37% compared with 15.3%), Italy (29.1% in the health and care sector compared with 6.7% in other sectors), the Plurinational State of Bolivia (12.2% compared with 3.7%), Poland (17.2% compared with 7.2%) and Viet Nam (15.9% compared with 9.3%). **Overall, if we consider the global weighted average of the hourly mean gender pay gap, women in the health and care sector are paid 19.2% less than men per hour worked; in other economic sectors, women are paid an estimated 11.5% less than men per hour worked.**¹⁷ One interesting observation is that using monthly earnings (rather than hourly wages) shrinks the gaps between the health and care sector and other economic sectors for several countries. This happens in countries where the prevalence of part-time work in economic sectors other than the health and care sector is higher than the prevalence in part-time work in the health and care sector. For example, in the United Kingdom of Great Britain and Northern Ireland the hourly mean gender pay gap in the health and care sector is 26.9%, compared with 22.6% in other sectors. Estimates of monthly earnings-based pay gaps are similar (36.2% and 36.4%, respectively), apparently as a result of the higher incidence of part-time work in other sectors (37%) compared with the incidence of part-time work in the health and care sector (27%).

¹⁷ It is likely that these two estimates are in fact the lower bounds of global estimates. The *Global wage report 2018/19* (ILO, 2018a) includes 73 countries, which together represent about 85% of wage employees across the world. In that report, the weighted average of the mean hourly gender pay gap across countries is 15.6%. As has been previously remarked, not all countries provide sufficiently dense datasets to allow for the identification of the health and care sector in a way that it is useful for policy analysis (see Box 3).

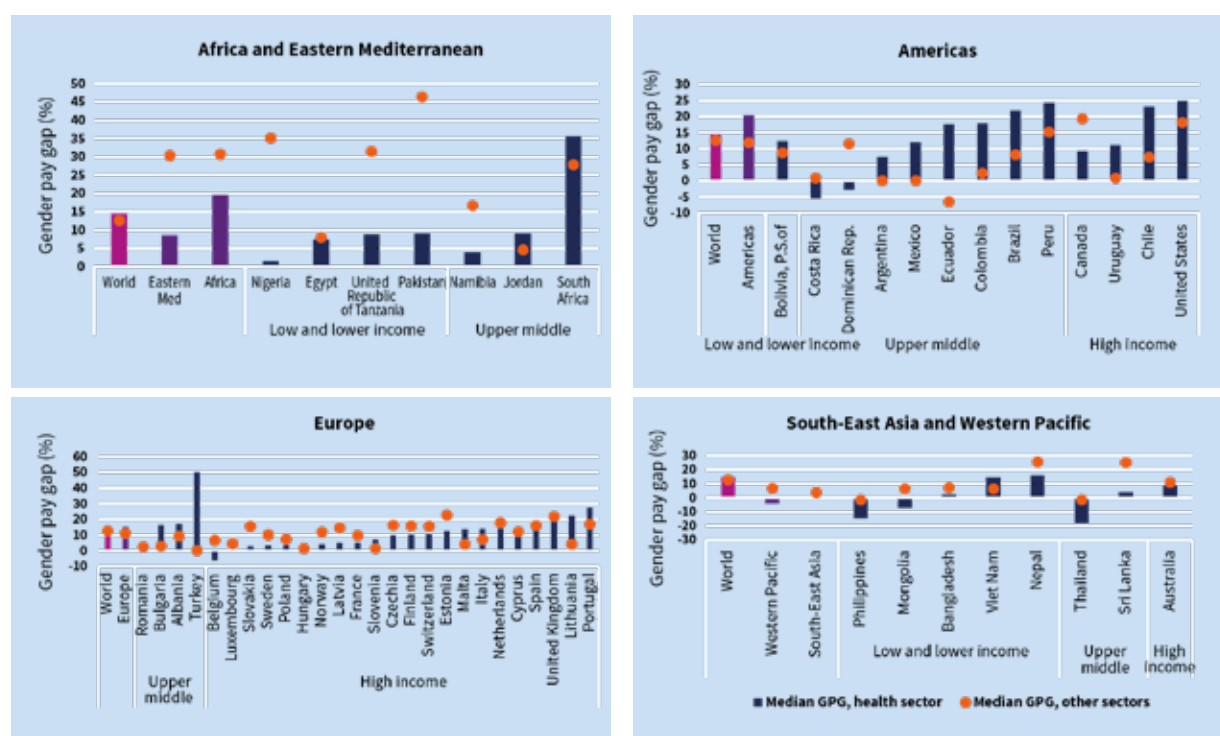
FIG. 3.1

Raw gender pay gaps using hourly wages

MEAN GENDER PAY GAP



MEDIAN GENDER PAY GAP

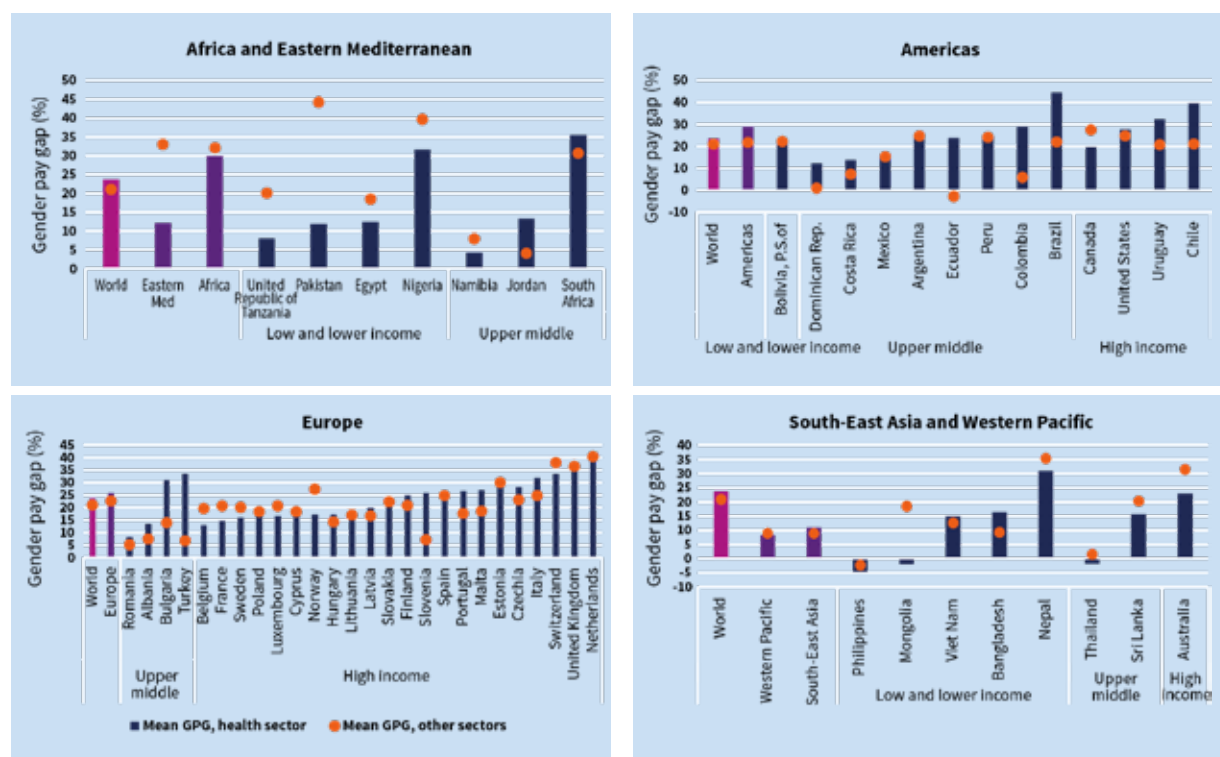


Source: ILO, WHO estimates based on survey data provided by national sources (see Annex 1).

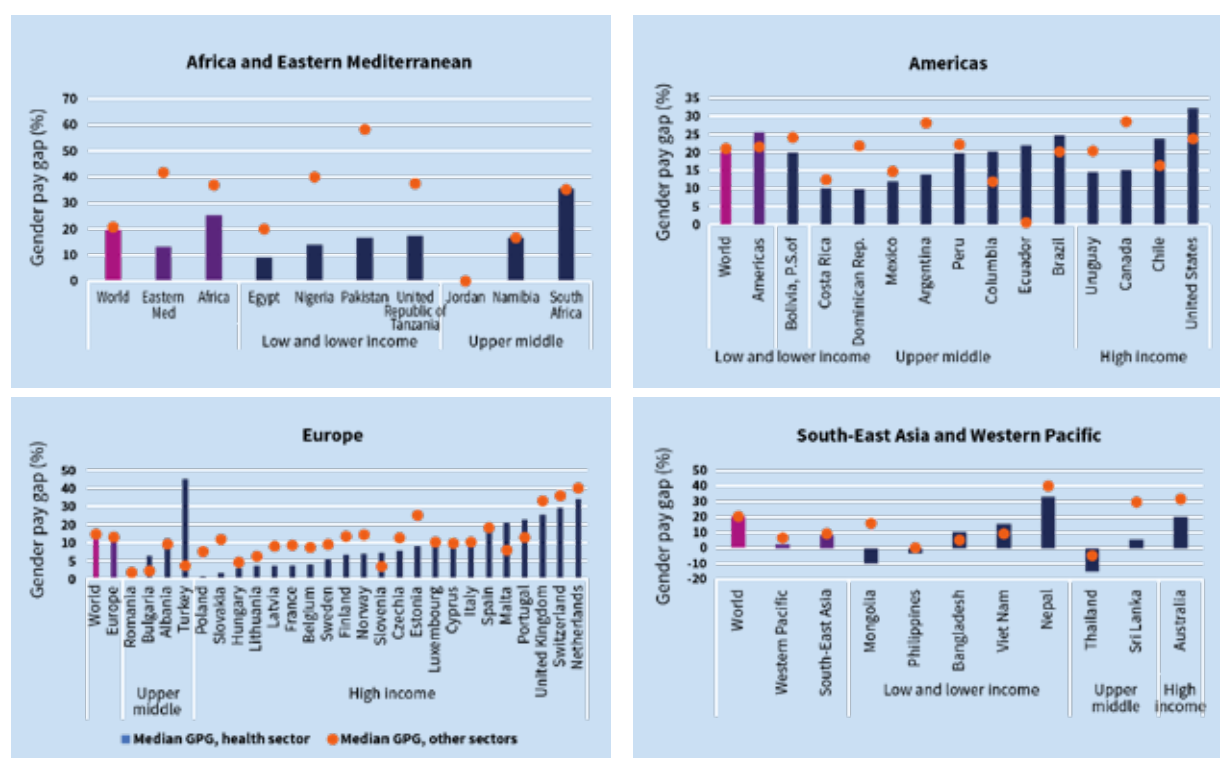
FIG. 3.2

Raw gender pay gaps using monthly earnings

MEAN GENDER PAY GAP



MEDIAN GENDER PAY GAP



Source: ILO, WHO estimates based on survey data provided by national sources (see Annex 1).

Our final observation from Figs 3.1 and 3.2 is that estimates of the “raw” mean and “raw” median gender pay gap can generate divergent results even using the same measure of pay definition, i.e. the results can be very different between mean versus median hourly pay gaps or between mean versus median monthly pay gaps. For example, in Costa Rica the mean hourly gender pay gap in the health and care sector is +7.6% and the median hourly gender pay gap is -5.5%; the mean value implies that men earn 7.6% more than women, whereas the median value implies that women earn 5.5% more than men. In other countries, the magnitude between the mean and the median varies widely even when the sign is the same. For example, in Nigeria the mean hourly gender pay gap is 22.6%, whereas the median hourly gender pay gap is 1.4%. Likewise, in Thailand the sign is the same (negative), but the magnitudes differ considerably: considering the mean hourly gender pay gap, the estimate suggests that women earn 1.8% more than men, whereas the median hourly gender pay gap suggests that women earn 18.1% more than men.

These striking differences between mean and median gender pay gaps can become an obstacle in advancing towards gender equality between women and men when the measures are considered as equally valid for policy implications. For example, in the case of Nigeria the median hourly gender pay gap (1.4%) could make policy-makers conclude there is near equity in pay in the health and care sector. The estimated median (22.6%), on the other hand, tells a very different story and suggests that pay inequality in the health and care sector in Nigeria is above the estimated global average. The ILO *Global wage report 2018/19* (ILO, 2018a)¹⁸ explored this measurement problem, highlighting that the wage distribution can be highly irregular in labour markets where the participation of women is low, or in labour markets where women cluster in specific ranges of hourly wages, or both. This means that women (and sometimes also men) are not smoothly distributed across the range of hourly wages – when this happens, the two measures (mean and median) used to summarize the wage distribution are of limited use to properly estimate the pay difference between women and men. The evidence displayed in Figs 3.1 and 3.2 points to the fact that, in many of the 54 countries for which we have data, these *clustering or composition effects* are features of the distribution

of wages in the health sector. Consequently, in many of the 54 countries, the mean and median gender pay gaps can render severely distorted empirical evaluations of pay equity between women and men.

The next section of the report explores the reasons behind such clustering (or composition) effects and proposes an alternative and complementary measure to estimate gender pay gaps: the so-called *factor-weighted gender pay gap*. This measure helps to eliminate, or at least significantly reduce, the impacts of clustering when estimating gender pay gaps. The resulting measure of gender pay gaps can contribute significantly to policy debates about gender pay inequality in the health and care sector.

3.2 Beyond the raw gender pay gap: identifying gender pay difference within subgroups

Across the world, it is common to find that women and men differ in their labour market participation, particularly in aspects such as working time, experience (proxied by age),¹⁹ occupational category and institutional sector (i.e. public versus private sector). These differences are not the result of random processes but the historically and culturally different approaches of women and men with respect to the share of parental responsibilities and work-life balance. The ILO estimates that 41.6% of “inactive” women are outside the labour force due to unpaid care work responsibilities, compared with 5.8% of men. Furthermore, the role played by different care policies is a key determinant for women’s participation in paid employment; countries that show higher public expenditure on care policies show equally higher participation of women in the labour market (ILO, 2018c). Such dynamics also affect the higher incidence of women in part-time employment, employment in the public sector (which offers more flexibility), or the higher incidence among women exiting the labour market for significant periods of time.

Gender stereotyping, as discussed in the Introduction, is another reason why women and men differ in their labour market participation, resulting in occupational segregation and the feminization of particular jobs and sectors (Grimshaw & Rubery, 2015). In many parts of the world, work-related violence and harassment against women, especially in sectors or occupations where they constitute a

¹⁸ The [ILO Global wage report 2018/19](#) offers an extensive and detailed analysis of wage distribution across the world to demonstrate the relationship between the summary measures, the irregularity of wage dispersions, and their relationship to their respective cumulative density functions.

¹⁹ Experience is often proxied by age in empirical work because survey instruments do not always ask direct questions about the number of years the respondent has participated in the labour market. However, age can be a less-than-perfect approximation of labour market experience for women compared with men, considering that women are more likely than men to take breaks from the labour market for family and care reasons.

minority, may also act as a deterrent, discouraging women from preparing for, entering, or remaining in better paid, male-dominated jobs (ILO, 2018d; Pillinger, 2017). Occupational segregation and the search for a more flexible work-life balance or family-friendly employment may be a feature across the world, but the low participation of women in wage employment is a feature that particularly characterizes LMIC. In these countries, the lack of formal employment pushes many women to work as own account workers or unpaid family workers in the informal economy (ILO, 2018c), with very few women (often highly paid, and highly qualified) as the only ones who participate in wage employment.

The clustering of women in certain occupational categories, alongside other factors mentioned above, implies that women may not be as smoothly distributed across the wage distribution as men, particularly in countries where the participation of women as wage employees is comparatively low. Unless controlled for, **these clustering (or composition) effects produce estimates of the gender pay gap that do not accurately represent the underlying difference in pay between women and men.** The best way to illustrate the mechanism behind the clustering effect and how it affects estimates of the gender pay gap is to select one of these factors, estimate the gender pay gap among the groups defined by it, and compare the results obtained with those based on the classic raw gender pay gap. We illustrate this using the factor of occupational categories in the health sector. Table 3.1 provides an analysis of six countries that together cover most of the combined configurations (in terms of the sign and the magnitude of the raw mean and raw median gender pay gap) observed in Fig. 3.1.²⁰ For each country, and distinguishing between mean and median gender pay gaps, the rows show the distribution of workers in the health sector using the six occupational categories described in Box 1. The columns show the mean (or median) average earnings of women and men for each occupational subgroup and each subgroup's corresponding share among the population of health and care workers.

Looking at Table 3.1, in Thailand, women professional health care workers represent 36% of all women health care workers and earn 171.2 Thai baht per hour, on average. In the case of Thailand, the raw mean hourly gender pay gap (-1.8%) would suggest that women earn, on average, 1.8% more than men per hour worked. However, the detailed estimates in the table show that the higher average earnings of all women in the health and care sector (114.5 baht per hour) results from the pulling-up effect that the cluster of higher paid women in the “professional

health” category (36%) exercise on the estimated average. In contrast, a majority (57%) of Thai women in the health and care sector earn significantly less than the average of 114.5 baht. At the same time, comparing the average hourly earnings of men in the category “professional health” (225.6 baht per hour) with that of women (171.2 baht per hour) shows that men in the same category earn 24.1% more than women per hour worked (see the column headed “pay gap”). In fact, on average, Thai men earn more than Thai women in four of the six occupational categories in the health and care sector. Only 19% of Thai women in the health and care sector (mostly those in semi- or low-skilled non-health occupations in the health and care sector) seem to earn hourly wages above those of men with the same occupational category.

This case illustrates how the estimated means – for women and men alike – are subject to cluster effects, while the resulting raw mean hourly gender pay gap does not capture the true underlying pay difference between women and men. The raw mean gender pay gap, which suggests that women earn 1.8% on average more than men, is not relevant when, in fact, an average 81% of women in the health and care sector in Thailand earn less per hour when compared with the respective counterfactual categories of men. A similar analysis can be done in the case of the median. Among Thai women in the health and care sector, the median wage is estimated at 93.4 baht per hour – this is also due to the pulling-up effect on the median from the 36% of women professional health workers. In four of the six occupational groups, however, the man in the middle of the distribution earns a higher hourly wage than the woman in the middle of the wage distribution in the same occupational category. In conclusion, both the mean and the median hourly wage in the Thai health and care sector prove to be unsatisfactory summary measures of the wage structure for women and men in the sector.

One way to solve this problem with the raw estimates is to precisely estimate the pay gap within occupational categories – where women and men have far more homogenous labour market attributes in the wage determination process – and then take a weighted average of the occupation-specific gender pay gaps, where the weights are determined by the size of each occupational category in the population of workers in the sector. This is exactly what was done in Table 3.1 for each of the countries included and for each of the two measures (mean and median gender pay gaps). In the case of Thailand, using the factor “occupational category”, the mean factor-weighted gender pay gap is 11.8%, which means that on average women are paid 11.8% less than men.

²⁰ A similar analysis could be shown using monthly earnings – we report the estimates based only on hourly wages for the sake of simplicity.

The factor-weighted median gender pay gap is 7.2%, meaning that, considering the median earners across occupational categories, the middle woman in the Thai health sector earns 7.2% less than the middle man in the sector.

The example of Costa Rica, also shown in Table 3.1, is especially interesting because even the raw gender pay gaps would lead to a controversy in terms of policy evaluation: the raw mean suggests that men earn 7.7% more than women, but the median suggests that women earn 5.5% more than men. In contrast, using the “occupational category” factor to correct for cluster effects in estimating the pay gap results in two estimates that are consistent in terms of the signs of the measures. That is, in the case of Costa Rica, both the mean (7.0%) and median (3.1%) factor-weighted gender pay gaps indicate that women earn less than men across occupational groups.

The example of Nigeria has been included in Table 3.1 because although both the raw mean and raw median gaps have the same (positive) sign, the magnitudes are very different. Whereas the raw mean gender pay gap suggests that women earn 22.6% less than men, the raw median gender pay gap suggests near gender pay parity in the health sector. Using occupational categories as a factor to correct for cluster effects results in mean and median estimates that are far closer in magnitude – and suggests a double-digit gender pay gap in the Nigerian health sector. The case of Belgium is also interesting because the raw mean and raw median gender pay gaps are both negative, and the two factor-weighted gender pay gaps remain negative after adjusting for clusters in occupational categories. In Belgium, 58% of workers in the health sector have jobs in occupations where women are paid more than men (the two categories of semi- or low-skilled occupations). In the technical health occupations, which account for a further 23% of the health sector workforce, the margin by which men earn more than women is rather small (2.4%). Thus, in the case of Belgium it does make sense to talk about a negative gender pay gap in the health sector, since a larger percentage of women, category by category, earn more than men. This is why Belgium’s factor-weighted pay gap using occupational categories results in an estimated pay difference that is negative for the mean and the median with similar magnitude.

The other two examples in Table 3.1, Finland and Uruguay, are countries where the factor-weighted mean and median gender pay gaps both result in a substantial reduction in the gender pay gap when

compared with the original raw mean and raw median gender pay gaps. In the case of Finland, the raw mean gender pay gap is 25.2% – when we correct for clusters due to occupational categories, the (factor-weighted) pay gap drops to 7.8%. What is happening here? In Finland, a relatively large fraction (46%) of women workers are concentrated in semi- and low-skilled jobs (e.g. auxiliary health care, semi- and low-skilled support workers, etc.); the raw (mean and median) gender pay gap is pulled down as result of the relatively low pay per hour in these categories. Once the pay gap is corrected for this clustering, the factor-weighted pay gap value is 7.8%, which better reflects the fact that the greater fraction (72%) of the sample are in occupational categories where the difference between women and men’s pay is relatively low (less than 5%). Finally, Uruguay is similar to the case of Finland. Adjusting for clusters also results in a lower pay gap compared with the raw mean or median gender pay gap. However, in the case of Uruguay, the distributions of women and men across occupational categories are relatively similar, except that a slightly greater percentage of semi- and low-skilled men pulls down the factor-weighted average. Otherwise, Uruguay’s occupational segregation does not explain much of the observed gender pay gap in its health and care sector.

Table 3.1 provides a simplified application of the methodology used in the factor-weighted gender pay gap developed and detailed in the ILO *Global wage report 2018/19* (ILO, 2018a). In that report, the ILO suggests using several factors to form subgroups of women and men who are homogeneous with respect to key characteristics and endowments in the wage determination process – in particular, working time, occupational category, age and institutional sector. Whereas age and education are the two main factors behind the human capital model (Mincer, 1974), the factors “working time” and “institutional sector” are clear candidates to capture the gender dimensions in the selective behaviours of women and men in the labour market.²¹ The analysis in Table 3.1 uses “occupation” instead of “education” because there is a strong correlation between these two variables in sectors where job functions are well established in line with skills acquired through formal education, as is the case in the health and care sector; it therefore seems reasonable to use the available data to better compare individuals with similar jobs even if there are variations in their educational achievements. The next section applies the methodology of factor-weighted gender pay gaps to better identify and measure the gender pay gap in the health sector across the world.

²¹ It is important to highlight that the proposed factor-weighted pay gap is not equivalent to the “adjusted gender pay gap” in other empirical works. The latter requires techniques to identify and exclude the part of the gap arising from difference between women and men in characteristics and endowments in the labour market. This issue is addressed in Sections 4 and 5.

TABLE 3.1

From a RAW gender pay gap to a FACTOR-WEIGHTED gender pay gap

BELGIUM (MEAN GPG)		Women mean hourly wage (LCU)	Share of WOMEN among all women in the health and care sector	Men mean hourly wage (LCU)	Share of MEN among all women in the health and care sector	Share of wage workers by occupation in the health and care sector (weight)	PAY GAP (%)
Occupational category	PROF health	28.1	0.15	32.0	0.15	0.15	12.0
	TECH health	21.6	0.23	22.1	0.16	0.21	2.4
	Semi/low health	17.1	0.44	16.8	0.21	0.39	-1.8
	PROF non-health	26.6	0.02	31.2	0.05	0.03	14.8
	TECH non-health	21.2	0.02	22.5	0.02	0.02	6.1
	Semi/low non-health	17.5	0.14	15.2	0.41	0.21	-15.5
All (raw GPG)		20.1	0.77	20.1	0.23		-0.1
FACTOR-WEIGHTED GENDER PAY GAP							-1.1
BELGIUM (MEDIAN GPG)		Women median hourly wage (LCU)	Share of WOMEN among all women in the health and care sector	Men median hourly wage (LCU)	Share of MEN among all women in the health and care sector	Share of wage workers by occupation in the health and care sector (weight)	PAY GAP (%)
Occupational category	PROF health	27.2	0.15	29.5	0.15	0.15	7.6
	TECH health	21.6	0.23	21.8	0.16	0.21	0.9
	Semi/low health	16.6	0.44	16.5	0.21	0.39	-0.7
	PROF non-health	25.5	0.02	28.9	0.05	0.03	11.8
	TECH non-health	21.1	0.02	23.1	0.02	0.02	8.4
	Semi/low non-health	17.3	0.14	14.0	0.41	0.21	-24.0
All (raw GPG)		18.7	0.77	17.6	0.23		-6.2
FACTOR-WEIGHTED GENDER PAY GAP							-3.4
COSTA RICA (MEAN GPG)		Women mean hourly wage (LCU)	Share of WOMEN among all women in the health and care sector	Men mean hourly wage (LCU)	Share of MEN among all women in the health and care sector	Share of wage workers by occupation in the health and care sector (weight)	PAY GAP (%)
PROF health		7676.1	0.25	8590.9	0.25	0.25	10.7
TECH health		3551.5	0.13	3075.5	0.15	0.14	-15.5
Semi/low health		2238.2	0.32	2450.3	0.18	0.27	8.7
PROF non-health		5766.9	0.08	8100.3	0.04	0.06	28.8
TECH non-health		3346.7	0.03	3747.4	0.06	0.04	10.7
Semi/low non-health		2166.0	0.21	2343.2	0.31	0.24	7.6
All (raw GPG)		4006.2	0.63	4335.2	0.37		7.7
FACTOR-WEIGHTED GENDER PAY GAP							7.0

COSTA RICA (MEDIAN GPG)	Women mean hourly wage (LCU)	Share of WOMEN among all women in the health and care sector	Men mean hourly wage (LCU)	Share of MEN among all women in the health and care sector	Share of wage workers by occupation in the health and care sector (weight)	PAY GAP (%)
PROF health	7211.5	0.25	7692.3	0.25	0.25	6.3
TECH health	3484.8	0.13	3004.8	0.15	0.14	-16.0
Semi/low health	1979.2	0.32	2227.9	0.18	0.27	11.2
PROF non-health	4675.1	0.08	5741.2	0.04	0.06	18.6
TECH non-health	3125.0	0.03	3461.5	0.06	0.04	9.7
Semi/low non-health	2156.5	0.21	2083.3	0.31	0.24	-3.5
All (raw GPG)	2987.8	0.63	2831.9	0.37		-5.5
FACTOR-WEIGHTED GENDER PAY GAP						3.1

FINLAND (MEAN GPG)	Women mean hourly wage (LCU)	Share of WOMEN among all women in the health and care sector	Men mean hourly wage (LCU)	Share of MEN among all women in the health and care sector	Share of wage workers by occupation in the health and care sector (weight)	PAY GAP (%)
PROF health	33.3	0.07	44.7	0.21	0.08	25.5
TECH health	18.7	0.25	19.5	0.20	0.24	4.1
Semi/low health	15.2	0.46	15.8	0.29	0.44	3.6
PROF non-health	19.4	0.10	27.0	0.09	0.10	28.2
TECH non-health	16.9	0.09	17.6	0.13	0.09	4.3
Semi/low non-health	14.9	0.03	14.4	0.08	0.04	-3.5
All (raw GPG)	17.9	0.89	23.8	0.11		25.2
FACTOR-WEIGHTED GENDER PAY GAP						7.8

FINLAND (MEDIAN GPG)	Women mean hourly wage (LCU)	Share of WOMEN among all women in the health and care sector	Men mean hourly wage (LCU)	Share of MEN among all women in the health and care sector	Share of wage workers by occupation in the health and care sector (weight)	PAY GAP (%)
PROF health	30.2	0.07	43.4	0.21	0.08	30.3
TECH health	18.0	0.25	19.2	0.20	0.24	6.1
Semi/low health	14.9	0.46	15.5	0.29	0.44	3.7
PROF non-health	17.5	0.10	22.9	0.09	0.10	23.5
TECH non-health	16.2	0.09	16.9	0.13	0.09	4.4
Semi/low non-health	14.7	0.03	14.3	0.08	0.04	-3.1
All (raw GPG)	16.5	0.89	18.4	0.11		10.3
FACTOR-WEIGHTED GENDER PAY GAP						8.3

NIGERIA (MEAN GPG)	Women mean hourly wage (LCU)	Share of WOMEN among all women in the health and care sector	Men mean hourly wage (LCU)	Share of MEN among all women in the health and care sector	Share of wage workers by occupation in the health and care sector (weight)	PAY GAP (%)
PROF health	428.0	0.59	693.9	0.40	0.52	38.3
TECH health	261.3	0.22	234.1	0.14	0.19	-11.6
Semi/low health	147.8	0.11	247.2	0.04	0.08	40.2
PROF non-health	182.1	0.04	285.1	0.31	0.15	36.1
TECH non-health	72.2	0.02	191.6	0.02	0.02	62.3
Semi/low non-health	176.8	0.01	262.0	0.09	0.04	32.5
All (raw GPG)	338.1	0.61	436.8	0.39		22.6
FACTOR-WEIGHTED GENDER PAY GAP						28.8
NIGERIA (MEDIAN GPG)	Women mean hourly wage (LCU)	Share of WOMEN among all women in the health and care sector	Men mean hourly wage (LCU)	Share of MEN among all women in the health and care sector	Share of wage workers by occupation in the health and care sector (weight)	PAY GAP (%)
PROF health	288.5	0.59	576.9	0.40	0.52	50.0
TECH health	256.4	0.22	213.7	0.14	0.19	-20.0
Semi/low health	85.7	0.11	141.3	0.04	0.08	39.3
PROF non-health	131.9	0.04	230.8	0.31	0.15	42.9
TECH non-health	73.4	0.02	230.8	0.02	0.02	68.2
Semi/low non-health	230.8	0.01	221.9	0.09	0.04	-4.0
All (raw GPG)	247.3	0.61	250.8	0.39		1.4
FACTOR-WEIGHTED GENDER PAY GAP						32.6

THAILAND (MEAN GPG)	Women mean hourly wage (LCU)	Share of WOMEN among all women in the health and care sector	Men mean hourly wage (LCU)	Share of MEN among all women in the health and care sector	Share of wage workers by occupation in the health and care sector (weight)	PAY GAP (%)
PROF health	171.2	0.36	225.6	0.19	0.32	24.1
TECH health	83.6	0.19	101.0	0.15	0.18	17.2
Semi/low health	60.9	0.23	65.8	0.24	0.23	7.4
PROF non-health	135.3	0.08	190.3	0.07	0.07	28.9
TECH non-health	109.1	0.04	100.3	0.04	0.04	-8.8
Semi/low non-health	82.2	0.11	70.0	0.31	0.15	-17.3
All (raw GPG)	114.5	0.78	112.5	0.22		-1.8
FACTOR-WEIGHTED GENDER PAY GAP						11.8

THAILAND (MEDIAN GPG)	Women mean hourly wage (LCU)	Share of WOMEN among all women in the health and care sector	Men mean hourly wage (LCU)	Share of MEN among all women in the health and care sector	Share of wage workers by occupation in the health and care sector (weight)	PAY GAP (%)
PROF health	154.9	0.36	173.1	0.19	0.32	10.5
TECH health	69.2	0.19	82.4	0.15	0.18	16.0
Semi/low health	54.4	0.23	57.7	0.24	0.23	5.7
PROF non-health	112.1	0.08	178.0	0.07	0.07	37.0
TECH non-health	98.9	0.04	86.5	0.04	0.04	-14.3
Semi/low non-health	72.1	0.11	61.3	0.31	0.15	-17.6
All (raw GPG)	93.4	0.78	79.1	0.22		-18.1
FACTOR-WEIGHTED GENDER PAY GAP						7.2

URUGUAY (MEAN GPG)	Women mean hourly wage (LCU)	Share of WOMEN among all women in the health and care sector	Men mean hourly wage (LCU)	Share of MEN among all women in the health and care sector	Share of wage workers by occupation in the health and care sector (weight)	PAY GAP (%)
PROF health	428.0	0.59	693.9	0.40	0.52	38.3
TECH health	261.3	0.22	234.1	0.14	0.19	-11.6
Semi/low health	147.8	0.11	247.2	0.04	0.08	40.2
PROF non-health	182.1	0.04	285.1	0.31	0.15	36.1
TECH non-health	72.2	0.02	191.6	0.02	0.02	62.3
Semi/low non-health	176.8	0.01	262.0	0.09	0.04	32.5
All (raw GPG)	338.1	0.61	436.8	0.39		22.6
FACTOR-WEIGHTED GENDER PAY GAP						28.8

URUGUAY (MEDIAN GPG)	Women mean hourly wage (LCU)	Share of WOMEN among all women in the health and care sector	Men mean hourly wage (LCU)	Share of MEN among all women in the health and care sector	Share of wage workers by occupation in the health and care sector (weight)	PAY GAP (%)
PROF health	388.1	0.16	664.2	0.21	0.17	41.6
TECH health	230.9	0.17	243.4	0.13	0.16	5.1
Semi/low health	167.7	0.36	187.3	0.20	0.32	10.5
PROF non-health	325.2	0.06	399.3	0.06	0.06	18.6
TECH non-health	236.3	0.04	298.2	0.08	0.05	20.8
Semi/low non-health	203.2	0.20	153.4	0.32	0.23	-32.4
All (raw GPG)	212.2	0.78	238.9	0.22		11.1
FACTOR-WEIGHTED GENDER PAY GAP						6.2

Notes: The six occupational categories are based on ISCO-08 classification as described in Box 1. Wage estimates are shown in local currency units (LCU).

Source: ILO, WHO estimates based on survey data provided by national sources (see Annex 1).

3.3 A factor-weighted analysis of the gender pay gap in the health and care sector

The use of four factors suggested by the ILO *Global wage report 2018/19* implies dividing the data into more subgroups than the six occupational categories used for illustration in Table 3.1. For example, the variable “age” can be used to subdivide the sample into four categories; the variables “full-time versus part-time workers” and “private versus public sector workplace” define two categories each. Together with the occupational categories described in Box 1, the four factors generate a total of (at most) 96 divisions (which is the result of integrating $6 \times 4 \times 2 \times 2$ major subgroups). In general it is preferable to keep the number of divisions reasonably small so that the sample size in each subgroup remains sufficiently large to avoid the problem of small-sample bias (i.e. to avoid the biasing effect of a few individuals whose earnings are not representative of the given subgroup). When the factor-weighted gender pay gap applies to all workers in the labour market (as opposed to selecting health workers only), the use of the abovementioned four factors can leave subgroups whose sizes are sufficiently large to avoid small-size effects. However, a review of the data shows that for 23 of the 54 countries in our database, the selection of health workers considerably reduces the samples such that the use of all four factors (e.g. the division of the sample into 96 subgroups) results in estimates of gender pay gaps that are biased by some very small subgroups. To avoid this problem, we show estimates of the factor-weighted gender pay gap using the single factor “occupational categories” in all 54 countries – after all, Table 3.1 shows that this single factor can serve to control for some important cluster effects in the wage distribution of health and care workers.

It is important to note that from this point on, and for the remainder of the report, all estimates are based on hourly wages (rather than monthly earnings). Hourly wages compare units that are separate from working time, and hourly wage is the indicator for SGD Target 8.5 on equal pay for work of equal value.

Fig. 3.3 plots the “raw mean gender pay gap” (first shown in Fig. 3.2) against the occupational categories’ factor-weighted gender pay gap such as those presented in Table 3.1. In Fig. 3.3, the 54 countries are ranked from the lowest to the highest pay gap using the raw mean estimate. The figure shows that in 12 of the 54 countries the factor-weighted gender pay gap is higher than the raw mean gender pay gap. These 12 countries – including three in Europe (Albania, Poland and Romania) – are all LMIC, where the proportion of women wage employees, in relation to the number of working-

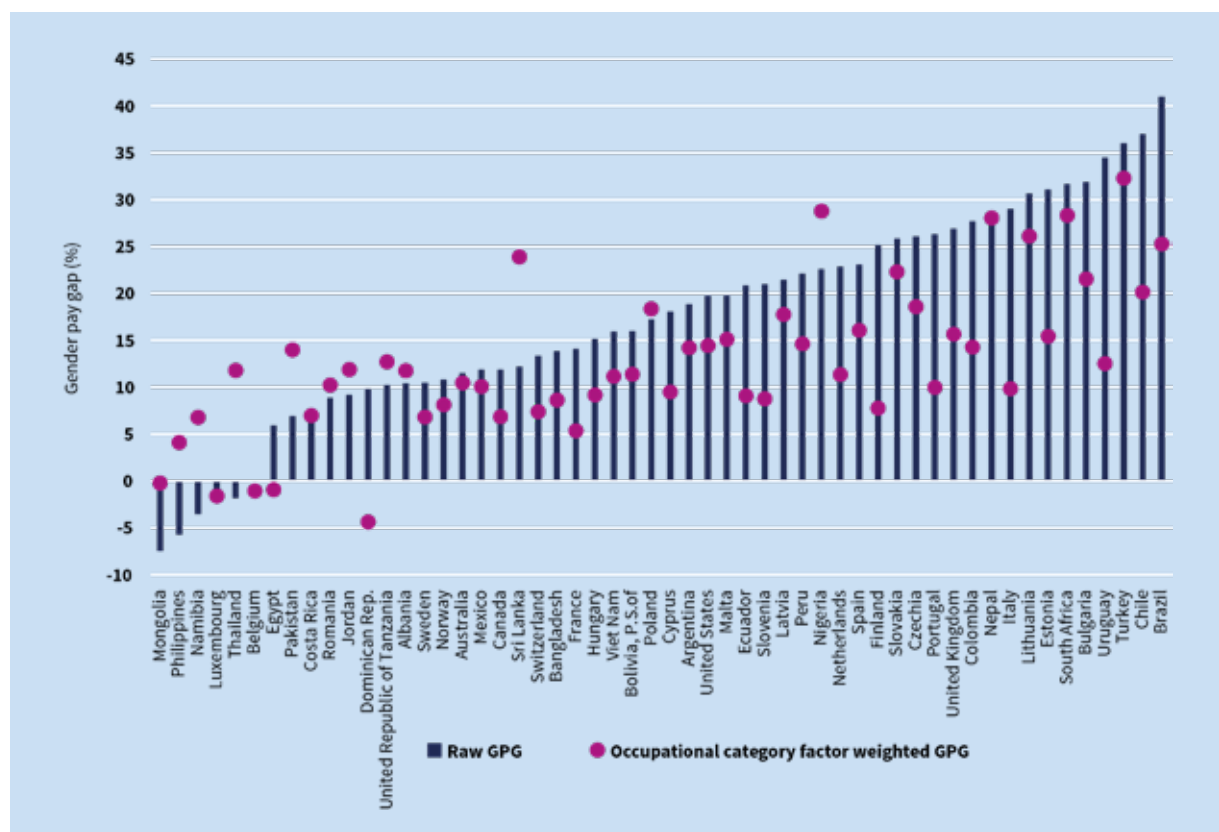
age women in the population, is relatively low. For example, in 4 of these 12 countries (Albania, Jordan, Nigeria and Thailand) the data show that only 16%, 12%, 7% and 28% of women of working age in their respective populations are wage employees – compared with 70%, 54%, 61% and 78% of men of working age, respectively. These 12 countries have similar characteristics to those exhibited by Thailand in Table 3.1; women wage employees in the health sector are not smoothly spread across the wage distribution. Instead, a small cluster of highly paid women pulls up the estimated average hourly wage, but this average does not represent the earnings of the greater part of women health care workers, who are in fact clustered in low-paid jobs. The correction of cluster effects in these 12 countries leads to higher estimates of the gender pay gap when compared with the raw mean gender pay estimate, and therefore better reflects the true underlying difference in pay between women and men in the health and care sector.

In three countries in particular – Namibia, the Philippines and Thailand – the raw mean gender pay gap was negative but is positive when using the factor-weighted alternative. Thus, the correction of cluster effects using occupational category serves to identify that in Namibia, the Philippines and Thailand, women in the health sector overall are paid, respectively, 6.8%, 4.1% and 11.8% less than men. In the case of Mongolia, which also had a negative raw mean gender pay gap (-7.5%), the factor-weighted gender pay gap increases relative to the raw estimate to -0.2% (showing near parity in pay if no other factor is taken into account). Other estimates in Fig. 3.3 show that in 5 of the 54 countries (Australia, Belgium, Costa Rica, Luxembourg and Nepal), there are almost imperceptible differences between the raw mean and the mean factor-weighted gender pay gaps. In Belgium and Luxembourg, the factor-weighted estimates are near zero and negative (-1.1% in the case of Belgium and -1.6% in Luxembourg), whereas in Australia, Costa Rica and Nepal the factor-weighted measure finds that women are paid 7.0%, 11.0% and 28.0% less than men, respectively.

Finally, what is most striking in Fig. 3.3 is that in a majority of countries (35 of the 54) the factor-weighted estimate is lower than the raw mean gender pay gap. In some cases the change between raw and factor weighted measures is small, as in the case of Norway, which drops from 11.8 to 8.1%. However, in others the change represents a drop by more than half, as in the case of Italy, where the raw gender pay gap is 29.0% and drops to 9.8% when correcting for cluster effects. This group also includes a country (the Dominican Republic) where the measure turns negative, dropping from a positive

FIG. 3.3

Raw versus occupational category-weighted (factor-weighted) gender pay gap



Source: ILO, WHO estimates based on survey data provided by national sources (see Annex 1).

estimate of 10% in the case of the raw gender pay gap to -5.0% when controlling for clusters in occupations.

Following the detailed examples of Finland and Uruguay shown in Table 3.1, it suggests that these 35 countries are possibly characterized by the overrepresentation of women in low-paid occupations in the health sector, coupled with estimates of gender pay gaps that increase in value as we move from lower to higher occupational categories. Since the classic raw gender pay estimator ignores the overrepresentation of women in low-paid occupations, the resulting “raw” estimate is an overestimation of the true underlying pay difference. The factor-weighted gender pay gap, on the other hand, takes into account the overrepresentation of women in lower occupational categories and corrects for such cluster effects when estimating pay differences between women and men. Thus the finding, that in 35 of 54 countries the factor-weighted gender pay gap is smaller than the raw gender pay gap, illustrates that women are overrepresented among the lower occupational categories where the gender pay gap is lower.

The overrepresentation of women in lower level occupations is illustrated in Fig. 3.4, which compares the share of women in a given category (among all women) to the share of men in a given category (among all men) by occupational categories, in both cases considering only wage employees in the health sector. All six charts in Fig. 3.4 are presented with the same values in the vertical axis to highlight and contrast the importance of each occupational category in the health sector. It is clear from this figure that in the great majority of countries, men are overrepresented in the health professional (e.g. medical doctors) and in the semi-/low-skilled non-health categories (e.g. drivers, refuse workers, food preparation). In contrast, women are more likely than men to occupy semi-/low-skilled health-related jobs (e.g. support and personal health care workers, cleaners). In 38 of the 54 countries, the representation of women in technical health-related jobs (e.g. lab analysis, midwives, auxiliary nursing) is greater than that of men; in some of the 38 countries, the difference is marginal (e.g. in France the fraction of women [among women] is only 1.0 percentage point greater than that of men [among men] in this category). However, in other countries the representation of women is ≥ 15 percentage

points higher compared with the representation of men (e.g. in Italy, Nepal, Pakistan). The technical non-health occupations category (e.g. sales agents, librarians, telecommunications and broadcasting technicians) seems to occupy a relatively small share of jobs in the health sector, and whereas in 26 of the 54 countries the representation of men (among men) is higher compared with that of women (among

women), the difference is close to zero except in Pakistan and Bangladesh (where the representation of men in technical non-health occupations is about 8 percentage points more than that of women). However, these are two countries where the participation of women in paid employment is relatively low overall.

FIG. 3.4

Share of women in a given category (among all women) and share of men in a given category (among all men), by occupational categories – ranking countries from lowest to highest proportion of women in the given occupational class in the health sector



Source: ILO, WHO estimates based on survey data provided by national sources (see Annex 1).

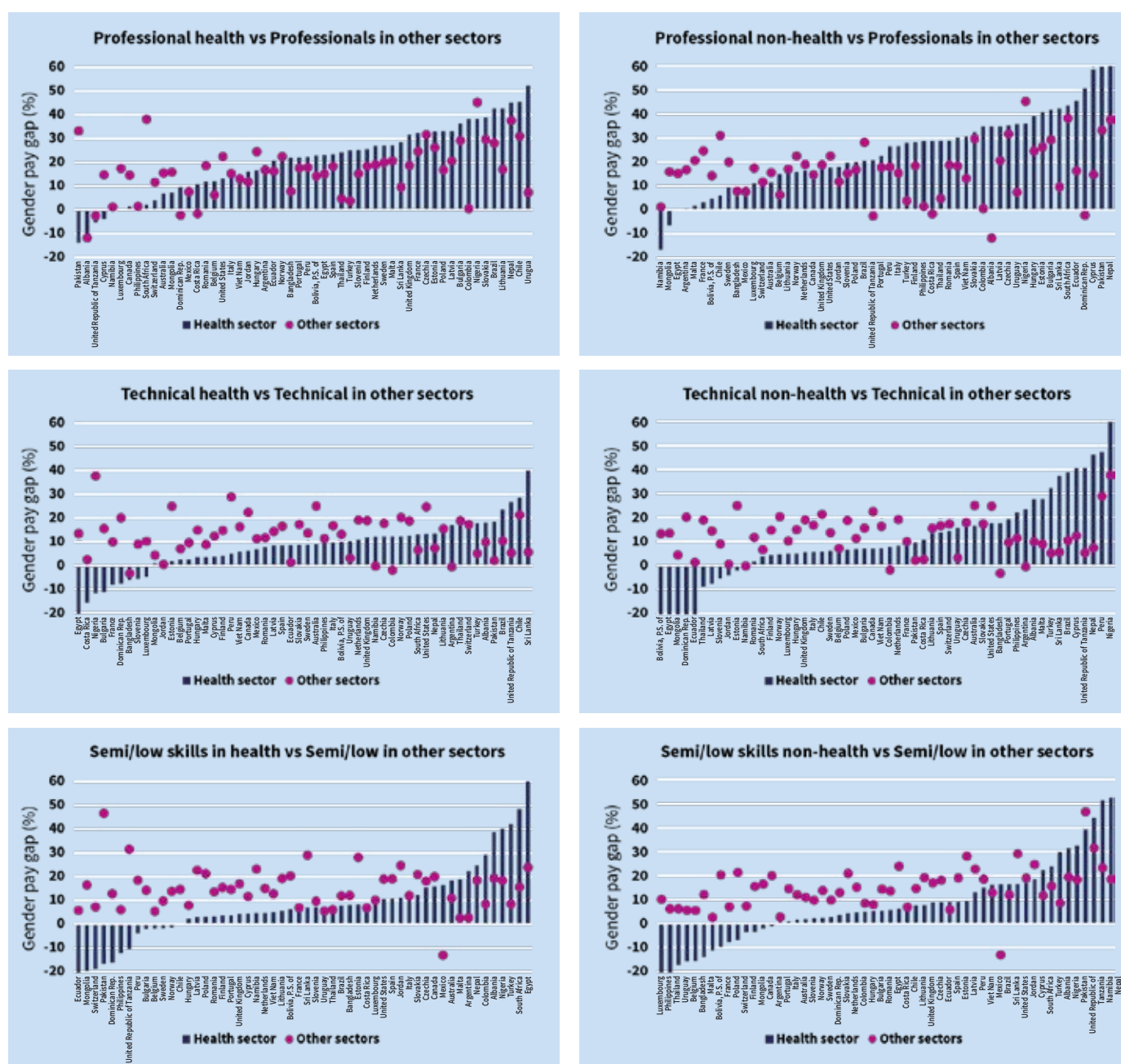
3.4 Comparing the gender pay gap in the health and care sector to the gaps in other economic sectors

Finally, we could not complete this section without comparing the gender pay gap in the health and care sector with other sectors in the economy, considering occupational categories in the comparison. Fig. 3.5 shows the gender pay gap in each occupational category in the health sector and compares it with the gender pay gap in similar

occupational categories in other sectors of the economy, with countries ranked from lowest to highest in the gender pay gap in the health and care sector. The first observation from this analysis is that in a large number of countries the gender pay gap in the professional categories in the health and care sector is higher than in professional categories in other sectors of the economy. When considering health-related professional jobs (e.g. medical doctors), this is the case in 40 of the 54 countries, whereas in non-health related professional jobs

FIG. 3.5

Gender pay gaps by occupational categories in the health and care sector compared with occupational categories in other economic sectors



Source: ILO, WHO estimates based on survey data provided by national sources (see Annex 1).

(e.g. hospital director), this is the case in 37 of the 54 countries. This finding does not seem to hold true for jobs in the other occupational groups (technical, semi- or low-skilled jobs) however, where more often than not, the gender pay gap is higher in other economic sectors than in the health sector.

Focusing exclusively on the health and care sector, Fig. 3.5 shows that the gender pay gap is much higher among professional occupations than in the other occupational categories, and higher in technical occupations than in semi-/low-skilled jobs. Given that women are more likely to occupy jobs in the health sector where the gender pay gap is lower (in particular, technical health-related and semi-/low-skilled health-related jobs) as shown in Fig. 3.4, together with the fact that men are overrepresented in semi-/low-skilled non-health jobs (where the gender pay gap tends to be lower) is what makes the occupation-based factor-weighted pay gap be lower than the raw mean gender pay gap in a significant number of countries, as was illustrated in Section 3.3.

Figs 3.3 to 3.5 show that in the case of the health and care sector, the gender pay gap is higher at the upper end of the wage distribution (in upper level occupational categories) in just about all countries for which we have data. In these countries,

the factor-weighted gender pay gap corrects the raw mean gender pay gap downwards because it downgrades the weight of higher gender pay gaps in the higher occupational categories, where women are represented less. If women and men were equally represented across all six occupational classifications, the observed factor-weighted gender pay gap would in fact increase in almost all countries because it would give greater weight to pay gaps that are higher in magnitude. In other words, unless pay gaps are addressed within occupational categories, gender-based occupational segregation in the health and care sector would increase – not reduce – the gender pay gap. Whilst it is often suggested that reducing gender-based occupational segregation would contribute to reducing the gender pay gap, the estimates in the above figures show that tackling gender pay gaps is not just a matter of addressing particular gender inequalities in the labour market (e.g. gender segregation). Instead, it is a matter that involves addressing multiple intertwined facets that, together, determine the pay inequalities between women and men, including in the health and care sector. This is further explored in Sections 4 and 5, where the gender pay gap is reviewed at each decile of the wage distribution and in relation to other attributes that play key roles in wage determination processes.

Factors driving the gender pay gap in the health and care sector

Section 3 showed that, on average across the world and in a majority of countries, women earn less than men in the health and care sector, with wider gender pay gaps in technical and professional occupational categories. What explains these gender pay gaps? To answer this question, this section measures gender pay gaps and compares the characteristics of women and men at each quantile of the hourly wage distribution.²² The objective of this analysis is to understand whether factors that determine wages (such as age, education, working time modalities, etc.) are similar between women and men who occupy the same locations in their respective hourly wage distributions. Moreover, wage policies (such as minimum wages or collective agreements) have different effects at different locations of the wage distribution, so that estimating the pay gap at different quantiles can shed light on the potential impact of wage policies on the overall gender pay gap. The results presented in this section show that the gender pay gap varies significantly across the hourly wage distribution for all countries, with a tendency for the gap to increase as we move from lower to higher quantiles of the wage distribution. Our analysis further shows that despite low participation of men in the health and care sector across countries, men are overrepresented at the top decile – and even more so at the top centile – of the hourly wage distribution, where the gender pay gap is much wider. In terms of labour market characteristics, women and men are not fundamentally different within deciles of and across the hourly wage distribution. However, in some countries, men tend to be older (hence, have more experience) and have more advanced university education compared with women, again, particularly at the top end of the wage distribution. Gender segregation appears as a widespread feature of the health and care sector worldwide. We find that age, education, and gender segregation across occupational categories are some of the factors that lie under the gender pay gap in the health and care sector.

4.1 The gender pay gap across the hourly wage distribution in the health and care sector

Fig. 4.1 shows the gender pay gap in the health and care sector at each quantile (Q1–Q9) of the hourly wage distribution for a selection of countries that together cover all six geographical regions and income groups.²³ The first finding to note is that **the gender pay gap varies across the hourly wage distribution for all countries, with a tendency for it to widen as we move from lower to higher quantiles.** Indeed, this observation is true for all HIC except for Canada and the United States, where the gender pay gap is wider in the middle quantiles compared with those at the extremes of the distribution. In several of these HIC, the gender pay gap is negative at the lowest quantiles but reverts to a positive value by the second or third quantile. For example, in France, women in the bottom two

quantiles earn 10% and 1% more than men in the same quantiles. The pay gap turns positive starting from the third quantile from the bottom, and reaches 35% in the top quantile, meaning that women health workers in the top quantile earn 35% less per hour than men located in the same quantile in France. In other HIC, such as Argentina, Canada, Italy and the United States, the gender pay gap is positive in all quantiles, and some exhibit strikingly high differences in pay between women and men in the same quantile. At the top quantile in Italy, for example, men earn 69% more than women.

In geographical regions with a greater proportion of LMIC, the shape of the gender pay gap across quantiles shows greater variation; however, in most LMIC (with the exceptions of Bangladesh, South Africa and Sri Lanka) we observe that to a large extent the pay gaps also increase as we move from lower to higher quantiles of the wage distribution.

²² In this report, estimates at the quantile, decile or centile always refer to threshold values as opposed to average values. We use the term quantile (in place of decile) to refer to each of the thresholds that splits the data into ten equally sized groups. This avoids confusion with the term “decile”, which is more often used to estimate the average value between two of the nine thresholds that split a distribution into ten parts.

²³ Sections 4 and 5 show estimates and decompositions for a selection of the 54 countries for which we have survey data. The selections aim at illustrating configurations and different aspects of the gender pay gap, while providing examples from all geographic regions and income groups. Similar estimates for the remaining countries not selected in the illustrations across Sections 4 and 5 are available on request from the report authors.

This somewhat contrasts with estimates of the pay gap across quantiles that include all economic sectors, as illustrated in the ILO *Global wage report 2018/19* (ILO, 2018a). That analysis showed that in most LMIC the gender pay gap was higher at the bottom and declined as we moved to the top of the wage distribution. For example, in Peru, the gender pay gaps at the bottom and top quantiles using all economic sectors were approximately 24% and 6%, respectively. Fig. 4.1 shows that the gender pay gap in the health and care sector specifically in Peru is 15% at the bottom and increases to 38% in the top quantile.

One reason for the contrast between the bottom quantile figures could be the lower proportion of informal employment in the health and care sector compared with the overall economy. Informal employment brings about a higher probability of non-compliance with the minimum wage, while compliance with the minimum wage can be effective at reducing wage inequalities at the bottom decile, including gender-based pay inequality (ILO, 2020b). Since there is more informal employment in the overall economy compared with that in the health and care sector, particularly in countries like Peru, where informal employment is significant, it is likely that this lower fraction of informal employment in the health and care sector serves to reduce the gender pay gap at the bottom of the wage distribution when compared with the gap among all wage workers. The data show that in LMIC the proportion of workers in informal employment – and, consequently, whose earnings are more likely to be below the statutory minimum wage – is lower in the health and care sector compared with in the overall population. For example, in Colombia, Mexico and Peru the proportions of wage workers in informal employment in the economy as a whole are estimated at 36%, 45% and 44%, respectively; in the health and care sector in these countries, the fraction of workers in the informal economy are just 9%, 20% and 18%, respectively.²⁴

It remains true that in several LMIC the gender pay gap in the health and care sector at the low end of the wage distribution is relatively high when

compared with other quantiles, for example, in Egypt and Sri Lanka, the gender pay gaps are 20% and 42%, respectively, in the bottom quantile. In some countries, the irregularities we observe are due to the relatively small representation of men in the health and care sector and, therefore, across all quantiles; the health and care sector is highly feminized, with men accounting for less than 50% of workers in most countries. This can be seen in Fig. 4.2, which shows the share of women and men at different locations of the wage distribution (in the same selection of countries include in Fig. 4.1). Looking again at Egypt and Sri Lanka, we observe that the proportion of men at the bottom of the distribution is relatively small. In these countries – and others with a similarly low representation of men in the health and care sector – the observed higher estimates of the gender pay gap at the bottom may be driven by small sample size effects.

Overall, Fig. 4.2 shows **a clear pattern across countries: the share of men working in the health and care sector is significantly smaller than that of women.**²⁵ This is the case in all but four countries included in Fig. 4.2. (The four exceptions – Bangladesh, Jordan, Nepal and Pakistan – are LIC where, in general, the participation of working-age women in all paid employment is less than 20%.)

Fig. 4.2 shows that **despite the low participation of men in the health and care sector, in all but two countries (Australia and the Philippines) men are overrepresented at the top decile and are significantly overrepresented at the top centile of the hourly wage distribution.**²⁶ For example, men account for only 30% of all health care workers in Italy, but they make up 57% of those at the top decile and 80% at the top centile of the wage distribution. In other examples, such as Switzerland, the United States and the United Republic of Tanzania, men in the health and care sector account for 28%, 21% and 40% of the workforce, respectively, but represent 40%, 60% and 50% of workers at the top decile.

Across the world, men are overrepresented in the deciles of the health and care sector where the gender pay gap is higher, as illustrated in Fig. 4.1. Other cases of this situation include Colombia, Mexico and Peru, where – in contrast with pay

²⁴ Informality, particularly in economies where the phenomenon is large (such as in Latin America, Africa or South-East Asia), tends to be higher in small-size enterprises, which are characterized by low human capital investment and whose survival are far more subject to the impact of business cycles; this includes sectors such as trade, agriculture, or construction (ILO, 2018d; ILO, 2020d ([wcms_743523.pdf \(ilo.org\)](https://www.ilo.org/wcms/743523.pdf))). The health and care sector, however, is characterized by medium- and large-size firms, whose operations are less subject to the business cycle and where human capital investment is relatively high compared with other sectors. This could help explain why the incidence of informal employment in the health and care sector is smaller than in other economic sectors, particularly in economies where informality is overall large.

²⁵ Whereas the Fig. 4.1 estimates showed gender pay gaps at each q-quantile of the wage distribution (i.e. at the threshold that splits the data into ten equally sized groups), Figs 4.2 to 4.7 show estimates within the d-deciles. That is, they present the shares (of gender, age groups, occupational categories, etc.) between two of the nine thresholds that split the wage distribution into ten parts. In particular, Fig. 4.2 shows the extreme centiles at the bottom and top of the wage distribution in order to highlight the gender split among wage earners at the bottom and top centiles.

²⁶ This finding is consistent with data in a previous publication – *Delivered by women, led by men* (WHO, 2019), which showed that only 25% of women in the health workforce hold senior roles, despite 70% of the health workforce being women.

gaps at top deciles in the overall population (ILO, 2018a) – the gender pay gaps increase as we move to the higher end of the wage distribution. It is also interesting that, for several of these countries, the representation of men is also higher than average in the bottom centiles. For example, in Belgium, Mexico and Peru, the share of men in the health and care sector is 22%, 30% and 20%, respectively, but in all three countries, men’s representation at the bottom deciles is greater than 40%.

Altogether, the evidence from the countries in Fig. 4.2 suggest that the presence of men in the health and care sector is characterized by a u-shape: almost all countries show an overrepresentation of men at the extremes of the wage distribution, and particularly at the top of the wage distribution. Further, as illustrated in Fig. 4.1, although the gender pay gap is almost always positive at all quantiles, it is noticeably wider at the top.

This raises a question: are women and men workers in the health and care sector different in ways that would further explain the findings in Figs 4.1 and 4.2? Section 3 already describe some evidence pointing at men occupying the highest occupational categories in the health and care sector. However, to what extent do factors, such as age (seniority), education, occupational segregation, etc., explain the observed gender pay gaps across the wage distribution? Do men wage earners in the health and care sector hold higher educational outcomes at the top quantiles of the wage distribution compared with women? Are the men working in the sector at higher ranking quantiles older than their women counterparts and, therefore, more likely to have accumulated more labour market experience? Section 4.2 examines these questions by comparing the characteristics of women and men at each decile of the hourly wage distribution to identify possible differences between women and men that could help explain the pay gaps evident in Fig. 4.1.

FIG. 4.1

Gender pay gaps across the hourly wage distribution in the health and care sector in selected countries, latest years of available data

Africa and Eastern Mediterranean

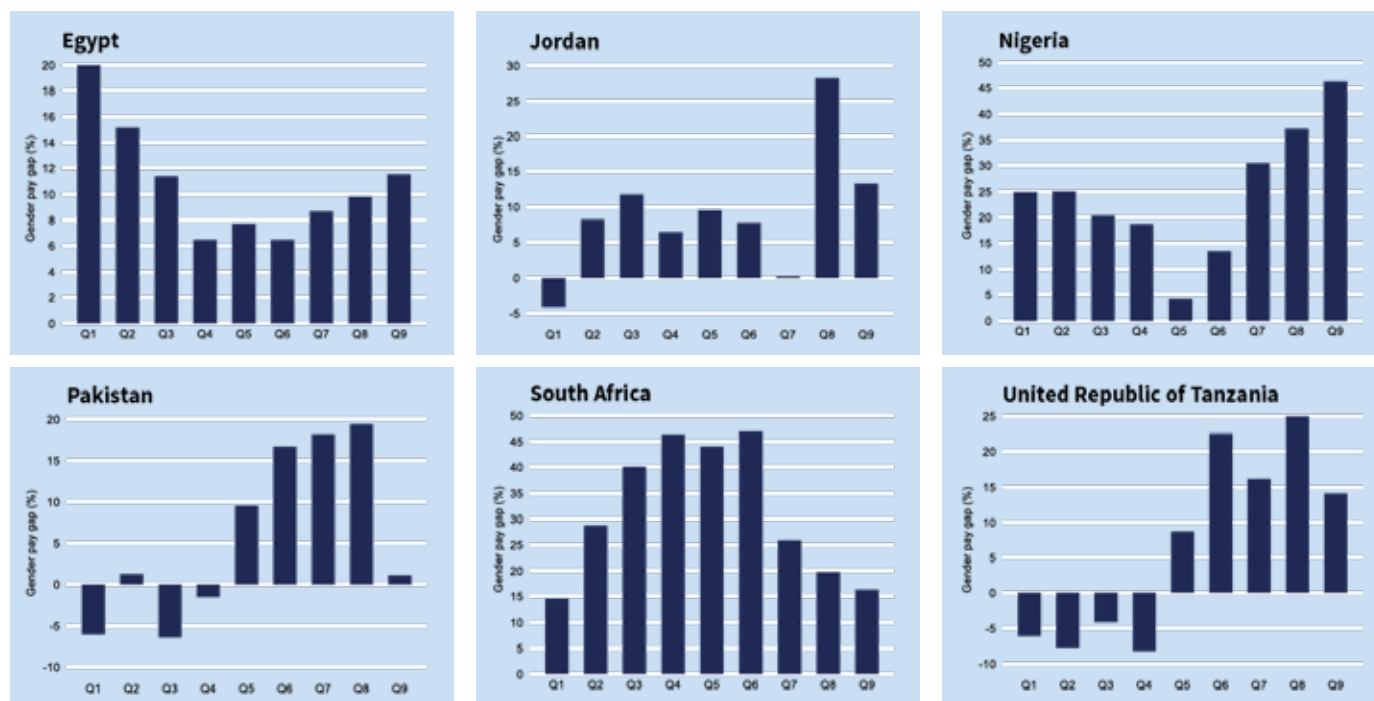
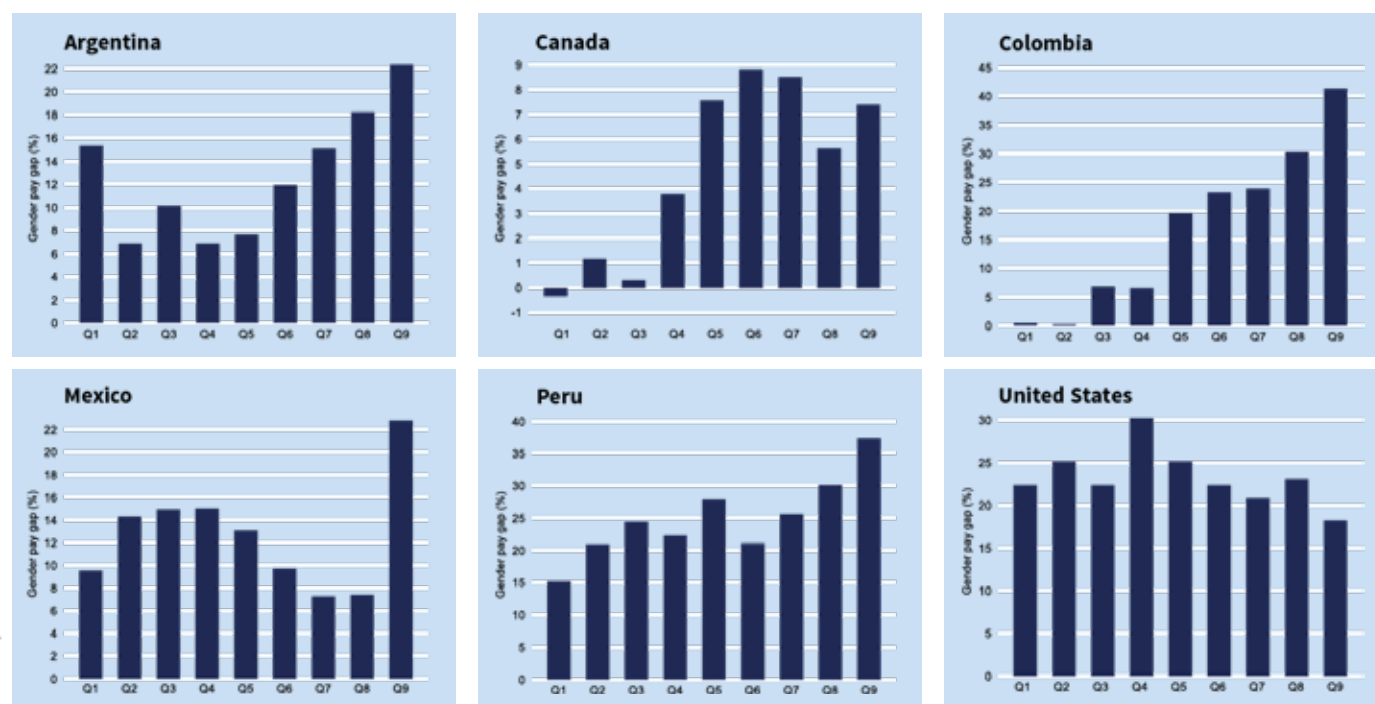


FIG. 4.1 CONT.

Americas



Europe

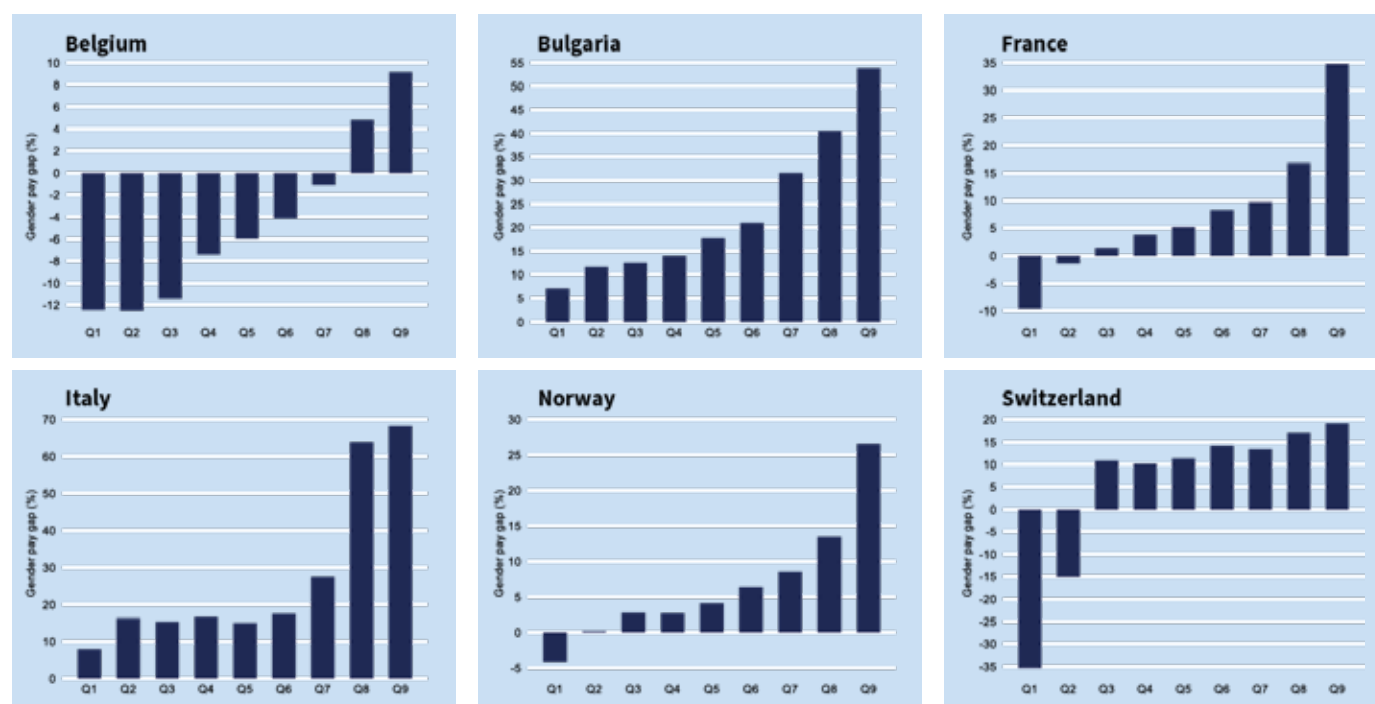
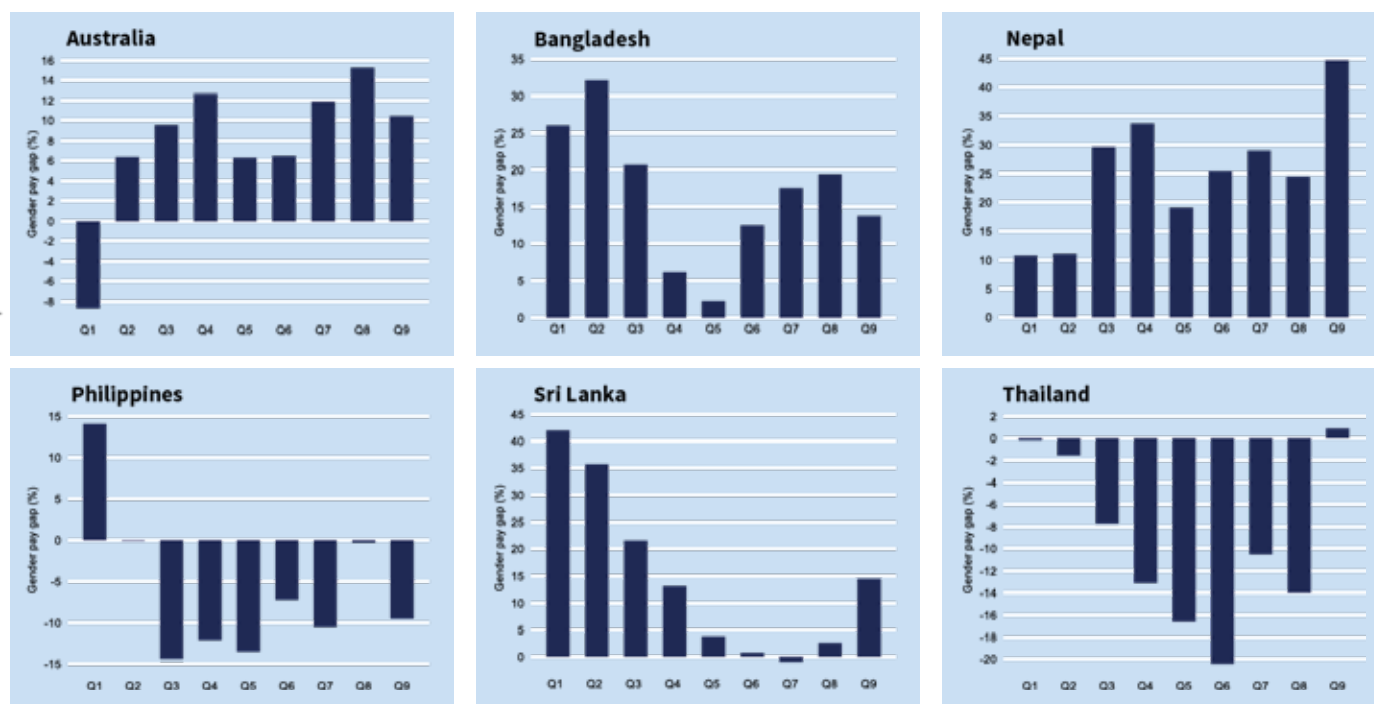


FIG. 4.1 CONT.

South-East Asia and Western Pacific



Source: ILO, WHO estimates based on survey data provided by national surveys (see Annex 1).

FIG. 4.2

Share of women and men by top and bottom centiles, intervening deciles and average of the hourly wage distribution in the health and care sector in selected countries, latest years of available data

Africa and Eastern Mediterranean

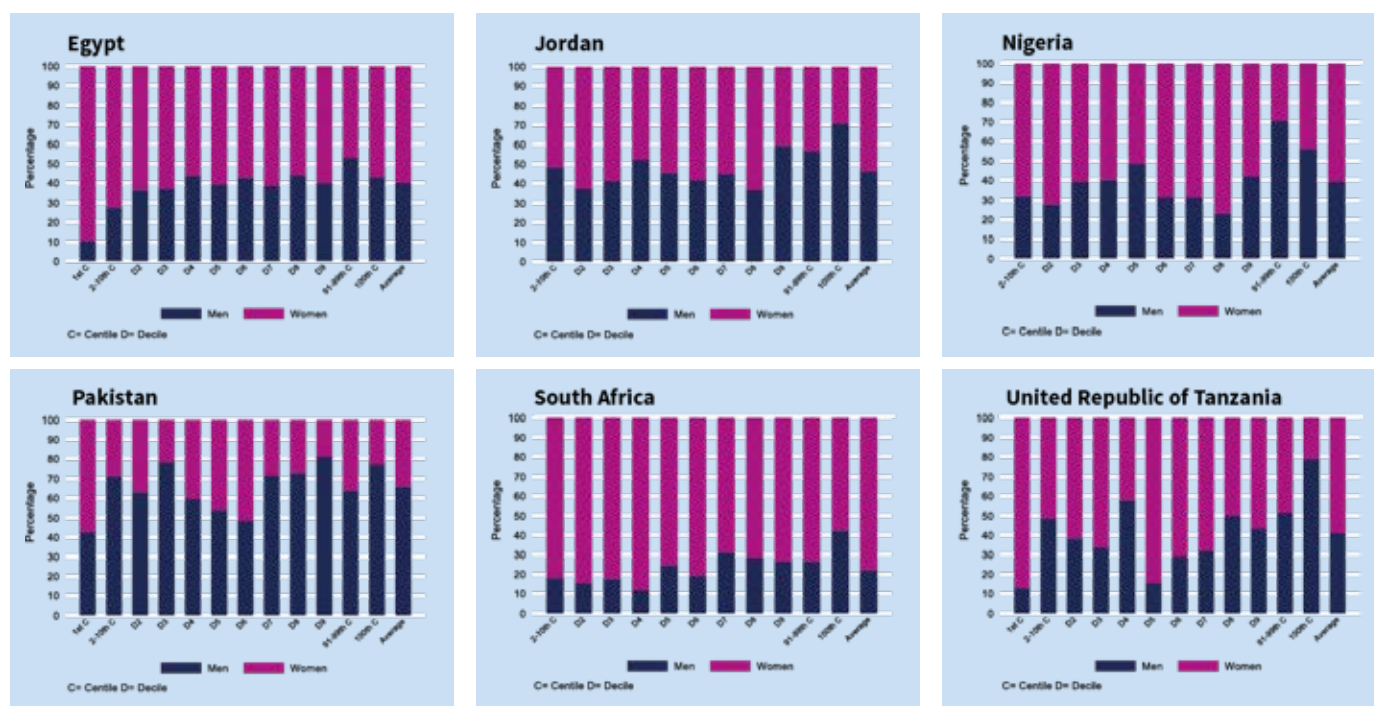
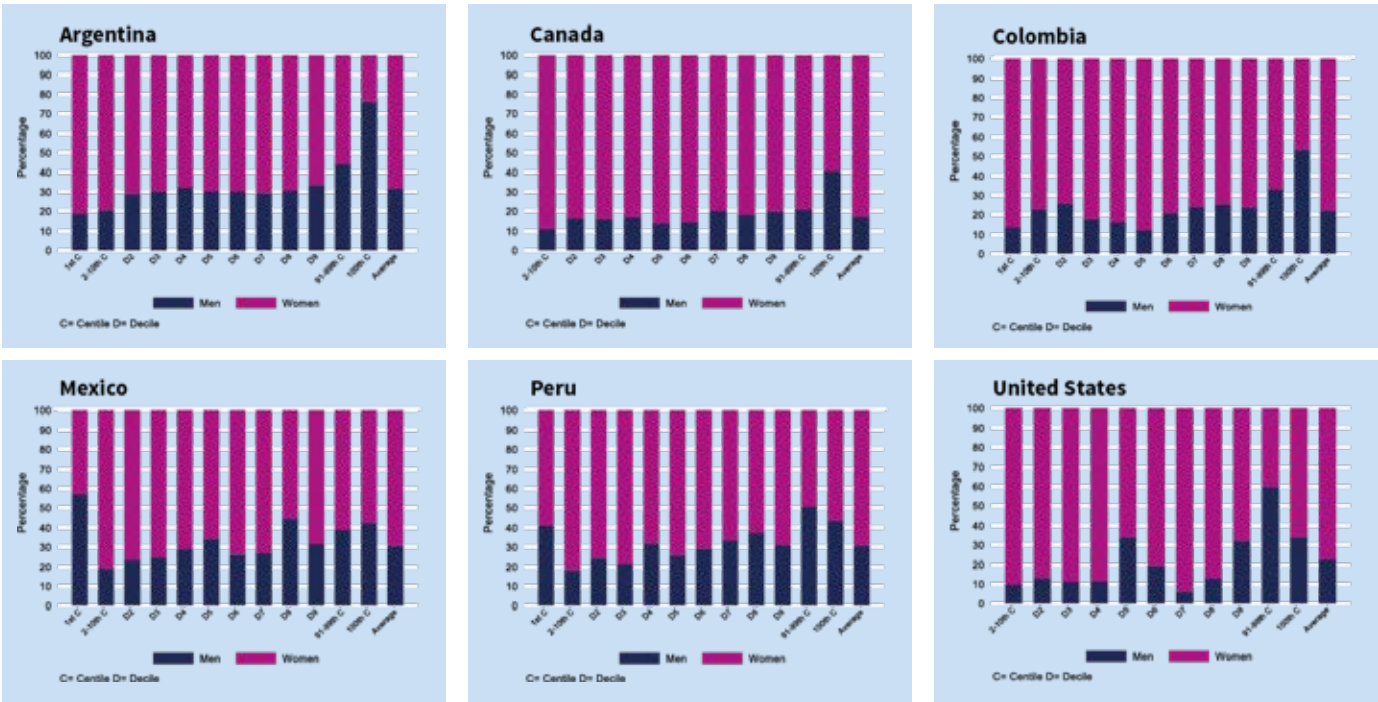


FIG. 4.2 CONT.

Americas



Europe

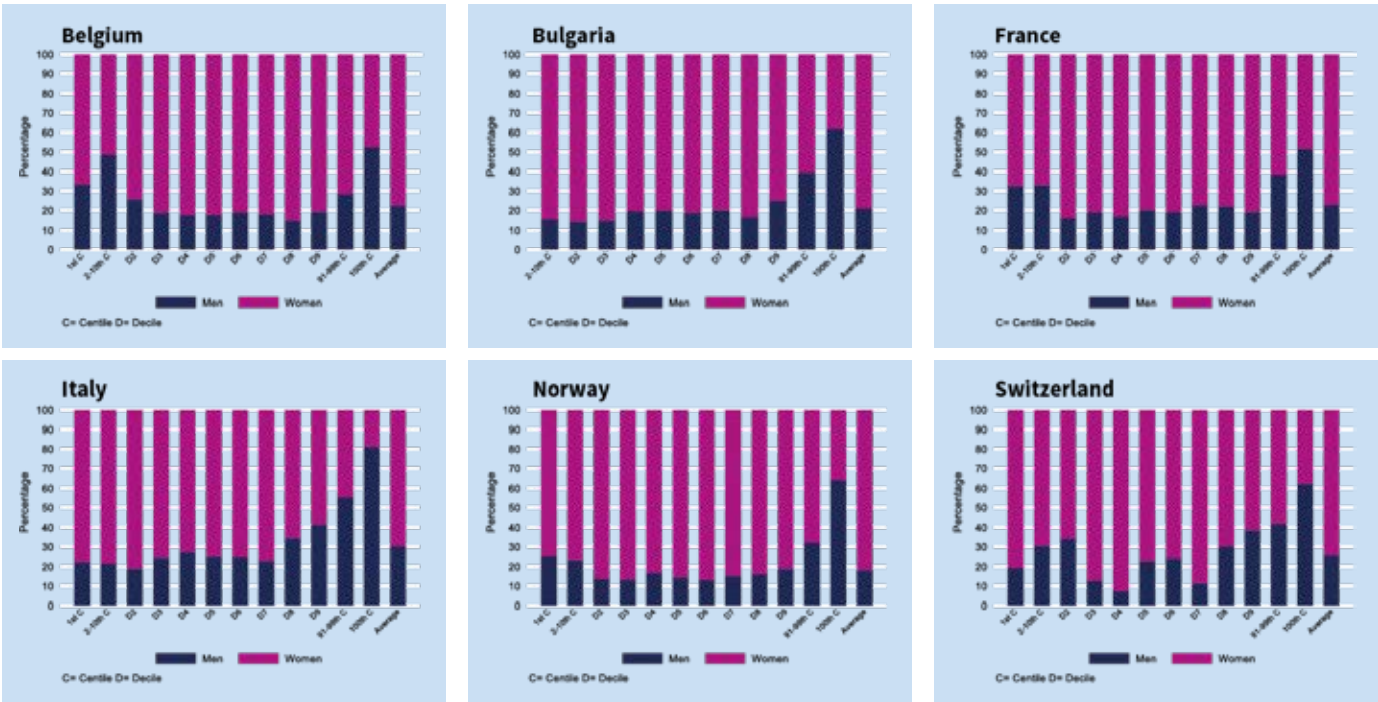
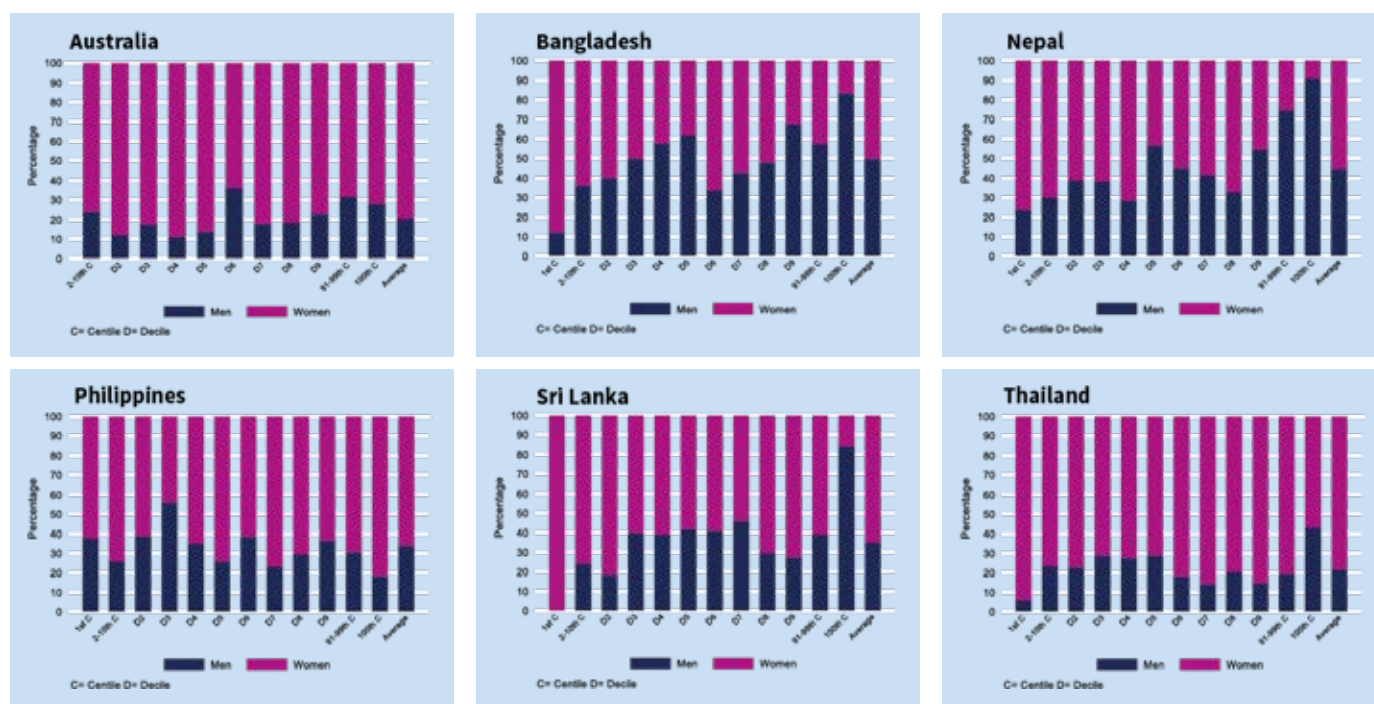


FIG. 4.2 CONT.

South-East Asia and Western Pacific



Source: ILO, WHO estimates based on survey data provided by national surveys (see Annex 1).

4.2 Labour market characteristics of women and men in the health and care sector across the hourly wage distribution

Since the human capital model was first described by Jacob Mincer in the 1970s (Mincer, 1974), empirical literature has argued that experience (usually proxied by age) and (formal) education level are perhaps the two most important factors in the wage determination process. Other factors that can also play important roles in determining earnings among wage workers include: working time modalities, contractual conditions, informal versus formal employment, institutional sector, and the effect of labour relations, where the latter often features collective pay agreements at national, regional, or enterprise level (Vaughan-Whitehead, 2010). In this section we explore labour market attributes of women and men in the health and care sector at each decile of the hourly wage distribution in order to look for differences that could help illuminate some of the findings in Section 4.1. The attributes and characteristics explored include those available in the data and consistent with the human capital

model (age and education), and others, such as factors that could be related to the added value per worker in production (occupational distribution) or those which may differ between women and men (e.g. part-time versus full-time employment, or public versus private sector). These, while certainly key factors that feature significantly in the wage determination process, may not be all of the relevant ones. These five characteristics (age, education, occupational distribution, type of employment and institutional sector) are, however, available for all 54 countries in the dataset.

Figs 4.3 to 4.7 compare women to men at each decile of the hourly wage distribution in terms of age (Fig. 4.3), education (Fig. 4.4), occupation (Fig. 4.5), part-time versus full-time employment (Fig. 4.6) and public versus private sector (Fig. 4.7). As with previous figures, these show a selection of countries.²⁷ It would be difficult to provide a single overall conclusion from the spread shown by each chart in these five figures, but a quick inspection shows that **with very few exceptions, women are not fundamentally different than men within deciles and across the hourly wage distribution.**

²⁷ In Section 4.2 we refer to the “decile” rather than the “quantile” because all estimates shown here are average values within the decile, as opposed to threshold values. All figures in Section 4.2 (Figs 4.3 to 4.7) were constructed by first separating women and men, and then by separately ranking each of the two groups according to each group’s hourly wages. The estimates allow a comparison of attributes between women and men who share the same decile. The same procedure was followed for Fig. 4.1. In contrast, Fig. 4.2 was based on ranking the hourly wages of women and men together and then estimating the share of women and men at the extreme centiles and at each decile of the hourly wage.

To make this clearer, we review some major features of the charts in these five figures; these features either help us understand the existence of pay gaps, as observed in Fig. 4.1, or lead us to the conclusion that the pay gap in the health and care sector across the world remains, to a large extent, unexplained.

Fig. 4.3 shows that within each country the spread of age groups within deciles is similar between women and men. For example, in the cases of both women and men in Egypt, the age group 20–29 dominates at the lower deciles, increases in presence in the middle deciles, and starts to decline in share at the upper deciles. The other age groups are present with a constant share, although at the top deciles older workers increase in share. Fig. 4.3 also shows that in only four countries (Mexico, Nepal, Pakistan and Switzerland) are men younger than women in the first or second decile, while in several countries (Argentina, Bangladesh, Belgium, Egypt, France, Italy and Jordan) men are older at the upper end of the wage distribution, and particularly at the top decile. Therefore, perhaps **in some of these countries, the seniority of men vis-à-vis women could be a factor behind the pay gaps. Overall, however, women and men across the hourly wage distribution do not seem to differ much in age in any of the countries illustrated.**

Fig. 4.4 shows the spread of women and men in terms of educational outcomes.²⁸ Again, as is the case with age, within each country the pattern of share by education within deciles is similar between women and men. In the case of Switzerland, for example, we see that for both women and men, those with lower (primary and elementary) education are gathered in the first decile, while the greater part of the population has completed high school or advanced education; indeed, the latter (advanced education) spread so that very few cases are observed in the first decile and then becomes the predominant category at the top. However, **in the case of education we observe that for the majority of countries (Belgium, Canada, Colombia, Norway, United States, United Republic of Tanzania etc.) at the top deciles men are more likely to hold university degrees in comparison with women.** The opposite is the case in four countries (Nigeria, Peru, the Philippines and Thailand).

Fig. 4.5 shows the spread of occupations by deciles and gender. This, among the five factors explored, seems to be the factor with the fewest similarities between women and men. **It suggests**

that occupational segregation by gender is a widespread feature common in the health and care sector across countries. With the exception of just four countries (Australia, Bangladesh, Canada and Sri Lanka), women are more likely than men to be represented in technical occupations, particularly among those directly related to health (such as nurses, midwives, lab analysts, etc.) and across deciles. In contrast, **men are more likely than women to hold jobs classified as “professional”, either in health (e.g. medical doctors or advanced nursing) or non-health (e.g. managers or directors of hospitals, business and legislation, etc.), where “professional” jobs are mostly located at the upper end of the wage distribution.** Men are also more likely than women to hold non-health jobs classified as semi-/low-skilled at the bottom of the wage distribution (e.g. drivers, refuse cleaners, and cooks). Women, on the other hand, are more likely to hold health jobs classified as semi-/low-skilled (e.g. auxiliary health care worker, cleaner, etc.). Whereas Fig. 4.5 shows clear evidence of gender occupational segregation in the health and care sector, it also shows that in some countries, within deciles, the allocation of occupations varies between women and men. For example, in the case of Thailand, Fig. 4.5 shows that women in the “health professional category” are present at very low deciles (to some extent in D1 and D2 and significantly in D3, D4, and D5), whereas men in the same occupational category appear exclusively at higher deciles, from D6 to D10. Therefore, women in the health professional category are lower paid compared with men in the same professional category. Looking back, Fig. 4.1 showed a negative gender pay across deciles except the top decile in Thailand. This can now be explained by the dynamics evident in Fig. 4.5; at each decile of the wage distribution in the health and care sector, women in Thailand hold higher occupational categories compared with men who share the same decile, and therefore women get higher wages because they have better human capital than men in these deciles. If women in lower deciles were paid the same as men with similar characteristics, they would appear in higher deciles and the shift would eliminate the negative values of the gender pay gaps in Thailand.

Similar comments apply to some other countries that displayed negative pay gaps in Fig. 4.1 (e.g. Belgium, France, Jordan, Norway, Pakistan, the Philippines, Switzerland and the United Republic of Tanzania). In some of these countries, men at

²⁸ Wage workers are grouped in four categories of education: “primary” includes primary and in some countries also includes lower secondary; “elementary” includes up to secondary but without completing a high school diploma; “secondary” includes a high school diploma and/or some vocational training, including, in some countries, some tertiary education but without completing a bachelor’s degree; and “advanced”, which includes a completed university degree and above. Data for most countries present information aggregated in these four categories following the International Standard Classification of Education codes ISCED-97 or ISCED-11.

the low end are “unskilled” but share deciles with women who hold higher occupational categories but are paid at the bottom of the wage distribution; men with similar skills to the women’s are paid at higher points on the wage distribution. This example shows that interpreting gender pay gaps at different quantiles (as in Fig. 4.1) can be misleading, since it is not necessarily the case that women and men within quantiles share similar characteristics. The identification of gender pay gaps within quantiles is only one step in a process; we need to further consider comparisons among counterfactuals (i.e. among equals) at each quantile (see Section 5).

Fig. 4.6 shows the spread of part-time versus full-time jobs by deciles and gender. Overall, it seems that part-time jobs are not a prominent feature of the health sector; most countries show a relatively small proportion of part-time workers across deciles for both women and men. When part-time work occurs, it is more likely to occur in HIC (e.g. Australia, Belgium, Canada, France, Switzerland and United States); when this is the case, however, women, particularly those at the low end of the wage distribution, are more likely than men to occupy part-time jobs.

Finally, Fig. 4.7 shows the spread of public versus private sector employment across deciles and gender. As was the case with age, education, and working time modality, the pattern is similar for women and men within each country. Interestingly, the figures suggest that for almost all 54 countries there is a much higher incidence of private sector work at the low end of the wage distribution, while the public sector becomes more visible at the higher deciles; this is true for both women and men. One possible explanation is that the public sector invests more in professional and technical jobs than the private sector. However, another reason for the finding could be that both the public and the private health care sector outsource a significant fraction of low-skilled (low-paid) jobs to the private sector. If this is the case, many low-paid workers who appear in the payroll of a private sector enterprise – and therefore as private sector workers in our data – may in fact be working in a public hospital or public health care centre. The likelihood of outsourcing jobs at the top of the wage distribution, however, is much lower in both the public and the private sector. In fact, some empirical evidence suggests that outsourcing is a more regular practice in the health sector compared with other economic sectors (see, for example, Machado Guimarães & Crespo de Carvalho, 2011).

This in itself is an important factor in the determination of wages: outsourcing practices in the public sector have increased in recent times, particularly among low-skilled workers such as cleaning or auxiliary nursing personnel, and empirical evidence indicates that wage workers in outsourced jobs earn less than similar workers who do not work for an outsourcing firm. Part of the reason for this is that outsource wage workers lack power to negotiate wages and other working conditions. They may not have a voice in the enterprise where they actually conduct their daily work; furthermore, workers employed by outsourcing enterprises are less likely to have access to information that would allow them to negotiate their labour market conditions (i.e. asymmetric information between employers and workers leads to outcomes typical of monopsonies).²⁹ Overall, Fig. 4.7 suggests that the prevalence of women and men is similar within deciles; this implies that the institutional sector is not, by itself, a strong explanatory variable behind the gender pay gaps shown in Fig. 4.1 and at each decile of the hourly wage distribution.

Overall, the various pieces of evidence in Figs 4.3 to 4.7 suggest that women and men do not vary systematically according to factors that are key in the wage determination process except at the extremes of the wage distribution. Men do seem to be older and more likely to have achieved a tertiary level of education than women at the top end of the wage distribution. In a few countries, younger men with less than primary education are more likely to appear at the bottom deciles. Women are more likely to hold jobs classified as technical occupations or semi-/low-skilled in health, whereas men are more likely to occupy professional occupations or semi-/low-skilled jobs not directly related to health care. However, a country-by-country inspection reveals that these factors explain the observed pay gaps in Fig. 4.1 for very few countries.

One of the exception countries may be, for example, Italy, where the pay gaps at the top quantiles (Q8 and Q9) are 63% and 69%, respectively. That is, women earn 63% and 69% less than men at the top locations. Revisiting Italy in Figs 4.3 to 4.7 shows that at these top locations men are: older than women (i.e. more likely to have spent longer in the labour market); more likely than women to hold university degrees; and, more likely to hold occupations in the professional categories (while women are more likely to hold technical occupations in the same top categories). The combination of all of these factors could be explain the gender pay gap observed at

²⁹ We are grateful to Janine Berg for these insights on the possible relationship between outsourcing practices and the incidence of private sector employment at the low end of the wage distribution. See Berg (2015) for further details on labour market institutions and inequality.

the top of the wage distribution. However, Fig. 4.1 also shows that the pay gap at the bottom is also substantial in Italy: 8% and 17% at Q1 and Q2, respectively. However, at the bottom there is no difference in age between women and men, women are more likely to hold technical jobs in health, and men are more likely to hold semi-/low-skilled jobs not directly related to health. Indeed, at the bottom of the wage distribution, women in the health sector in Italy are more likely to have part-time employment, with 60% and 54% of women working part time in the first and second deciles, respectively, compared with 40% and 20% of part-time male workers, respectively. Women in Italy in the first and second deciles are also more likely to work for the private sector compared with men, who are more likely to work for the public sector in these deciles. These other factors – contractual arrangements and institutional sector – could drive the gender pay gap at the low end of wage distribution in the health and care sector in Italy.

The case of Italy serves as example where the observed pay gaps could be driven in part by differences in factors between women and men within deciles.³⁰ However, if we examine the other countries in the same way, we find that only the United Republic of Tanzania shows wage gaps across the wage distribution that could be partially explained by difference in factors between women and men across deciles. For all of the 23 other countries included in Figs 4.1 to 4.7, as well as for the vast majority of the 30 other countries for which we have data, labour market factors that are fundamental for the wage determination process, while somewhat different between women and men across the wage distribution, are not sufficiently different to explain the gender pay gap at each of the quantiles of the wage distribution. At the same time, the example of Thailand highlights that the characteristics of women and men within quantiles can be different in ways that makes the comparison of earnings between women and men questionable. After all, if women medical doctors in Thailand are paid the median wage, they may be higher paid than men in the middle of the wage distribution who happen to be semi-/low skilled. The result is a negative gender pay gap at the median. However, this obscures the fact that women medical doctors

in Thailand are paid less than men medical doctors, whose earnings are located at the top of the wage distribution. Furthermore, other factors may also matter – perhaps men medical doctors in Thailand have more years of experience than women medical doctors, which could explain why women medical doctor are paid the middle wage.

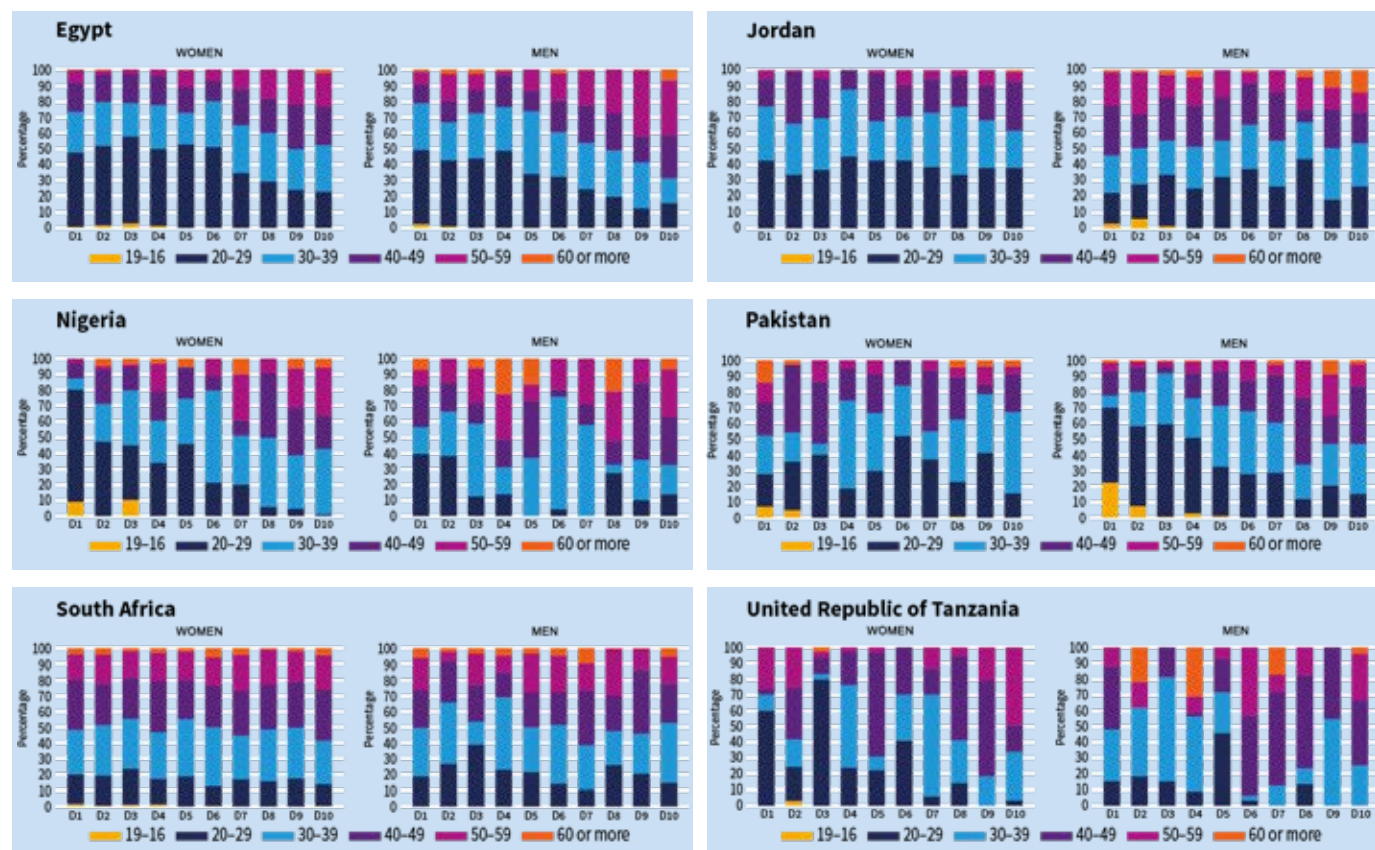
These examples highlight a possible disadvantage of the above analyses that look at the different factors in isolation. Would these factors, if made to interact in an empirical analysis, become far more deterministic of the gender pay gap within deciles? For example, could it be that women part-time workers are younger than men part-time workers? In this case, the interaction between working time and age becomes another factor that potentially explains the gender pay gap across deciles. In Section 5, the report shows how the application of econometric techniques allows for consideration of such an interaction. It offers a more accurate way of comparing women and men, which itself helps in the estimation of the explained and unexplained parts of the gender pay gap at each quantile of the hourly wage distribution.

³⁰ It is important to highlight that factors could explain the gender pay gap, but not necessarily justify it. For example, women may be more inclined to take on part-time employment, which may be less rewarded per hour than full-time employment, not necessarily because of women's preference for part-time work, but because women are more likely to take up working modalities to balance unpaid home care with work. Likewise, the fact that men at the top deciles are older than women at the top deciles, and the fact that men are more likely to hold professional jobs – while women are more likely to hold technical jobs – could simply be a reflection of generational difference: the health and care sector is rather vocational, where men are overrepresented in older generations, particularly in medical professional practice. This is in part due to historical stereotyping women and men into particular educational tracks leading to the observed occupational segregation. Therefore, although there are factors that could objectively explain the difference between women and men in the labour market – and the existing gender pay gap – there are other factors that are pre-conditional to reaching the actual status and which involve a degree of discrimination, even if such can be explained.

FIG. 4.3

Distribution of age of women and men across the deciles of the hourly wage distribution for selected countries, latest years for which data are available

Africa and Eastern Mediterranean



Americas

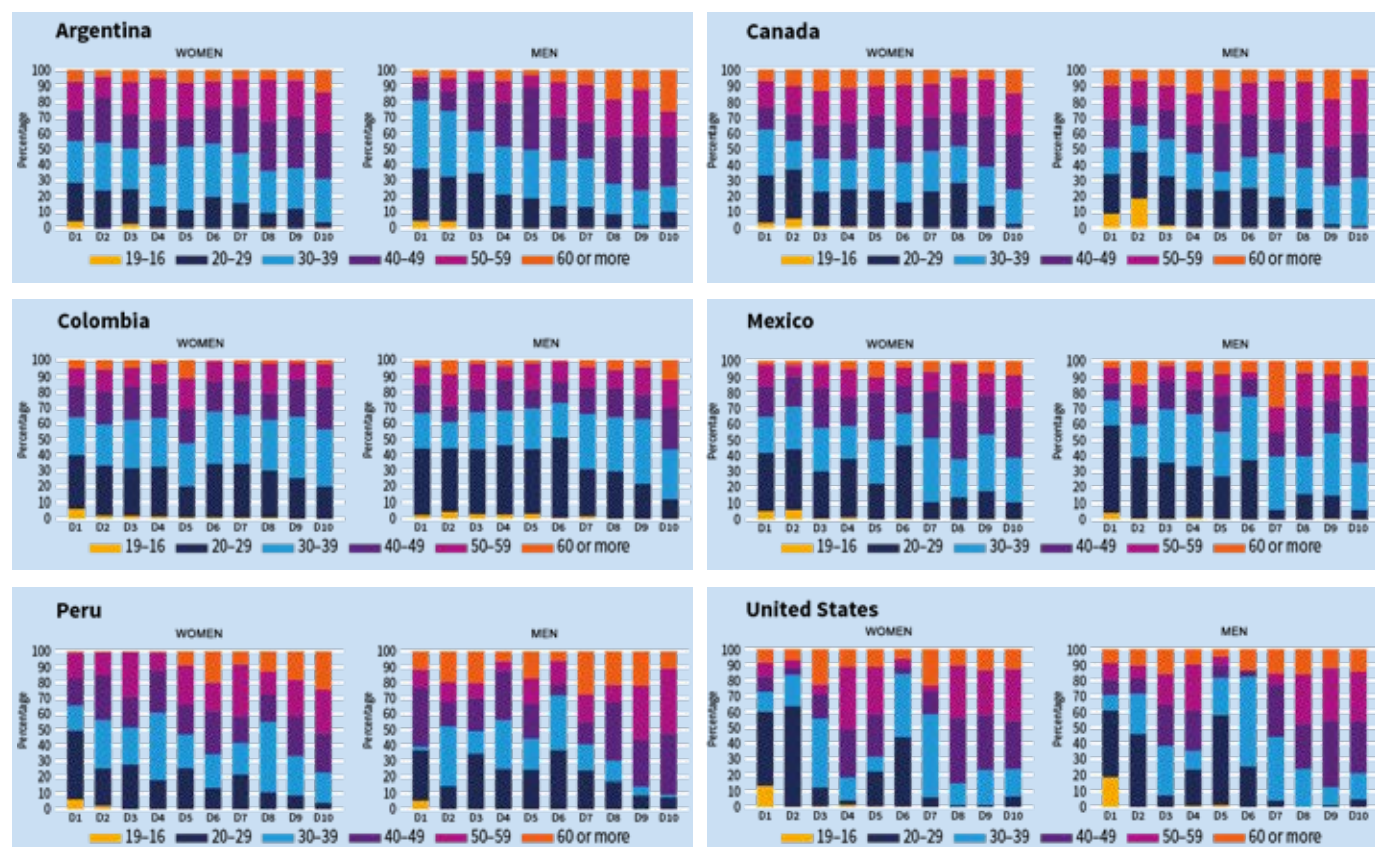
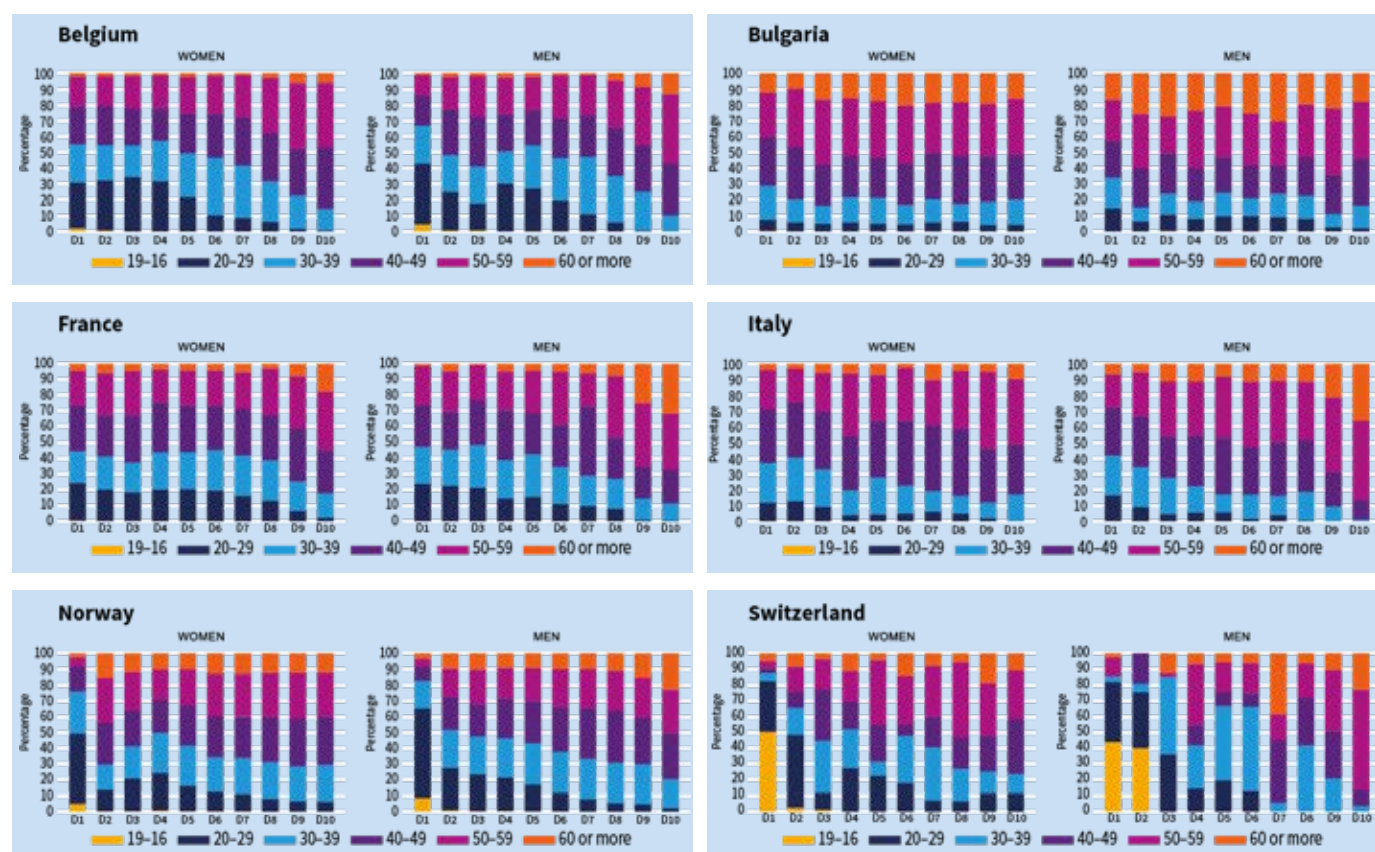
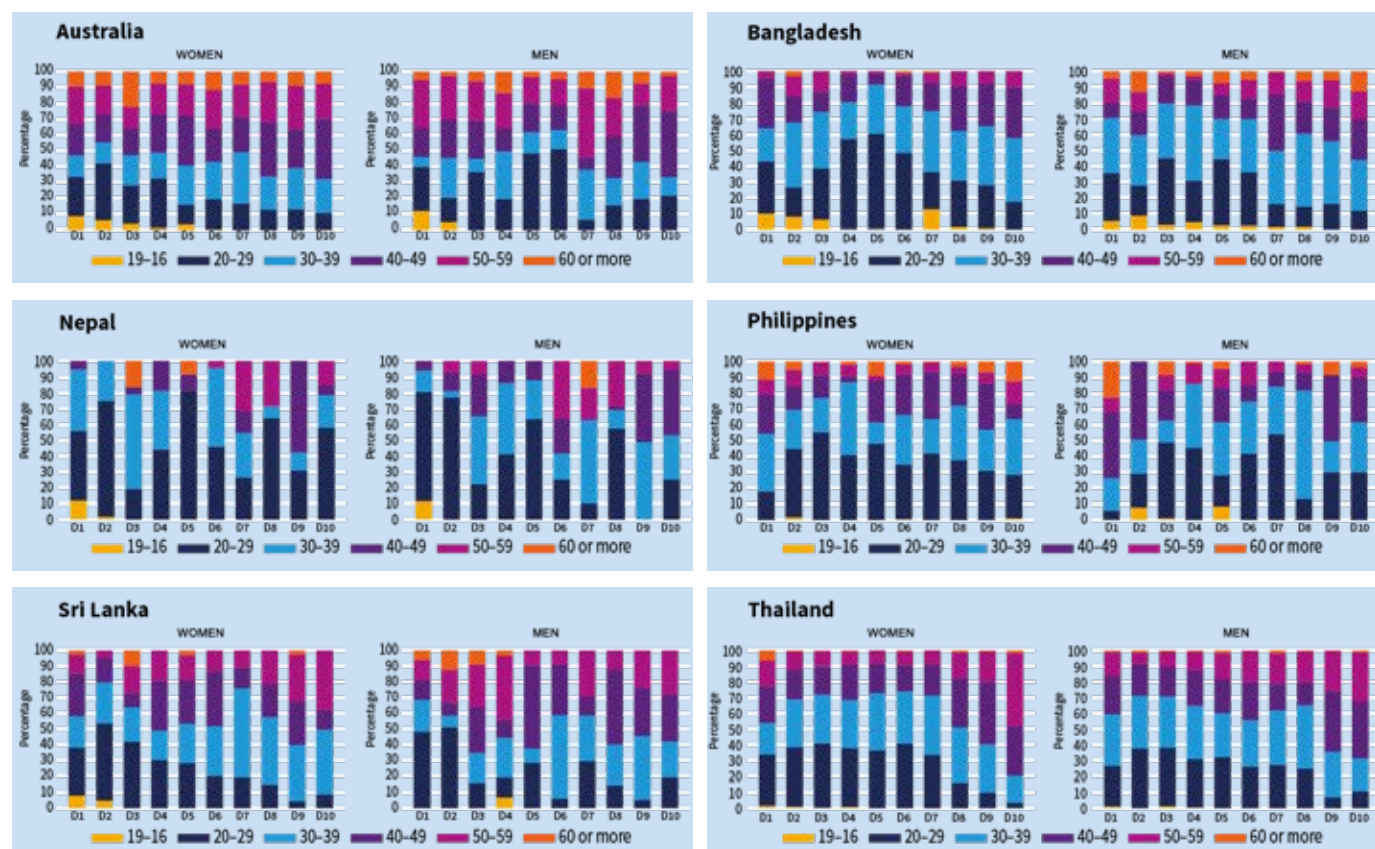


FIG. 4.3 CONT.

Europe



South-East Asia and Western Pacific



Source: ILO, WHO estimates based on survey data provided by national surveys (see Annex 1).

FIG. 4.4

Distribution of *education* of women and men across the deciles of the hourly wage distribution for selected countries, latest years for which data are available

Africa and Eastern Mediterranean



Americas

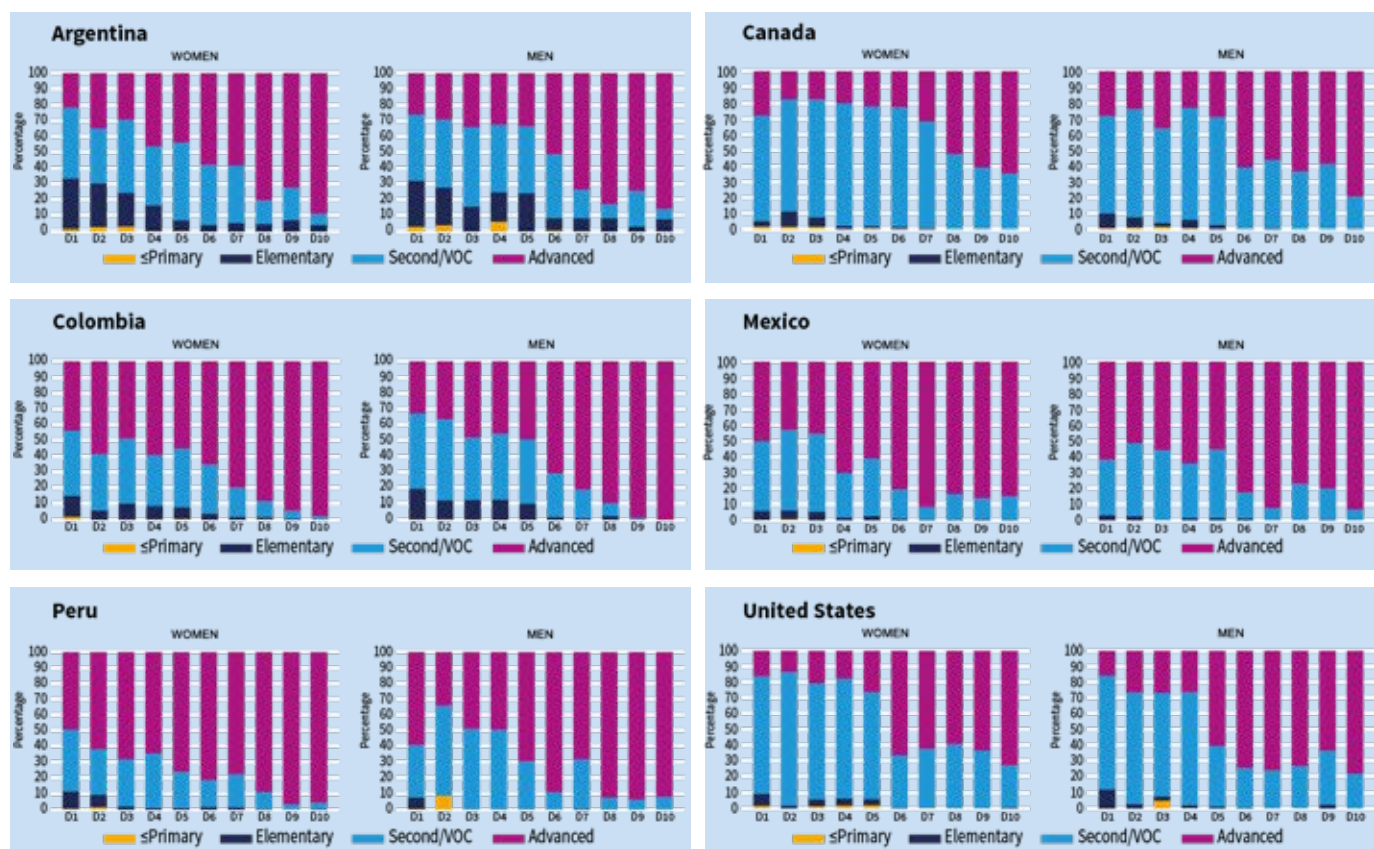
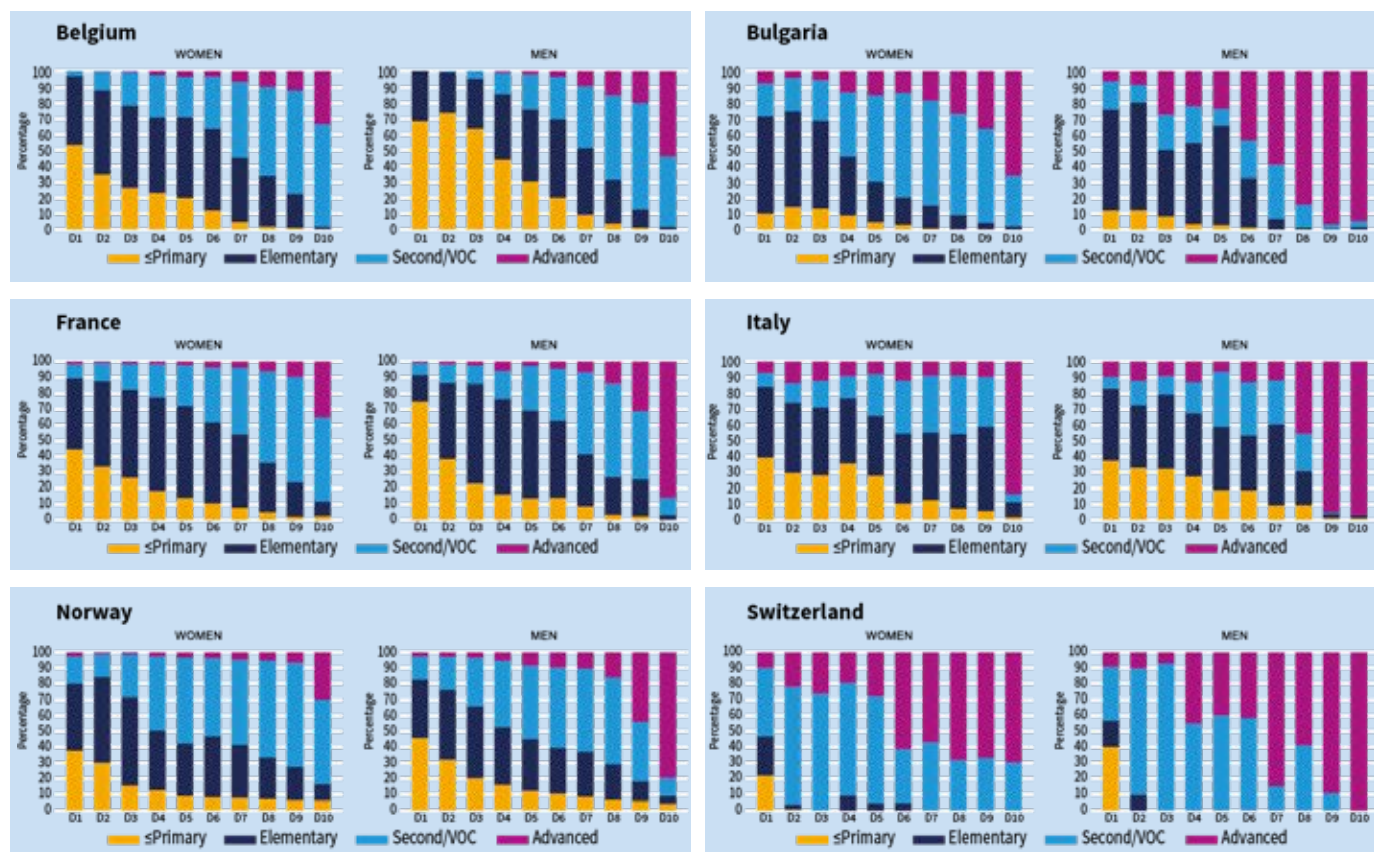
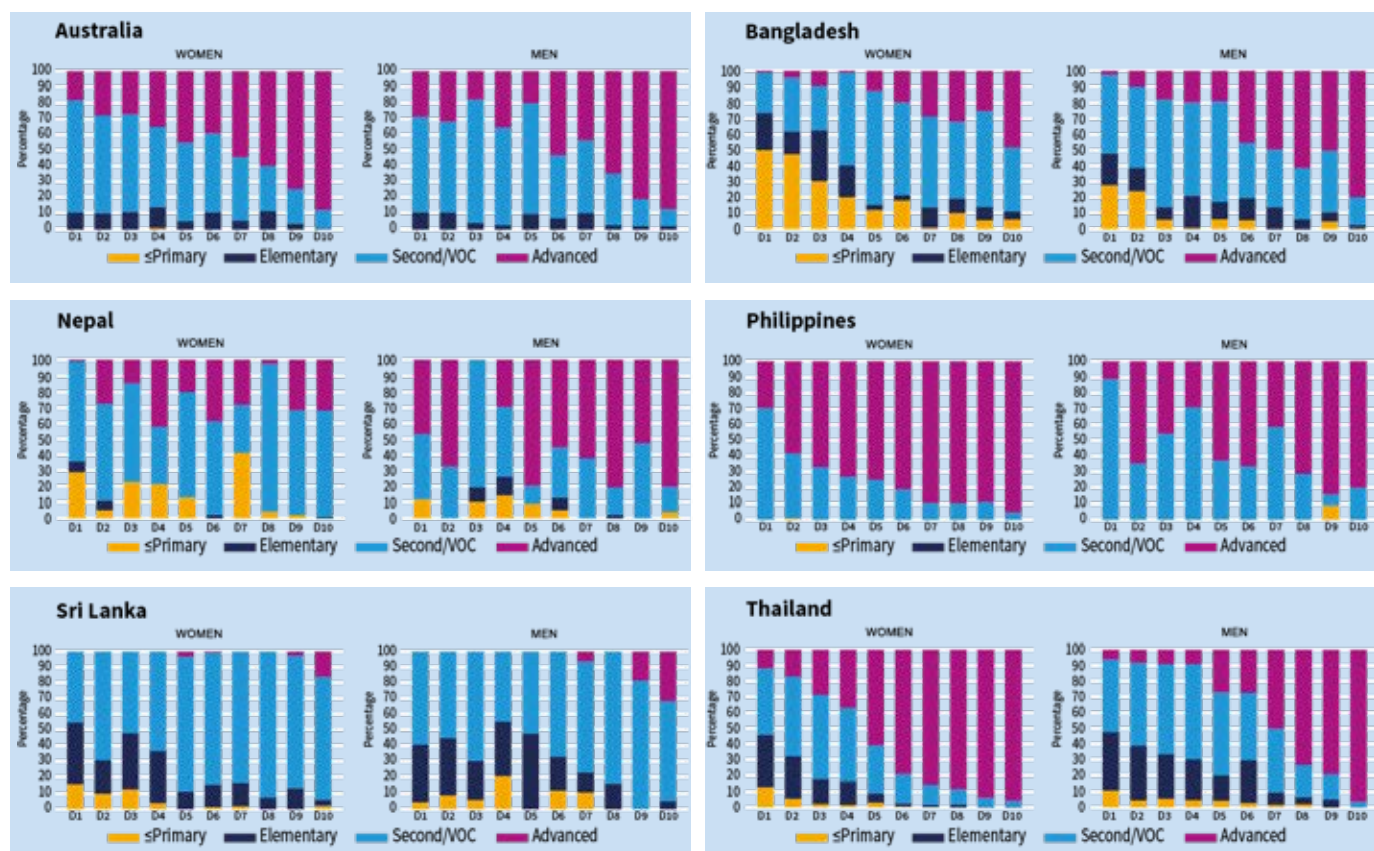


FIG. 4.4 CONT.

Europe



South-East Asia and Western Pacific

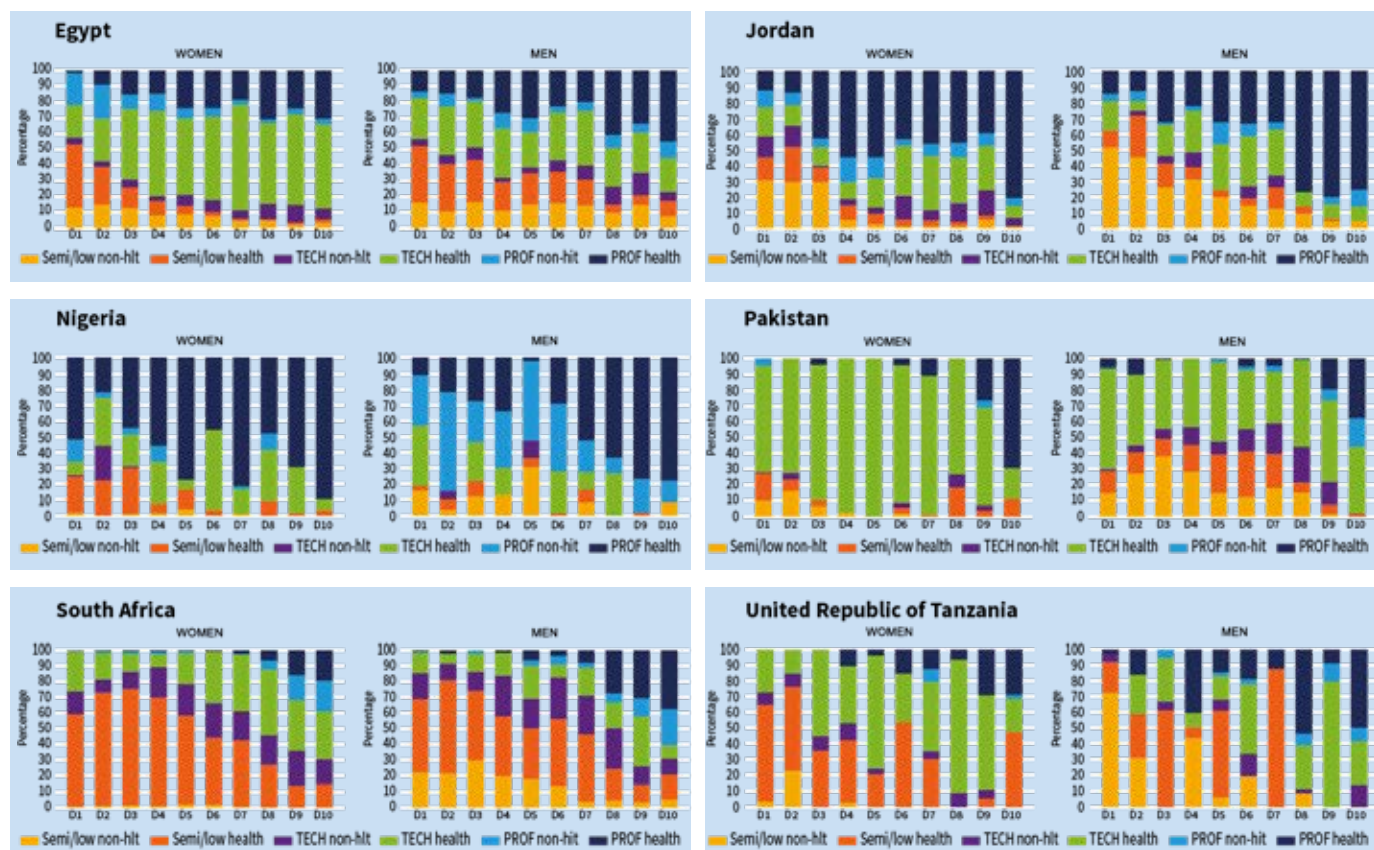


Source: ILO, WHO estimates based on survey data provided by national surveys (see Annex 1).

FIG. 4.5

Distribution of occupational categories of women and men across the deciles of the hourly wage distribution for selected countries, latest years for which data are available

Africa and Eastern Mediterranean



Americas

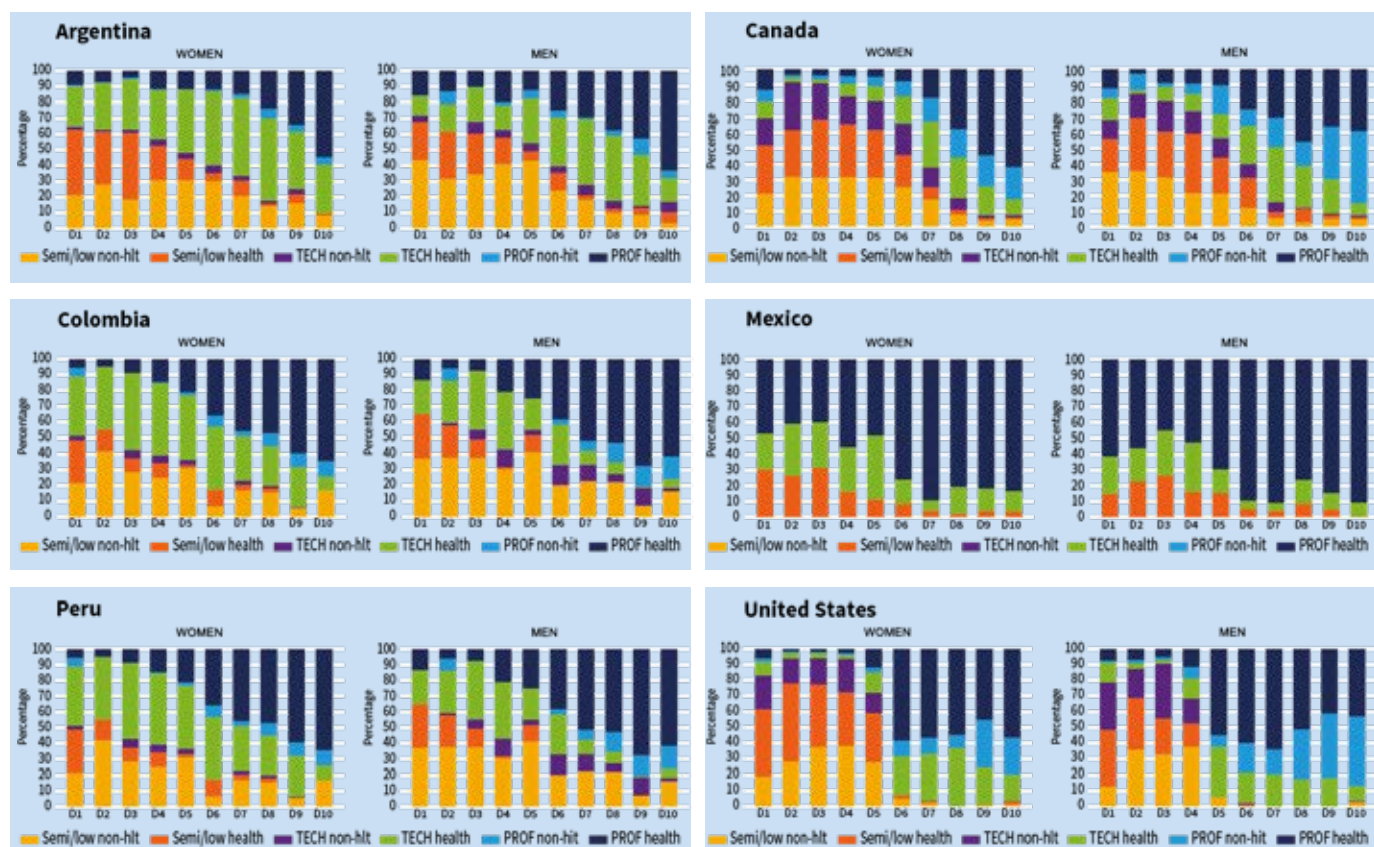
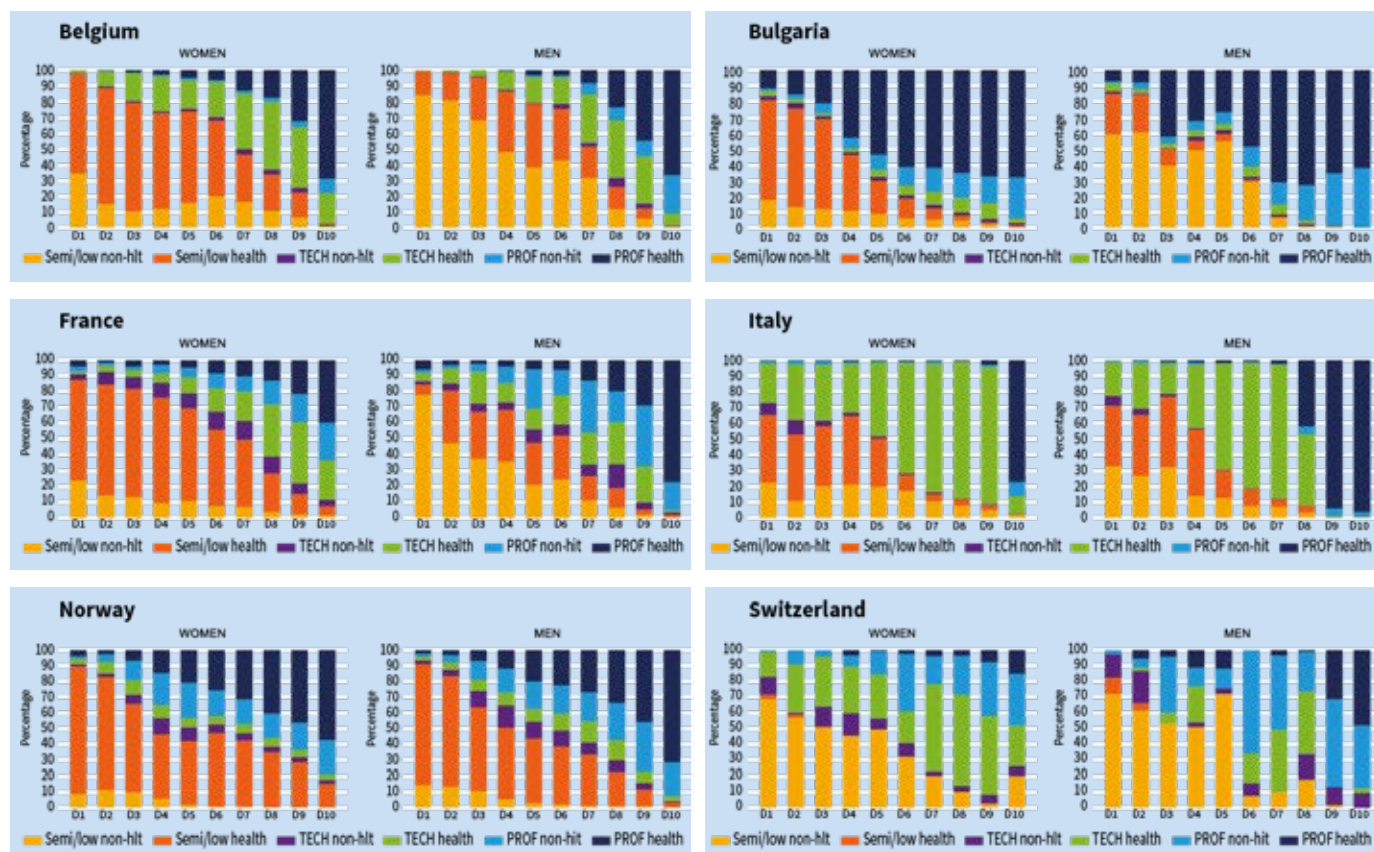
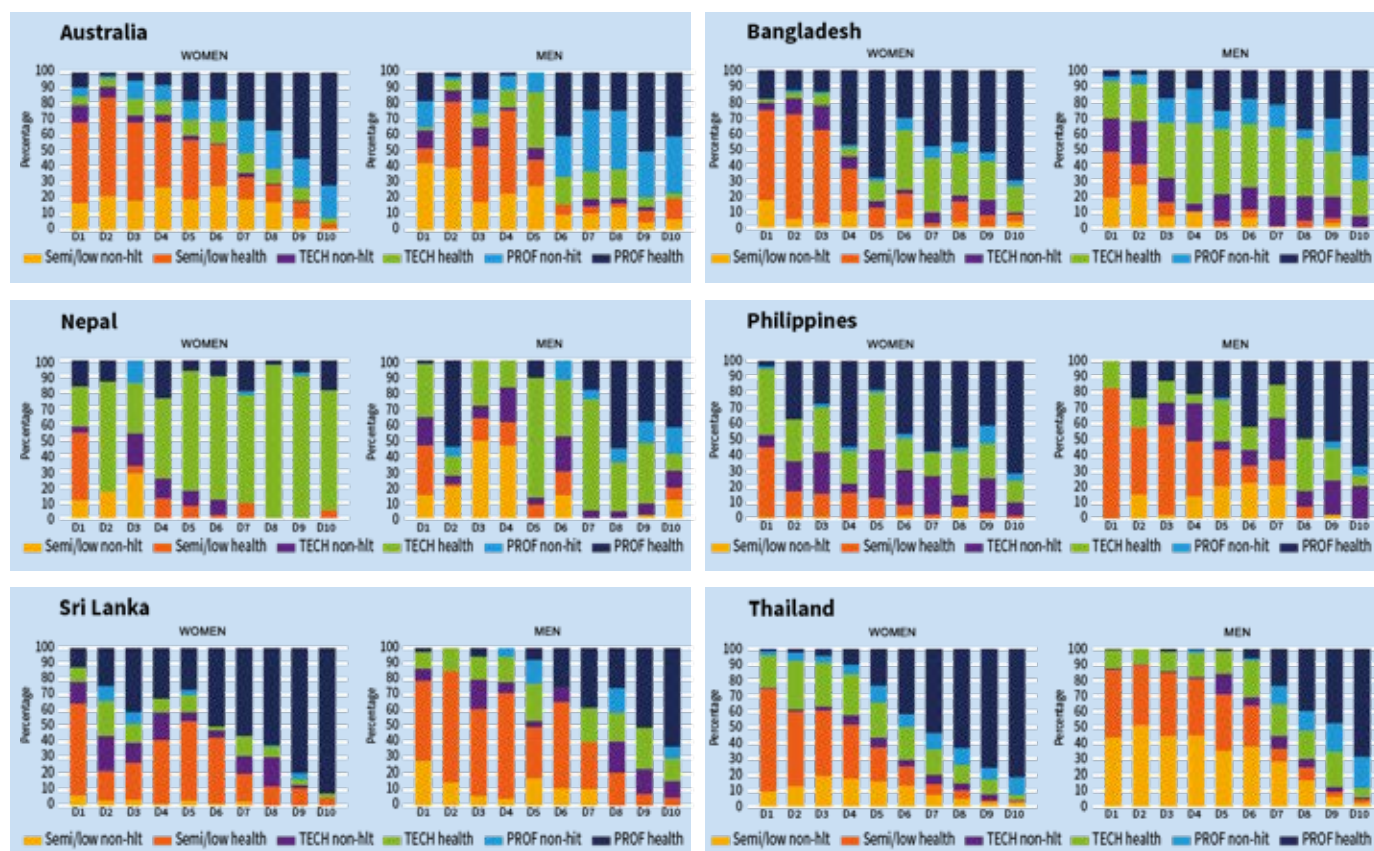


FIG. 4.5 CONT.

Europe



South-East Asia and Western Pacific

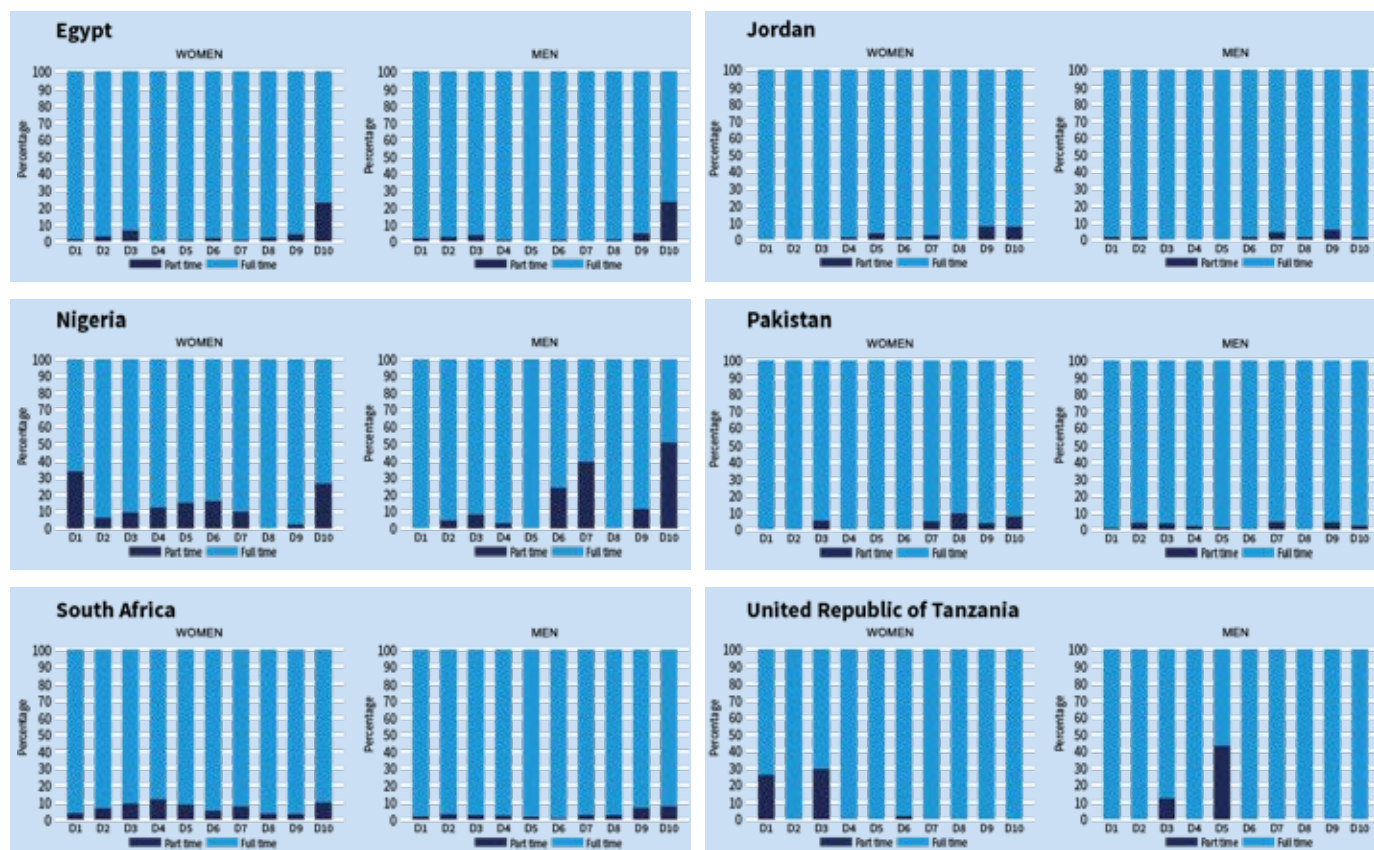


Source: ILO, WHO estimates based on survey data provided by national surveys (see Annex 1).

FIG. 4.6

Distribution of *full-time* versus *part-time* employment modality of women and men across the deciles of the hourly wage distribution for selected countries, latest years for which data are available

Africa and Eastern Mediterranean



Americas

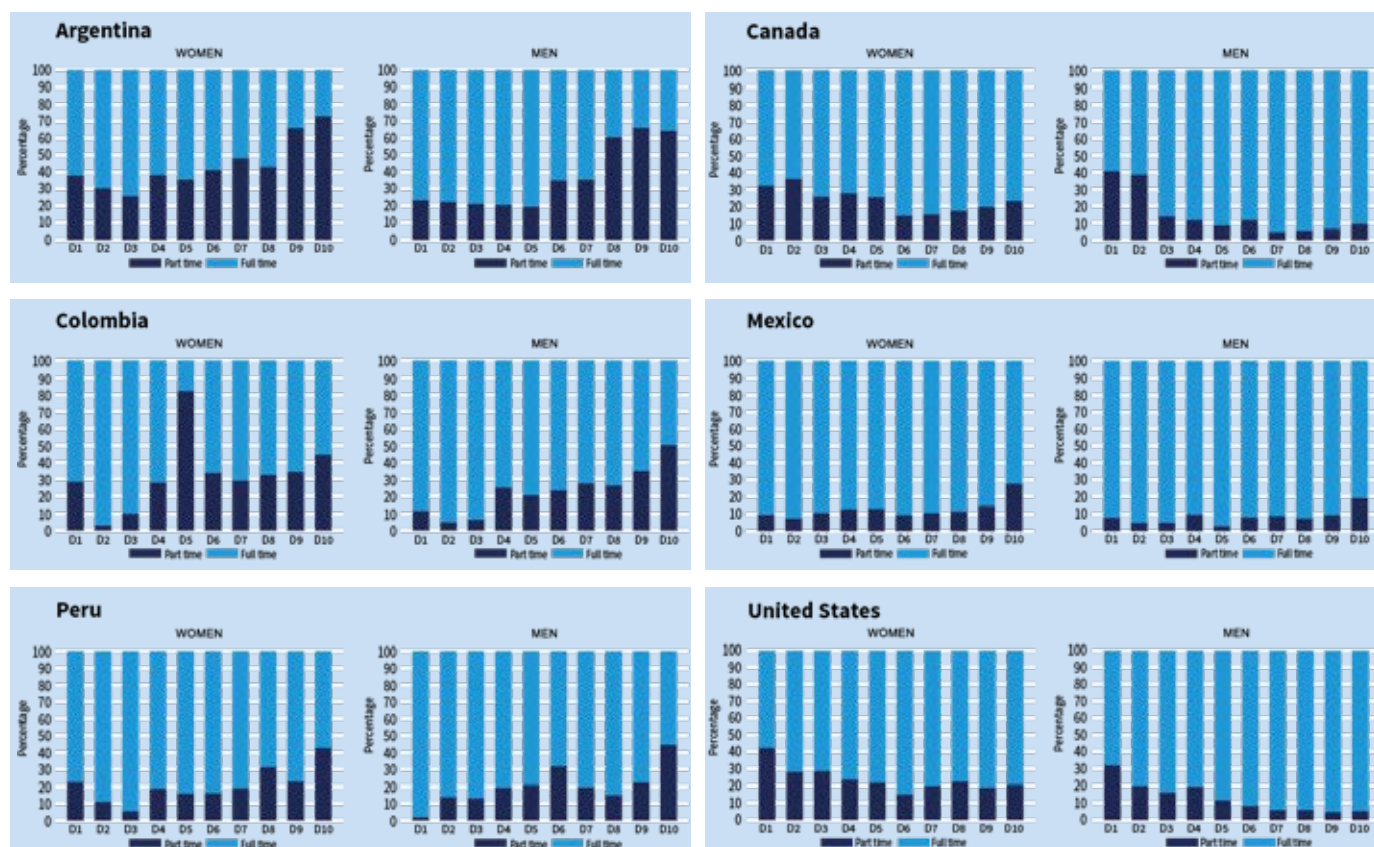
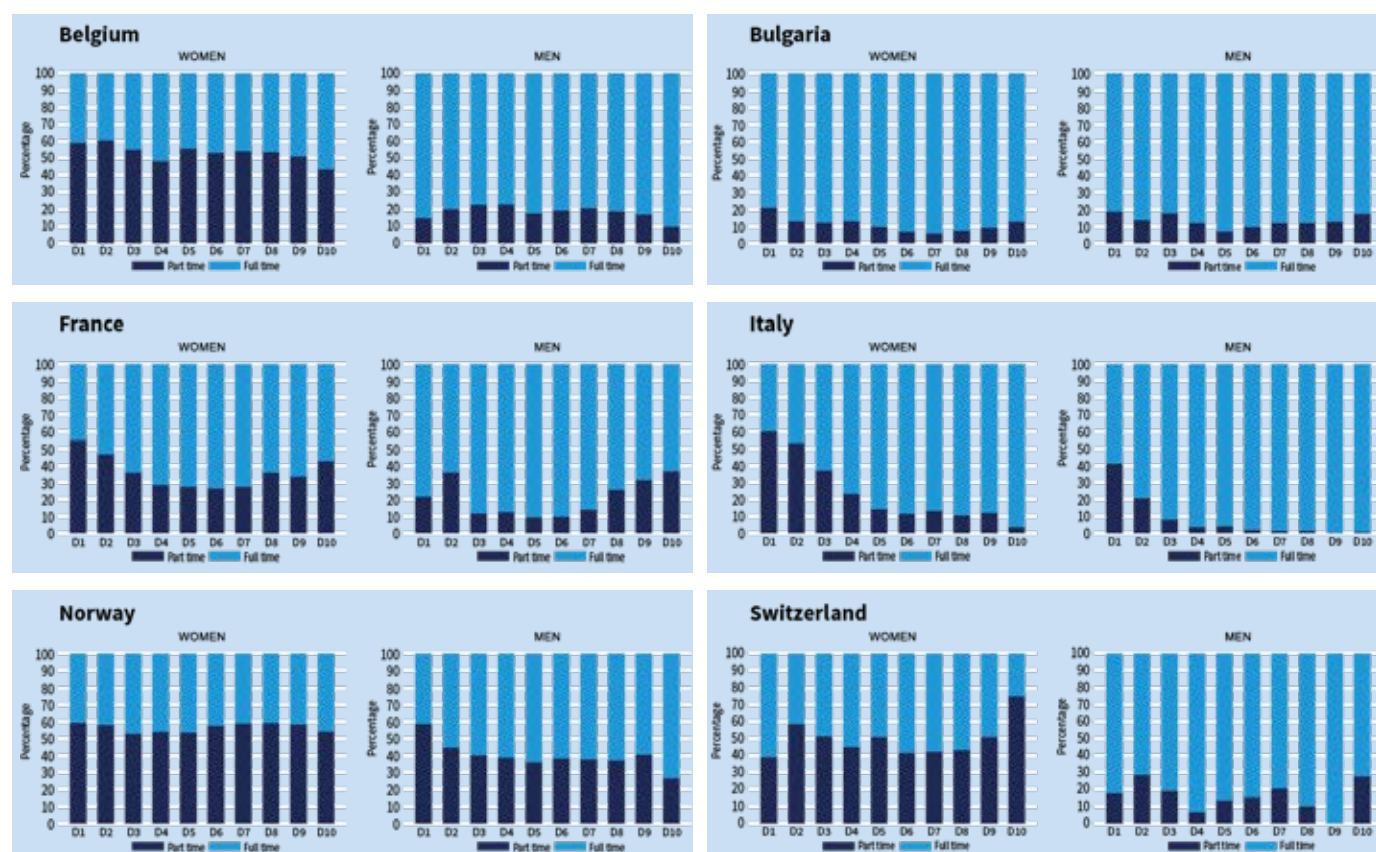
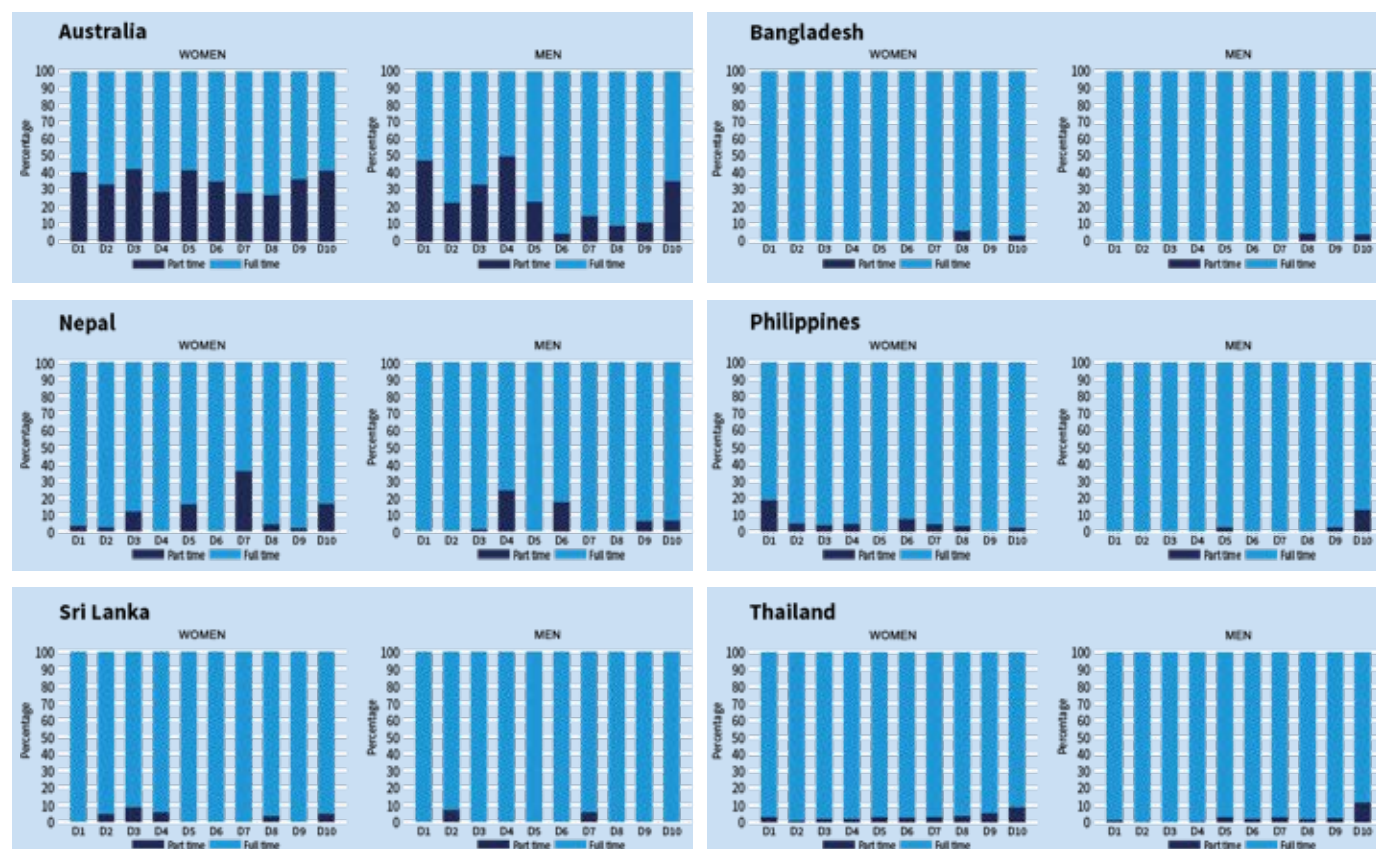


FIG. 4.6 CONT.

Europe



South-East Asia and Western Pacific



Source: ILO, WHO estimates based on survey data provided by national surveys (see Annex 1).

FIG. 4.7

Distribution of *public sector versus private sector employment* of women and men across the deciles of the hourly wage distribution for selected countries, latest years for which data are available

Africa and Eastern Mediterranean



Americas

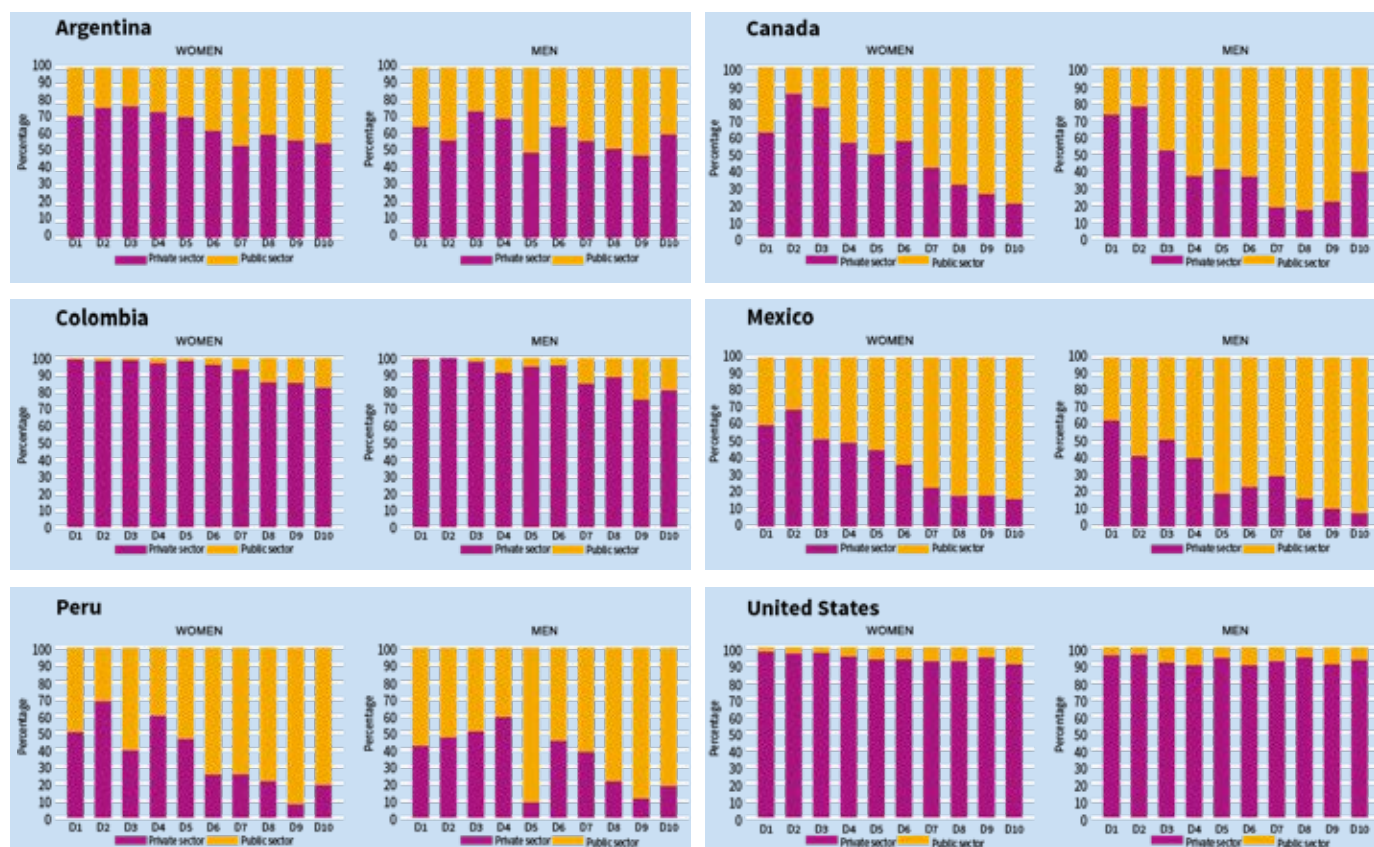
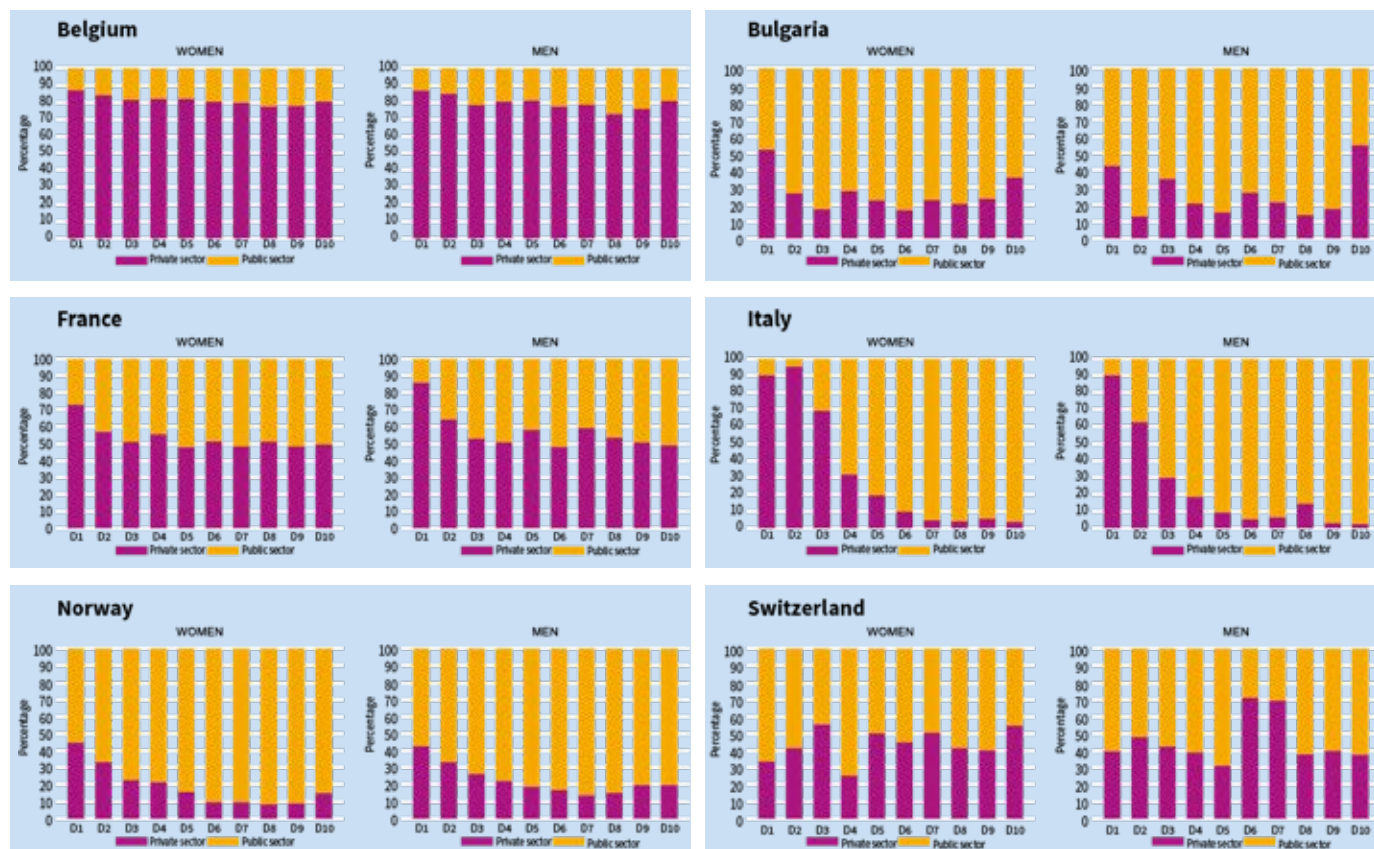
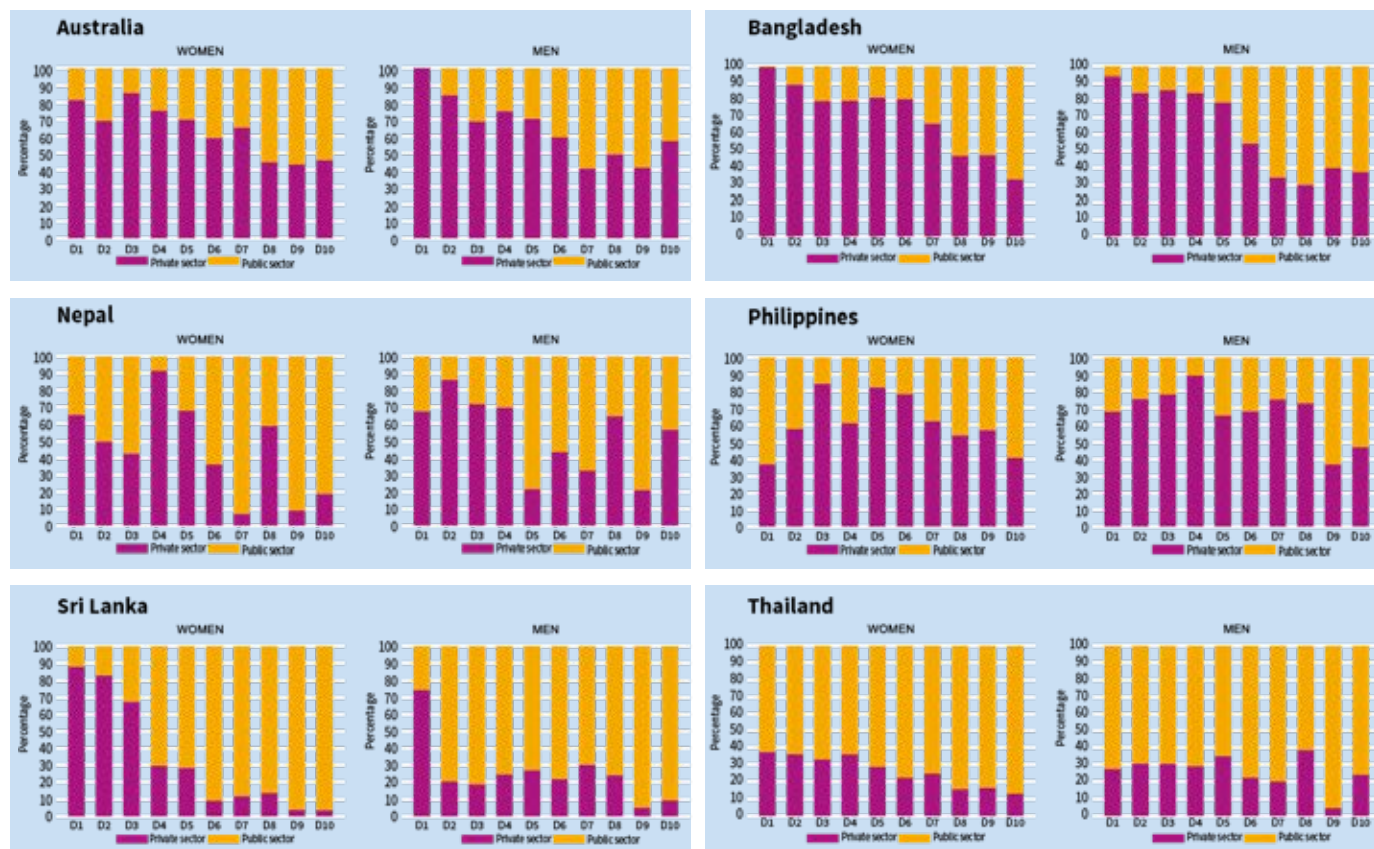


FIG. 4.7 CONT.

Europe



South-East Asia and Western Pacific



Source: ILO, WHO estimates based on survey data provided by national surveys (see Annex 1).

Decomposing the gender pay gap in the health and care sector

Section 5 builds on the exploration in Section 4 of factors that help explain some of the gender pay gap by employing such factors to identify and estimate the explained and unexplained parts of the gender pay gap in the health and care sector. Whereas the analysis in Section 4 considers the different factors separately, Section 5 uses decomposition techniques to allow the interactions of these labour market factors to identify the explained part of the gender pay gap and thus isolate it from the unexplained part. The analysis shows that for almost all countries, and at almost all quantiles of the wage distribution, the unexplained part of the gender pay gap in the health and care sector dominates and is positive, implying that women in the health and care sector are underpaid for their labour market attributes relative to their men counterparts with similar labour market profiles. Furthermore, in most regions, the explained part of the gender pay gap is negative. This means that while, in general, women are paid less than men for their labour market attributes (the unexplained component), women tend to have better labour market attributes than men within the same quantile of the wage distribution. Globally, the explained component is estimated as -3.5% whereas the unexplained component is +22.0%. Part of the unexplained gender pay gap can be attributed to the so-called “motherhood gap”. Another part can be attributed to the fact that the health and care sector is highly feminized; in general, workers in highly feminized sectors receive lower earnings, on average, compared with workers in non-feminized economic sectors.

5.1 Simple decomposition: the explained and unexplained part of the gender pay gap in the health and care sector

Wage decomposition techniques were first developed by Alan Blinder and Ronald Oaxaca in the early 1970s. They proposed estimating linear earnings equations separately for women and men and comparing these estimates to measure the contribution of each factor (or variable) at explaining the gender pay gap; their methods are commonly known as the Oaxaca-Blinder Decomposition (OBD) technique. The OBD approach remains popular because it is simple and easy to apply. However, there are several problems associated with it that can severely affect the estimates and mislead policy interpretations of the results.³¹ Therefore, this report avoids the use of OBD.

Instead, we adopt more recent developments that combine propensity score matching methods with the estimation of unconditional quantile regression (see Fortin et al., 2011) to decompose the gender pay gap at each quantile of the hourly wage distribution. Decomposition is carried out independently for each of the 54 countries in our database. In its simplest form, the decomposition technique identifies the explained and unexplained parts of the gender pay gap at each quantile of the hourly wage distribution

(see ILO, 2014). A more detailed version of the decomposition allows us to measure how much each factor contributes to the explained part; such detailed decomposition was applied to data from 65 countries in the *ILO Global wage report, 2018/19* (ILO, 2018a). However, as was the case with the factor-weighted gender pay gap methodology, the more detailed version of the decomposition relies on having a large sample size. For many of the 54 countries for which we have data, the selection of wage workers in the health and care sector results in a sample size that it is too small to apply the more detailed version of the decomposition, particularly because we need to further subdivide the sample into quantiles. The results, in these cases, could be misleading if they are driven by the very few, and possibly non-representative, observations within quantiles. For others among the 54 countries in our dataset, the selection of wage workers in the health and care sector does leave sample sizes sufficiently large to allow for both the simpler and more detailed decompositions. What follows in this section, and the resulting empirical estimates, is subject to such restrictions.

In essence, the decomposition technique we utilize involves three steps. The first consists of selecting a set of attributes and characteristics that are associated with the wage determination

³¹ See Rubin (1977) and Manski (1995) for detailed accounts of how regression analysis can fail at the identification of treatment (or policies) in social science. Since the original proposal by Blinder (1973) and Oaxaca (1973), several alternative proposals have been made that aim at overcoming the problems associated with the OBD. These include approaches proposed by Machado and Mata (2005), the matching alternative proposed by Nopo (2008), and more recent developments by Fortin et al. (2011).

process and explain observed differences in wages between women and men. Table 5.1 displays the variables that capture such attributes and characteristics. The second step consists of using such variables to construct a counterfactual distribution for women that represents the wages that women would have earned had they received the same return for their labour market attributes

and characteristics as men.³² The third step is to combine the three distributions (men's, women's, and the counterfactual distribution for women) to decompose the gender pay gap at each quantile (simple decomposition). Box 4 illustrates how these three steps work in practice, while Annex 2 lays out the methodology in more detail.

TABLE 5.1

Labour market attributes and characteristics (i.e. factors) for the decomposition of the gender pay gap

Group of factors	Variables	Notes
Endowments	<ul style="list-style-type: none"> • Age • Education categories • Tenure 	<ul style="list-style-type: none"> • Tenure is available for countries in Europe only.
Job attributes (or characteristics)	<ul style="list-style-type: none"> • Working time • Type of contract • Occupational categories within the health and care sector 	<ul style="list-style-type: none"> • Working time is allowed to enter the analysis using hours worked per week (contractual or usual hours). • Contractual conditions distinguishes between “permanent” or “temporary” contract. In some cases the response is “other” or “apprentice”. These are included in the “temporary” category because there are too few to create a separate meaningful group. • Occupational categories follows the six options displayed in Fig. 4.5, grouped into three: professionals, technicians and semi-/low-skilled.
Workplace characteristics	<ul style="list-style-type: none"> • Size of the enterprise • Institutional sector (public versus private) • Regional location (urban area versus rural setting) • Type of collective pay agreement 	<ul style="list-style-type: none"> • The size of the enterprise is included using three categories: less than or equal to 10 employees; 11 to 49 employees; and 50 or more employees. • “Type of collective pay agreement” is available for European countries only. The answers are grouped into four categories: at national level; by economic sector; at enterprise level; and no collective pay agreement at the enterprise.
Personal characteristics	<ul style="list-style-type: none"> • Union membership • Migrant worker • Informal versus formal employment • Ethnicity 	<ul style="list-style-type: none"> • Data on “union membership” is available for some countries in Latin America, South Africa and Thailand. • Migration status is available for some countries in Latin America and Namibia. • Informal versus formal employment is only available for countries in Latin America. • Ethnicity (“white” versus all other races) is only available for United States data.

Notes: See Annex 1 for further details on data sources. For all 54 countries the following factors are identified: age, educational categories, working time (hours per week), occupational categories within the health and care sector, public versus private sector, type of contract and size of enterprise.

³² At this point, the techniques we have applied for this report differ slightly from those applied in the *Global wage report 2018/19* (ILO, 2018a). In that earlier report, the construction of the counterfactual followed a technique known as a “reweighting function”. This consists of constructing a weight for each individual in the sample that reflects the probability of being women (for men) or being men (for women). When the weight is applied to the men’s distribution, it leads to a counterfactual where those men that are more like women are given higher weights; when the weights are applied to the women’s distribution, it leads to a counterfactual where those women that are more like men are given higher weights. In labour markets where a substantial proportion of women do not have a male counterfactual, e.g. in LMIC where some sectors, such as domestic workers, are mostly women, the use of reweighting functions on men’s distributions leads to a counterfactual wage distribution that reflects a biased outcome for a substantial fraction of women, who are not well represented among the wage distribution of men (a common support problem, as pointed out by Nopo (2008)). In the case of the health sector, this problem would be magnified due to the observed occupational segregation between genders: the use of reweighting functions on men’s distribution could reduce the unexplained part substantially, leading to negative values that simply reflect a weak common support. An alternative to the use of reweighting functions is to apply matching techniques to find a “synthetic” or “twin” man for each woman in the sample. Thus, in our one divergence from the method applied in the *Global wage report 2018/19*, we apply propensity score matching techniques, in particular, “nearest neighbour”, to construct the counterfactual distribution for women. Besides this change, all other steps remain identical to those applied in the *Global wage report 2018/19* (ILO, 2018a) (see Annex 2 for more details on the full procedure).

Decomposing the gender pay gap: an illustrative explanation

The decomposition of the gender pay gap consists of three steps. First, a set of attributes or characteristics (such as the observed indicators in our survey data) are selected on the basis of their relevance in the wage determination process; Table 5.1 shows the ones we selected. In the second step, propensity score matching techniques are applied, using the observed attributes or characteristics, to generate a counterfactual wage distribution. Thus, for the women in our sample, we identified men in the sample with identical (or the most similar) attributes (such as age, experience, occupational category, educational attainment, size of enterprise, working time, etc.). The more characteristics available in the data, and the more interactions we use between these characteristics, the closer the match between each woman and her “twin” man in the sample. Since women and their “twins” are observationally identical with respect to labour market characteristics, the earnings received by a man who is twin to a given woman are an approximation of what that woman would have received had she been a man in the labour market. For example, in Thailand (see Section 4, Figs 4.1–4.7) we observe that women in the health professional category are located at the lower quantiles of the wage distribution. In this case, it is likely that the earnings of the “twin” men of these women are in the upper quantiles; therefore, in this example, the counterfactual wages for women are likely to be higher than what they actually received. However, the selection of a single man as the basis for a counterfactual wage for each woman can reduce variance, but it does so at the expense of potentially introducing a bias, as any single observation could be an outlier. An alternative technique, which is used in this report, is to select an n number of men (the reference group) that are observationally equivalent to each woman (the adjusted group), and use the average earnings among the selected n number of men to construct the counterfactual wage for each woman in the sample.

Once the counterfactual distribution has been econometrically computed using propensity score matching techniques, we end up with three wage distributions: the wage distribution for men, the wage distribution for women, and the counterfactual wage distribution for women. The three distributions can then be compared at any quantile. For example, we can look at the median (q_v). Let us say that at the median the hourly wage is 10 coins for men ($q_v^m = 10$) and 6 coins for women ($q_v^w = 6$). This means that at the median the gender pay gap is 40%. Let us also assume that at the median the counterfactual hourly wage (for the woman in the middle) equals 9 coins ($q_v^c = 9$): this represents the wage that women in the middle of the wage distribution would earn if, for their actual (or “average”) endowments and attributes, they were paid the same as men are paid for their attributes at the middle. Thus, the distance in the middle of the wage distribution between what men earn (10 coins) and what women would have earned given their labour market characteristics had they been men (9 coins) is explained by the difference in attributes of men and women. That is, ($q_v^m - q_v^c = 1$), or 10%, is the explained part of the gender pay gap.

The rest of the gender pay gap, namely the difference between what women would have got given their labour market characteristics had they been men (9 coins ($q_v^c = 9$)) and what they actually get (6 coins, ($q_v^w = 6$)) cannot be explained by attributes or endowments. Therefore, such a difference, ($q_v^c - q_v^w = 3$) is attributable to the fact that women are getting lower returns on their labour market endowments and characteristics at the median. This difference is the unexplained or “structural” part of the gender pay gap. In this hypothetical case, the difference equals 30%. The construction of the counterfactual helps demonstrate that women can have a different wage structure from men – not because they have different endowments, but because they get different returns from such endowments. This is why the word “structural” is sometimes used to denote the unexplained part of the gender pay gap.

So far this illustration reflects the simpler approach to decomposing the gender pay gap by means of a counterfactual. In this method, at each quantile of the wage distribution, we identify the explained and the unexplained part of the gender pay gap simply by estimating:

$$GPG = (q_v^m - q_v^w) = (q_v^m - q_v^c) + (q_v^c - q_v^w) \quad (1)$$

In expression (1) the gender pay gap shows the sum of the explained and unexplained components. Based on this, we note the following: either of the two parts on the righthand side of (1) can be positive, negative, or zero. When ($q_v^m - q_v^c$) > 0 it means that men have more attributes and endowments than women in the same quantile, and such a difference in attributes and endowments explains the positive gap. For example, let $q_v^{m\ddagger}$ be the middle quantile (Q5), and let’s assume that women in the median are closer in attributes to men in lower quantiles (e.g. Q3) – therefore the earnings of her counterfactual in the population are drawn from Q3,

where men are, say, younger than men in Q5. When $(q_v^m - q_v^c) < 0$ the opposite is true: it could be that women in the middle have attributes that resemble those of men in higher quantiles – and thus, the earnings of her counterfactual in the population are drawn from quantiles higher than Q5, such as Q7, where men are perhaps older or more qualified. This means that when we observe a negative “explained” gender pay gap we are in fact estimating “the difference by which women’s earnings should be topped up if they were to be paid for their endowments the same as men are paid for theirs” in the health and care sector.

The analysis of the unexplained part is somewhat different: when $(q_v^c - q_v^w) > 0$, it means that men get higher returns than women for their attributes and endowments at that quantile. For example, if women at the median get q_v^w , but have endowments and attributes that resemble men in the top quantile, Q9, then the counterfactual of women at the median (q_v^c) will be constructed with earnings of men at Q9 – in general, constructed using the structure of earnings from men in the population. Considering that men at Q9 who served to construct q_v^c are observationally equivalent (for matters of productivity) to women at the median (Q5), there is no reason why these women should not also be located in Q9 – in other words, the higher returns for men at the quantile are due to a difference in wage structures for given endowments, thus, unexplained. When $(q_v^c - q_v^w) < 0$, the opposite is true: women in, for example, Q5 are like men in lower quantiles, so that women at that quantile are obtaining returns above their counterfactual men in the population.

Finally, in the presence of a non-zero gender pay gap, it can also be that either the explained part $(q_v^m - q_v^c)$ or the unexplained part $(q_v^c - q_v^w)$ is zero. If that is the case, the result would show that the gender pay gap is either fully unexplained or fully explained, respectively.

Fig. 5.1 shows, at each quantile of the hourly wage distribution, the decomposition of the gender pay gap between the explained and the unexplained parts as determined using the procedure described in Box 4. The selection of countries is the same as in Figs 4.1 to 4.7.³³ For each country and at each quantile, the sum of the two parts in Fig. 5.1 represents the gender pay gap at that quantile. It is worth noting here that, for each country and at each quantile, the sum of the two parts is equivalent to the height of the bars in Fig. 4.1. In order to better understand how to interpret the detailed results in Fig. 5.1, Box 5 provides detailed examples, using the first quantile in the case of the United States, the top quantile in the case of Switzerland, and a middle quantile in the case of Belgium.

³³ Similar to Fig. 4.1, Fig. 5.1 shows the gender pay gap at each of the nine thresholds that divide the distribution into ten equidistant regions. In each region, the quantiles corresponds to the threshold value (the highest value in each region). In practice, it would be possible to estimate the gender pay gap at the maximum value of the wage distribution; this would be analogous to estimating the gender pay gap at D10. However, the tail at the upper end of the wage distribution includes very few observations and this can result in very anomalous estimates when decomposing the gender pay gap at each quantile. Therefore, as is often done in quantile analysis, we avoid analysing the gender pay gap at the maximum value in both Figs 5.1 and 5.2.

Examples illustrating the interpretation of explained and unexplained parts of the gender pay gap, as depicted in Figs 5.1 and 5.2

This illustration considers two examples in which the sign of the explained part differs: in the United States' case we examine a quantile where the explained part is negative, while the case of Switzerland illustrates the interpretation of the explained part when it is positive.

In Fig. 4.1, the chart for the United States shows that the gender pay gap in the first quantile (Q1) is equivalent to 22%, effectively, compared with men whose hourly wage falls in Q1 in this country, women in the same Q1 earn 22% less per hour. Once the pay gap at Q1 is decomposed (as shown in Fig. 5.1), we see that the explained part is negative (-20%) and the unexplained part is positive (+42%). The negative explained part means that in the first quantile of the hourly wage distribution in the health sector in the United States women's labour market attributes and characteristics resemble those of men at other higher quantiles. That is, the negative explained part indicates that men in the population who are counterfactual with respect to their labour market attributes to women at Q1, are, on average, paid higher than men actually located in Q1. Consequently, the result is that $(q_v^m - q_v^f) < 0$.

In general, when the explained part of the gap in a quantile is negative, it indicates that women in that quantile are misplaced in the wage distribution with respect to their labour market attributes when compared with the location of men with similar attributes across the wage distribution. In the example of Q1 in the United States, if *all* the Q1 women were paid for the attributes they use in their daily work the same as men, the *average* wage of women at Q1 would increase by 20% per hour. Furthermore, it is likely that many (if not all) of these women would then, in fact, appear located at higher quantiles of the wage distribution.

The *positive* unexplained part means that, irrespective of what attributes Q1 men have, the returns that women in Q1 get for the mix of attributes they employ in their daily jobs is, on average, 42% less than what men get with the same mix of attributes in the population (at any quantile). Thus, if women in the first quantile of the wage distribution in the health sector in the United States were paid for their labour market attributes as men in general are paid for these same attributes – i.e. if women and men displayed the same wage structure – the earnings of women in the first quantile would increase by 42% per hour worked, compared with men in that quantile.

Putting the two parts together, what is the implication in dollar terms? The data show that the average hourly wages received by men and women in the first quantile in the health sector in the United States are US\$ 14.9 and US\$ 12.9, respectively.³⁴ But when we consider men (anywhere in the wage distribution) with a similar mix of labour market attributes (i.e. similar in age, formal education, occupational category, geographic region, working time modality, contractual arrangement, institutional sector, race and migration status) as the women in Q1, we find that such men receive, on average, US\$ 17.6 per hour. Thus, women in the first quantile are underpaid by US\$ 2.7 dollars per hour ($14.9 - 17.6 = -2.7$) if we compare their attributes with those of men in the first quantile – this is the part of the gap that can be explained by a comparison of attributes between men and women in the same quantile.

The example further shows that the mix of attributes of women in the first quantile brings, on average, a labour market return of US\$ 17.6 for men with “in the population” a similar mix of attributes. The gap of US\$ 4.7 per hour ($17.6 - 12.9 = 4.7$) for women in Q1 is the part of the gap that cannot be explained by a difference in observed attributes between women and men in the population. This unexplained, structural, part is often considered a measure of gender discrimination. Ultimately, for a woman in Q1 who works on average 40 hours per week, not being paid (on average) for her attributes in the same way men are paid translates into approximately US\$ 9976 lost earnings per year.

Switzerland provide a contrasting example. Fig. 4.1 shows that in the case of Switzerland the gender pay gap at the top quantile (Q9) is 19.1%, i.e. at that quantile women working in the health sector in Switzerland are paid about 19% less than men per hour. The decomposition of the quantile (in Fig. 5.1) shows that the explained part of this gender pay gap is 8.7% and the unexplained part accounts for 10.4% of the gap. The positive explained part means that at Q9 in the Swiss health sector women's labour market attributes and characteristics on average resemble men's at lower quantiles; therefore, men (in the population) who are counterfactual with respect to their labour market attributes to women at Q9, are, on average, lower paid than men actually located in Q9. Consequently, the result is that $(q_v^m - q_v^f) > 0$. In this case, using the

³⁴ The data for the United States comes from the Census Population Survey, October 2019. See Annex 1 for details on data sources. Estimates of the gender pay gap and the decomposition at each quantile are based on the transformation of the wage distribution to natural logarithm. There might be a slight difference in the value of the gap using levels when compared with the logarithmic transformation.

decomposition helps us to isolate the fact that 8.7% of the 19.1% total gap is explained by the fact that men at Q9 are probably older, have more experience, and have higher occupational categories, among others, compared with women in that quantile. In the example of Q9 in Switzerland, if all these women were paid the same as men for the attributes they use in their daily work, the *average* wage for women at Q9 would remain 8.7% below that of men in the quantile.

This still leaves 10.4% of the gap unexplained; that is, irrespective of what attributes Q9 men have, the return that women in Q9 get for the mix of attributes they employ in their daily jobs is, on average, 10.4% less than what men get with the same mix of attributes in the population (at any quantile). In a way, the two parts together seem to suggest that compared with men, women at Q9 in Switzerland may be (for example) slightly younger, or perhaps are highly skilled nurses rather than medical doctors, accounting for the explained part. However, men who are equally young and equally highly skilled nurses, and who may be at deciles other than Q9, are getting paid more than those women in Q9 with the same attributes. Thus, if women in Q9 in the health sector in Switzerland were paid for their labour market attributes as men (in general) are paid for the same mix of attributes, the earnings of women in Q9 would increase by 10.4% per hour in comparison with those of men, still leaving a quantile gender pay gap of 8.7%.

Putting the two parts together, what is the implication in Swiss francs? At the top Q9 quantile, the counterfactual wage for women in the Swiss health sector is CHF 57 per hour; in fact, women are paid CHF 51.4 per hour at the decile, while men are paid CHF 62.2 per hour. The undervaluation of labour market attributes of women in the Swiss health sector at Q9, compared with the remuneration that men get for the same attributes, is equivalent to an annual loss of CHF 11 648 (approximately US\$ 10 600) for a woman who works full time and who is located at that quantile.

Finally, Fig. 5.1 shows that the unexplained part of the gender pay gap is negative in a few countries (Argentina, Bangladesh, Belgium, Canada, Egypt and Jordan) at the extreme upper quantiles. Following the same logic of the two examples above, the interpretation of these negative values is, on average in these quantiles, that women are paid more for their attributes when compared with men who have similar attributes in the population. In the case of Belgium, Fig. 4.1 shows that the gender pay gap at Q8 is about 5%; the decomposition in Fig. 5.1 shows that +8.9% of the gap is explained by observed differences between women and men. That is, at Q8 men seem to be better equipped in labour market attributes compared with women. The unexplained part of the gap is negative (-4.1%). In this case, the decomposition shows that the explained part at this quantile is higher than the observed simple 5%. Women in Belgium's health system at Q8 seem to be better paid for their attributes – by 4.1% – compared with men with similar attributes in the population.

The pattern that emerges from Fig. 5.1 indicates that **for almost all countries and at almost all quantiles across the wage distribution, the unexplained part of the gender pay gap dominates and it is positive.** The only exceptions to this statement are five of the 54 countries – and three of these (Belgium, Bulgaria and Bangladesh) are displayed in Fig. 5.1.³⁵ The fact that, across countries, the unexplained part of the pay gap is positive and is the part that dominates offers compelling evidence that across the world, women in the health sector are underpaid for their labour market attributes when compared with men with similar labour market profiles (i.e. their counterfactuals in the population, see Box 4). Likewise, Fig. 5.1 shows that **in almost all countries, the “explained” part of the gender pay gap is negative, particularly at the low end and up to the middle of the wage distribution.** In Fig. 5.1, this statement is true for all countries except Bangladesh, Bulgaria and Italy. This indicates that, while in general women are paid less than men for their labour market attributes (the unexplained

component), within deciles women have better labour market attributes than men. If women were paid the same returns for their labour attributes as men, many women would appear at higher quantiles of the wage distribution and the observed “negative” pay gap at such quantiles would vanish.

This correction would have a substantial effect on the shape of the gender pay gap across quantiles compared with what is displayed in Fig. 4.1. Take for example the case of France in the first quantile. Fig. 4.1 suggests the simple gender pay gap is minus 10% at Q1, while the decomposition in Fig. 5.1 shows that at Q1 in France, the explained part of the gender pay gap is not only negative but equal to minus 21%. That is, those men who are counterfactual to women in Q1 are located at higher quantiles, and if women in Q1 were paid the same as their counterfactuals, it is likely that many of them would move to higher quantiles, leaving a gender pay gap at Q1 that is equal to the unexplained part. Therefore, in Fig. 4.1 for France at Q1 the pay gap would be positive and

³⁵ The other two are the Dominican Republic and Luxembourg. Estimates for any of the 54 countries not displayed in the report are available from the authors on request.

equal to the unexplained part attributable to that quantile.³⁶

This illustration could be applied to any quantile that shows a negative estimate of the explained component in Fig. 5.1; in fact, if this exercise is carried out at each quantile that shows a negative pay gap in Fig. 4.1, the result would be that across countries the negative pay gaps at quantile level would vanish, leading to positive pay gaps across countries and quantiles. This applies to all 54 countries in the dataset except Luxembourg and the Dominican Republic.

As noted, the only countries among the 54 that differ from the abovementioned patterns are Bulgaria, Bangladesh, Dominican Republic, Italy and Luxembourg. Particularly for Bulgaria and Italy, and across all quantiles, the gender pay gap seems to be mostly explained by the fact that men have better labour market attributes than women within quantiles (the explained component) and the unexplained component seems to be relatively low – except at the top quantile where the relative value of the unexplained component increases significantly. The cases of Bangladesh, Dominican Republic and Luxembourg (not displayed in Fig. 5.1) are mixtures of explained and unexplained across quantiles without any identified pattern.

An interesting observation from Fig. 5.1 is that in the health sector **the pattern of the explained and unexplained components across quantiles does not seem to differ between regions or across income groups.** For example, the shape and composition of the pay gap across quantiles in the United States is similar to those in France, Nigeria, Pakistan, Peru, South Africa, Sri Lanka and Thailand. What may prove more informative is comparing the sizes of the explained and the unexplained components across geographic and economic regions. Fig. 5.2 shows this, having estimated the weighted average across quantiles of each of the two components in Fig. 5.1 for each country, each region, and the world, considering all 54 countries.³⁷ Fig. 5.2 shows that in all regions except Europe (i.e. Africa, Eastern Mediterranean, Americas, South-East Asia and Western Pacific) the average of the explained component is negative. Thus **in all regions except Europe, correcting the allocation of women to quantiles of the wage distribution according to their labour market attributes would reduce**

the gender pay gap to a single unexplained component. A comparison among regions shows that the unexplained component of the gender pay gap is highest in the African region (46%), followed by the Americas (28%) and Eastern Mediterranean (27%). These regions are mostly comprised of LMIC. For the remaining regions, the unexplained components of the gender pay gap are 12% in South-East Asia, 15% in Western Pacific and 14% in Europe – the latter two regions, particularly Europe, are dominated by HIC.

Europe is the only region where the average size of the explained component is positive: about 8% of the gender pay gap in Europe is explained by the fact that men – within quantiles – have more of those attributes that are better rewarded in the health sector, compared with the attributes of women that share the same quantiles. However, in the case of Europe, 14 percentage points of the overall gender pay gap (i.e. 22%, which is measured on the weighted average at each quantile) remains unexplained and can only be attributed to the fact that women are paid less than men with similar mixes of labour market attributes, where the latter determines the productivity of the workforce in the health sector.

Finally, Fig. 5.2 provides an estimate of the explained and unexplained gender pay gap for the world, but it is worth bearing in mind that our dataset includes 54 countries that together represent about 40% of wage employees across the world. Our global estimates can be compared with similar ones, such as those obtained when using all economic sectors in 65 countries across the world that together represent about 80% of wage employees across the world (ILO, 2018a). The comparison shows that in the health sector, both the global explained component (-3.5%) and the global unexplained component (+22%) are smaller in magnitude compared with the world's estimates (-16% and +33%, respectively) considering all economic sectors in the economy (ILO, 2018a: Fig. 30).

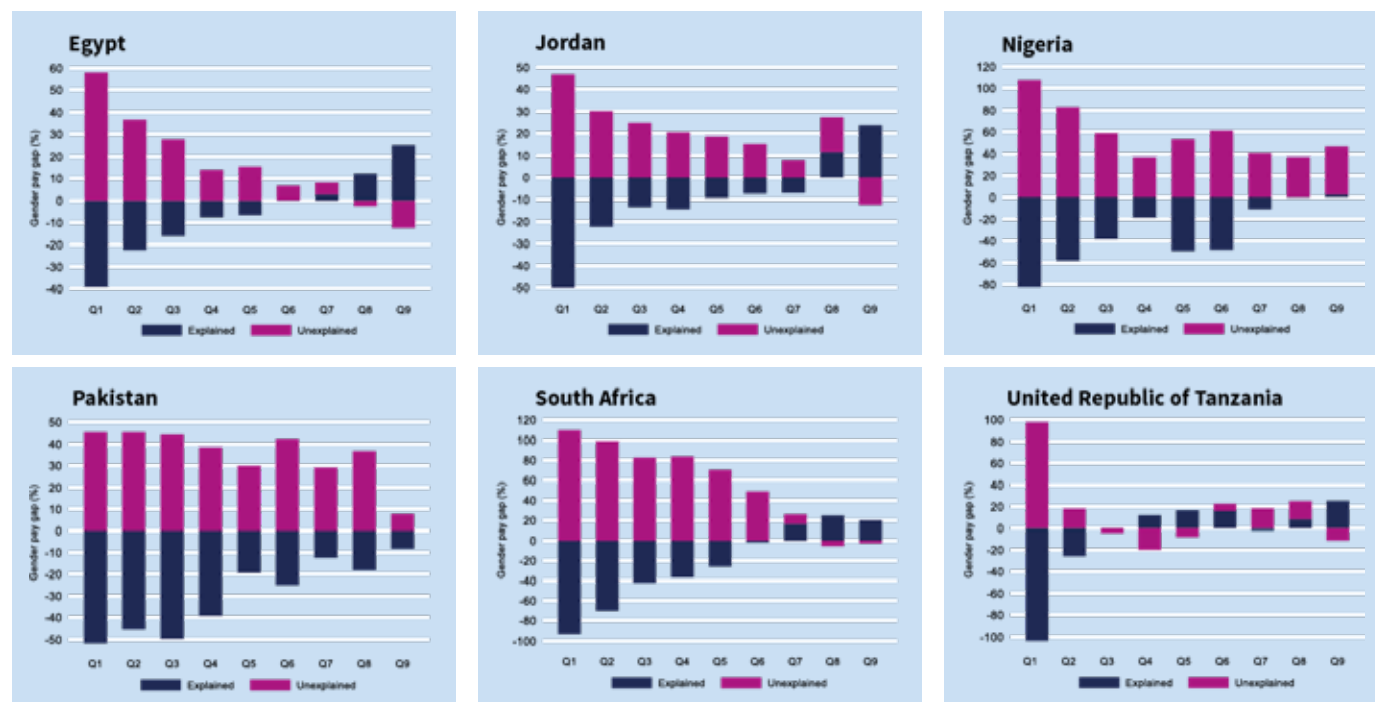
³⁶ We make a point that with the relocation of women to higher quantiles, the “unexplained” component would probably go down compared with the original value, but may not vanish within the quantile. In fact, the remaining unexplained component at the quantile would correspond to the difference in returns to labour market attributes between men and women that correctly share the same attributes in the same quantile.

³⁷ The weighted average across quantiles is the same as the simple average because each quantile is made up of an equal number of individuals in the population. Considering quantiles provides an alternative way of correcting for clusters. Therefore, in Fig. 5.2 the country-specific weighted total gender pay gaps (for each country, the sum of the two components) should be similar, but not necessarily identical, to the factor-weighted gender pay gaps shown in Section 3. Both can be considered better approximations of the true underlying gender pay gap when compared with the classic raw gender pay gap.

FIG. 5.1

Explained and unexplained parts of the gender pay gap in the health and care sector for selected countries, latest years of available data

Africa and Eastern Mediterranean



Americas

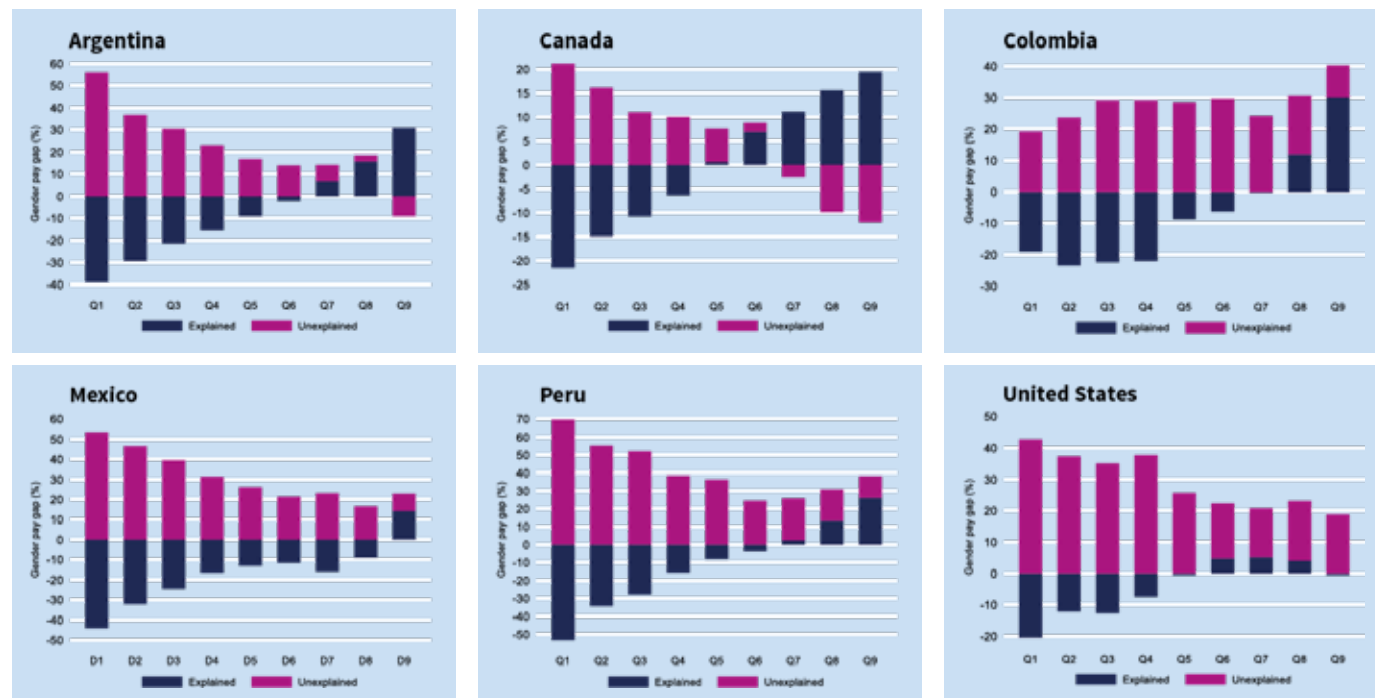
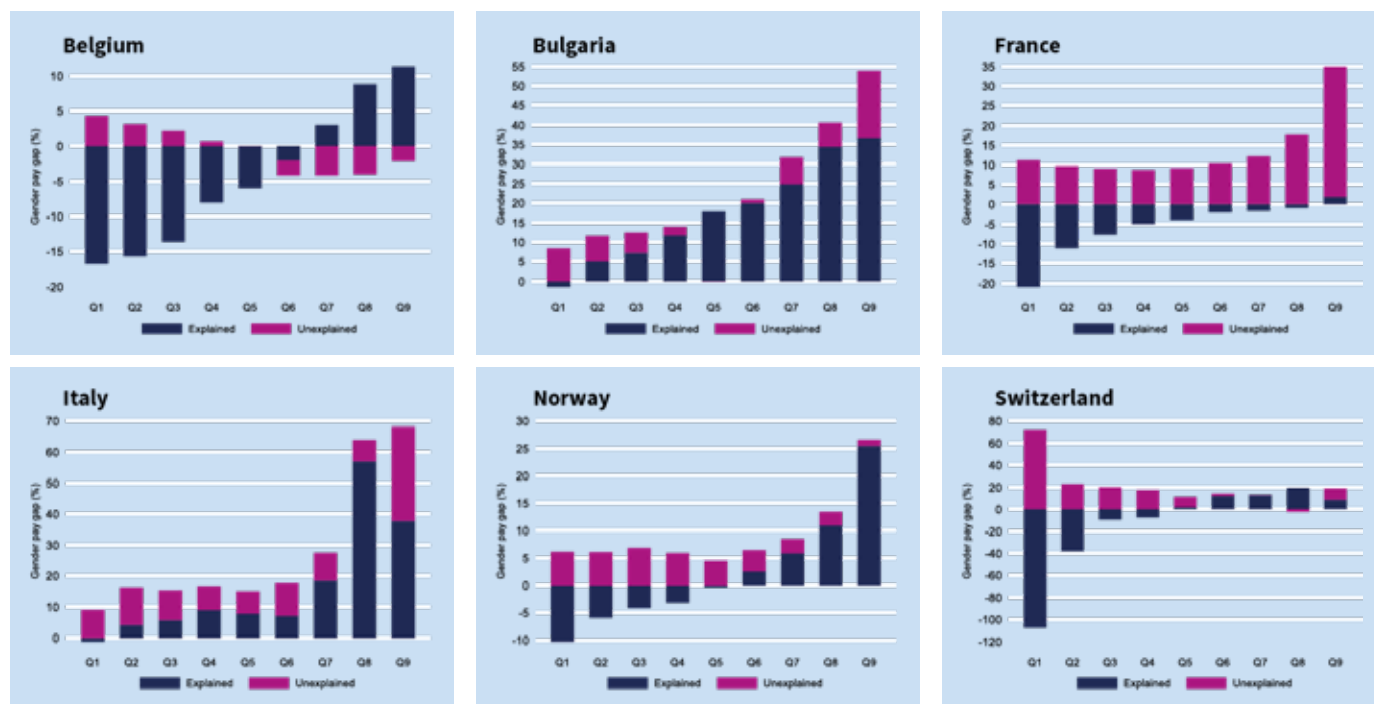
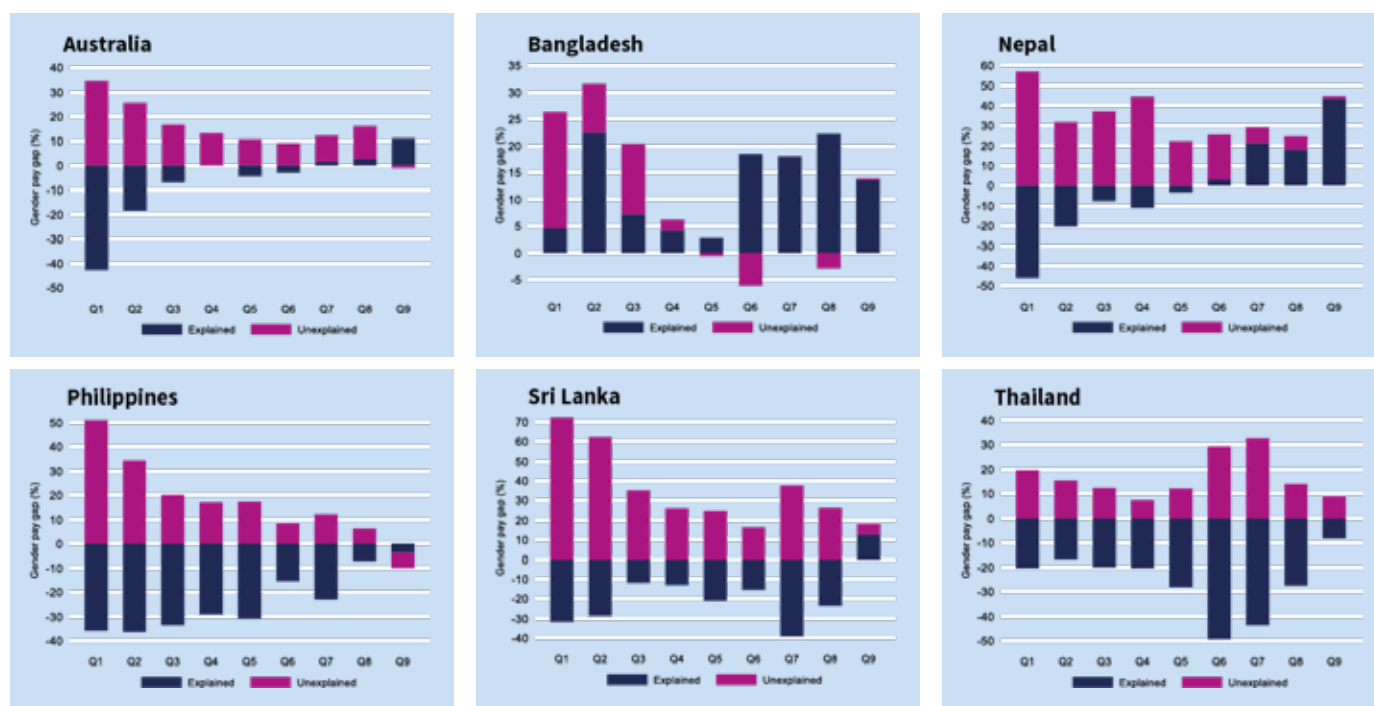


FIG. 5.1 CONT.

Europe



South-East Asia and Western Pacific

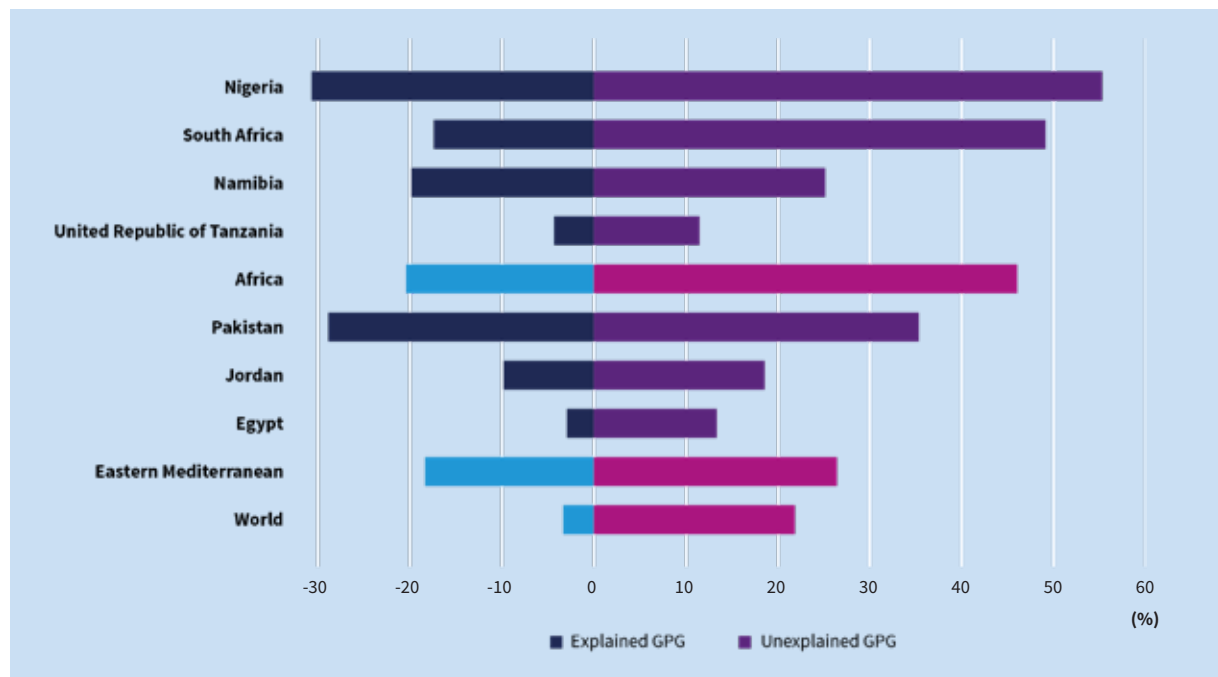


Source: ILO, WHO estimates based on survey data provided by national surveys (see Annex 1). See Annex 2 for more details on the method used to decompose the gender pay gap between explained and unexplained components.

FIG. 5.2

Weighted average of the explained and unexplained parts of the gender pay gaps shown in Fig. 5.1, by region, latest years of available data

Africa and Eastern Mediterranean



Americas

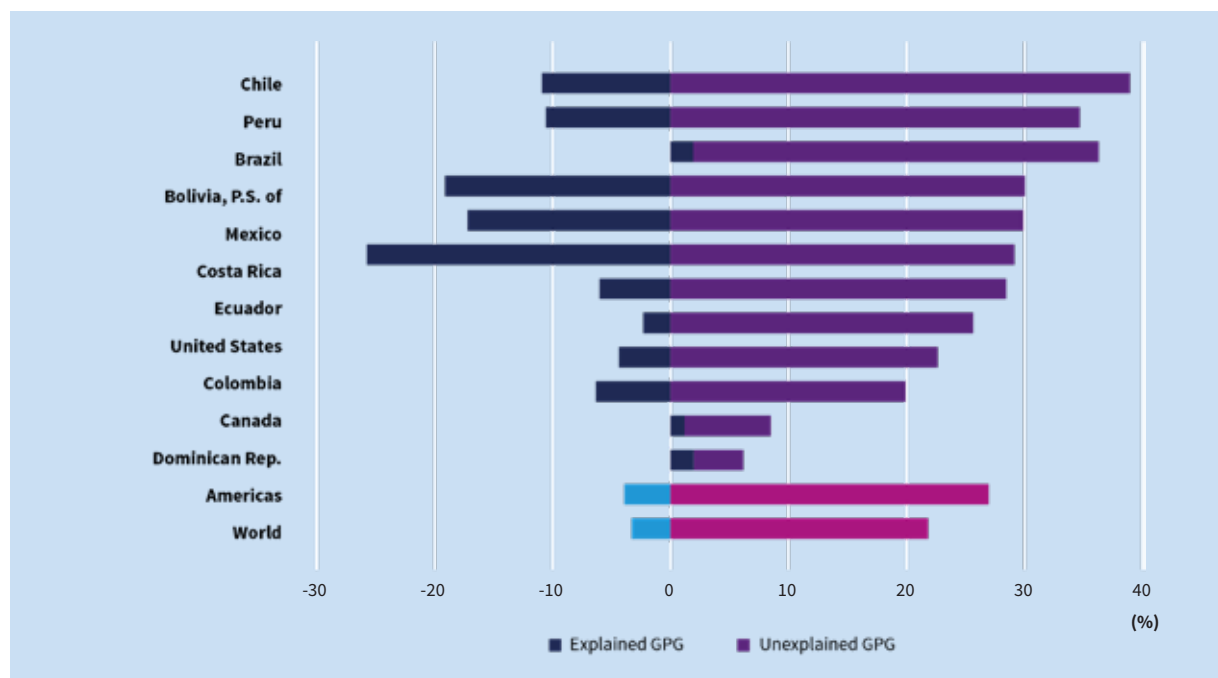
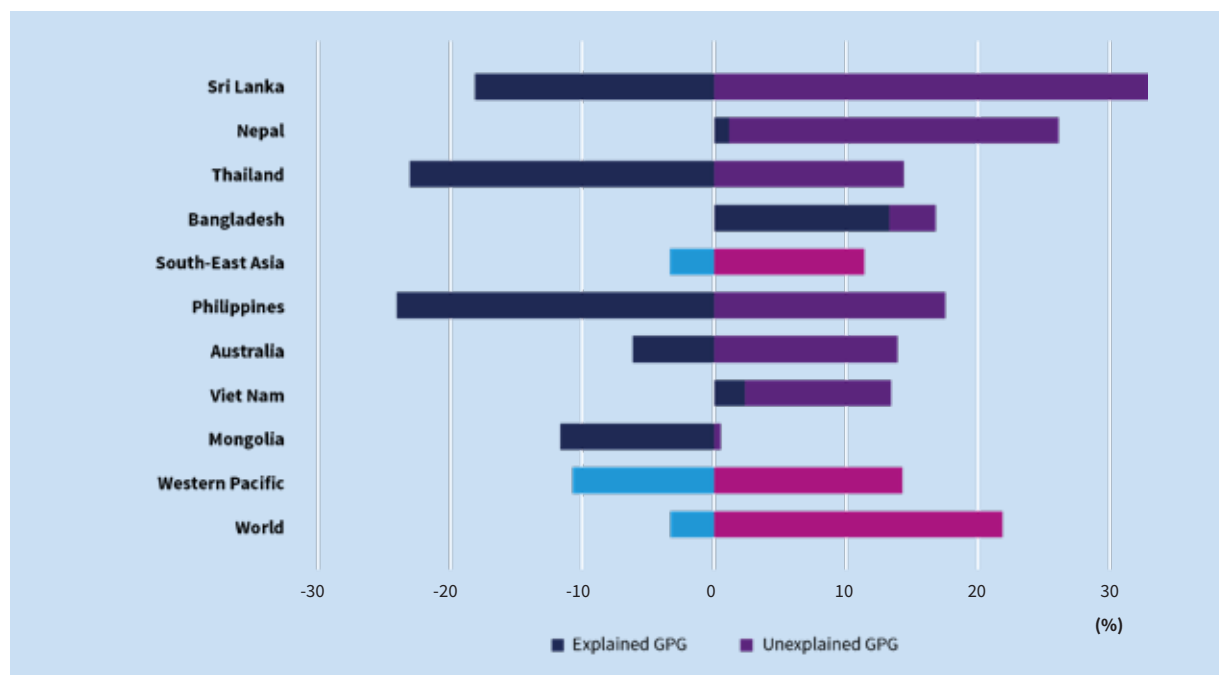
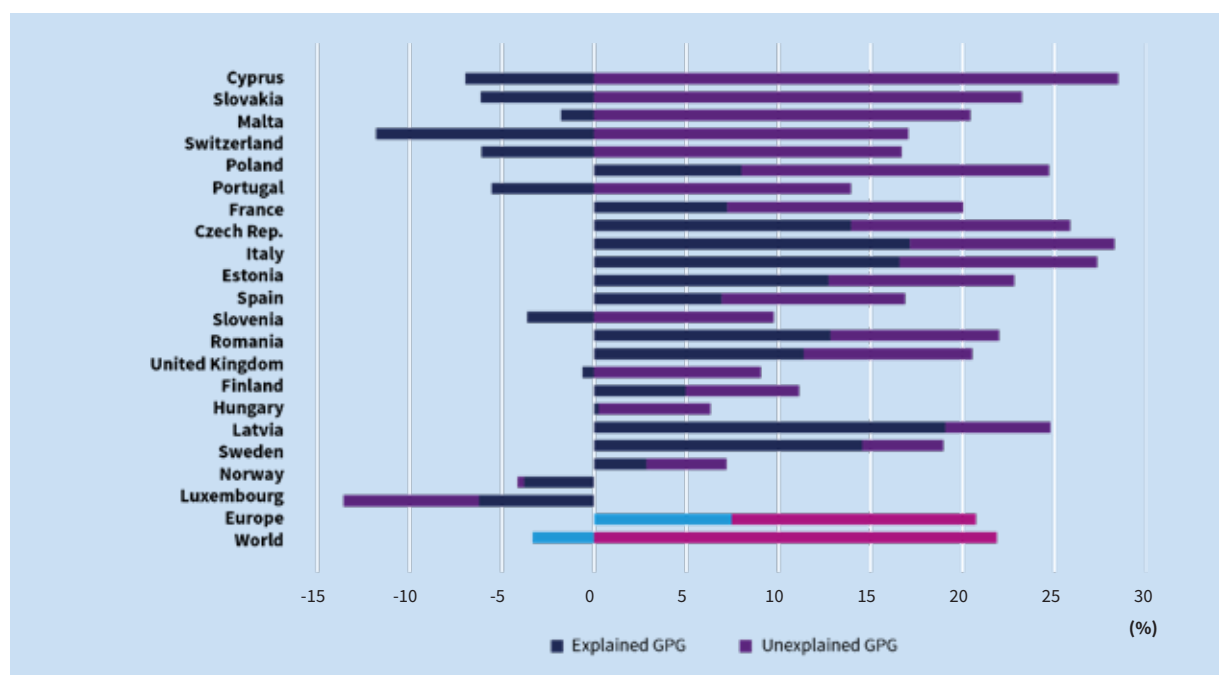


FIG. 5.2 CONT.

South-East Asia and Western Pacific



Europe



Source: ILO, WHO estimates based on survey data provided by national surveys (see Annex 1). See Annex 2 for more details in the method to decompose the gender pay gap between explained and unexplained components.

5.2 Full decomposition: isolating the contribution from age and occupational category in the explained part of the gender pay gap in the health and care sector

This section goes a step further than the econometric techniques used in Section 5.1, which decomposed

the gender pay gap in two parts (explained and unexplained), by further applying regression analysis. In it, we add an unconditional quantile regression to estimate how much each of the factors in Table 5.1 – when available at country level – contribute to the explained part of the gender pay gap at each quantile and for each country. Box 6 therefore complements Box 5 by describing further details on this fourth

step, and Annex 2 explains how the method of unconditional quantile regression works in practice.

Several factors that can vary among countries are included in the regression specification that models wage determination. However, the analysis in this section focuses on two factors that stood out when describing differences in characteristics between women and men across the wage distribution (see Figs 4.2 to 4.7). These two factors are: “occupational categories”; and “age”, used as a proxy for labour market experience. Each figure in this section will display the contributions to the explained part of the gender pay gap as a result of differences between women and men in “occupational categories”, in “age”, and in “other factors”, a category that gathers together the contributions to the explained part of the gender pay gap from all other factors that were entered in the regression specification at country level. For example, in the case of European countries (except Turkey and Switzerland) “other factors” includes working time modality, contractual conditions, institutional sector, the type of collective pay agreement applied at the enterprise, the size of the enterprise, and the geographical location of the enterprise. While in each of the 54 countries the configuration of factors differs according to data availability, all countries include the following common factors: age, education, occupational category, working time modality, and institutional sector (see Table 5.1).

Fig. 5.3 shows the detailed decomposition for 20 of the 43 countries for which this decomposition is possible.³⁸ In each case, and at each quantile, the unexplained part is identical to that displayed in Fig. 5.1. Likewise, by quantile and country, the explained part in Fig. 5.1 is identical to the sum of the three components behind the explained part (age, education, and other factors) displayed in Fig. 5.3. To demonstrate this, let’s take one example: the fourth quantile in Canada (Q4/CAN). Fig. 5.1 shows that in aggregate the explained part of the gender pay gap at Q4/CAN negative (in fact, it is minus 6%), indicating that much of the gender pay gap in hourly wages in that quantile (about 4%) is unexplained by labour market factors. The further decomposition of Q4/CAN shown in Fig. 5.3 reveals that, far from not

playing a role, the explanatory factors interact to determine the gender pay gap at Q4/CAN.

The decomposition shows that the explained part (equal to minus 6%) is determined by a positive impact from the difference in age between women and men at that quantile (+29%), a negative impact from the difference in occupational categories between women and men at that quantile (-21%), and a negative impact from the difference in “all other factors” between women and men at that quantile (-14%). Thus, the decomposition helps us to understand that, in the fourth quantile in Canada’s health sector, some of the wage gap could be explained because the men are older than the women (and therefore are likely to have more experience); the women have jobs at higher occupational categories (that would imply they should get paid at higher quantiles), and women seem to be equipped with “other factors” for which men are also better rewarded at higher quantiles – in the case of Canada, “other factors” includes education, working time, institutional sector, contractual arrangement, geographic location and migration status.

Although the three factors eliminate each other to leave a negative effect of the explanatory part at Q4/CAN, the decomposition has some lessons for policy evaluation: at this quantile, the estimates show that men may have accumulated more experience than women (perhaps because similarly qualified women had to leave the labour market intermittently, e.g. to care for young children) but women seem better qualified than men at that quantile even if they are younger; this would explain their higher occupational categories. Thus, as long as these younger women can retain their position in the labour market and accumulate experience – if, for example, care facilities were provided when needed to help them attain a work-life balance equal to that of similarly qualified men – some of the explained pay gap observed as result of age difference with respect to men in the same quantile will vanish with time.³⁹

Clearly, this single report does not have room to provide such an analysis of each quantile for each country in Fig. 5.3. However, clear patterns

³⁸ As previously noted, once wage workers in the health care sector are selected (leaving aside other economic sectors), only 43 of the 54 countries have a sample size sufficiently large to carry out a more detailed decomposition. As far as possible, we continue to present the countries illustrated in previous figures. Estimates for the remaining countries not illustrated in the report are available on request.

³⁹ The analysis can be further detailed as desired, and for each quantile we can review the “weight” that each factor has in contributing to the explained part of the gender pay gap. For example, in the case of the United States (US), where race is an identified factor in the survey, Q4/US the composition of “other factors” includes the contribution to the gender pay gap of the premium that white men and women received in relation to “other non-white” workers in the health sector in the United States. The analysis reveals that at Q4/US white men obtain a wage premium relative to non-white men of 5.5%, all other things being equal. In the case of white women, the premium at Q4/US is 1.2%. However, men who are counterfactual to women in Q4 would obtain a premium of 5.1%. At the same time, there are more white women than white men in Q4/US (58% and 44%, respectively), and together this contributes to the observed -11.5%, which reduces the explanatory component of the gender pay gap at Q4/US. In other words, the fact that non-white women are paid less than white women for similar labour market endowments, i.e. the existence of an unexplained racial pay gap that benefits white workers, contributes to reducing the explained gap between women and men at the fourth quantile of the United States hourly wage distribution in the health sector, because there are more women than men at that quantile.

emerge from the charts. First, for all countries – and particularly at the low end of the wage distribution (Q1 to Q5) – the “occupational category” component is negative. That is, from the bottom up to the middle of the wage distribution, it seems that women are better qualified than men who share the same quantile. If these women were to be paid for their occupational category the same as men, they would move to higher quantiles and the gender pay gap would decline; examples of this pattern include Argentina, Bangladesh, Belgium, Canada, Egypt, Jordan and South Africa. In several countries it is also clear that at the top quantiles women are paid less for their occupational categories than men; they are simply paid less for the same occupational category compared with men in the same quantile in, for example, Argentina, Bangladesh, Belgium, Canada, Colombia, Jordan, the Philippines and Thailand. France, Italy and the United States are the only three countries where a higher occupational category explains a higher wage for men vis-à-vis women at the top quantiles.

The variable “age” appears as a strong factor that seems to objectively explain why women are paid less than men within a given quantile. In general, and holding other factors constant, older wage workers of any gender are paid more than younger workers in the health sector, and within quantiles there seems to be a tendency for men to be older than women in almost all countries. Thus, comparing women and men with a similar mix of labour market factors, men are older (i.e. have accumulated more experience) and this explains some of the observed pay gap. However, this pattern is not true for some countries at the bottom of the wage distribution: in the cases of Argentina, Bangladesh, Belgium, Canada, Norway and South Africa, women at the bottom quantile seem to be older (have accumulated more experience) than men in the same quantile. In these countries, the fact that women in the labour market are not paid for such attributes as men are paid does contribute to the pay gap at lower end quantiles.

In sum, across the world, men seem to have more experience (i.e. they are older than women) in the health sector, but younger women in the health sector are increasingly taking on jobs with higher occupational categories compared with those held by men in similar quantiles. In the health sector, the better paid jobs are clearly linked to science, technology, engineering and mathematics (STEM) careers – where women are less likely to be represented (OECD, 2019; Stoet & Geary, 2018). However, the evidence in Fig. 5.3 seems to point to a shrinking generational gap between women and men in STEM careers in the health care sector, and this should contribute to reducing the gender pay gap over the next few years.

Another remarkable feature from Fig. 5.3 is that once the “age” and “occupation” factors are isolated, there are several countries (for example, Argentina, Belgium and South Africa) where the impact of “other factors” in the explained component becomes positive, particularly at upper quantiles. This suggests that men have more of the endowments that are better rewarded by the labour market in the health sector, within a given quantile, when compared with women. This includes factors such as: working full time rather than part time; holding a permanent contract rather than a temporary one; being a national rather than a migrant (for Latin America, Switzerland and the United States); being white rather than non-white (in the United States), working in an enterprise with some form of collective pay agreement rather than without any type of collective pay agreement (for countries in Europe, except for Switzerland and Turkey where collective pay agreement is in the data); or holding formal employment compared with a wage employment in the informal economy (for countries in Africa, Latin America, South-East Asia and the Western Pacific, except Australia where the indicator “formal” is not identified). Except for the factors related to migration status and race, all these other factors reflect working conditions in the labour market – and could be influenced by policy measures. The fact that these “other factors” create a wage premium for men shows that women are more likely than men to occupy jobs with greater deficits in terms of working conditions – and that a clear consequence is lower wages and remunerations.

Fig. 5.4 provides summaries (by country, region, and globally) of the magnitude of each of the components, having estimated weighted averages across quantiles in a similar way to Fig. 5.2, which summarized the information for the explained and unexplained components. This figure further reinforces conclusions drawn from Fig. 5.3. Thus, in the Africa, Eastern Mediterranean, Americas, South-East Asia and Western Pacific regions, on average, men are older than women wage employees in the health sector, and this explains part of a gap that, nevertheless, remains in most cases unexplained. At the same time, in these five geographic regions, on average, women are classified in occupational categories higher than the occupational categories held by men who share the same quantile: thus, on average, women are underpaid for the occupations they perform, which also explains some of the gender pay gap. In the region of Europe this pattern varies slightly; in all but a few exceptions (Switzerland, Luxembourg) women are underpaid for their age and their occupation when compared with men with similar age and occupational profiles. What is also different in the case of Europe is that men

outpace women in those employment characteristics that are better remunerated by the labour market in the health sector as well as in other sectors in general. This includes a higher probability of men at holding full-time employment, jobs with permanent contracts, or employment in enterprises with collective pay agreements. Putting together these

“other factors” explains 13.3% of the gender pay gap in European countries, although, as in the other regions, once all parts of the gap are put together, the unexplained part of the gender pay gap in Europe (13.4%) still dominates at explaining the difference in hourly wages between women and men in the region.

BOX 6

Decomposing the gender pay gap: an illustrative explanation

The complete version of the decomposition between explained and unexplained components requires applying a type of regression analysis known as unconditional quantile regression. The application of this regression method produces coefficients (or weights) that quantify how much each attribute (factor) contributes to each of the two parts (explained and unexplained) of the gap (for more detail, see Annex 2). In this report we focus on the full decomposition of the explained part of the gender pay gap at each quantile. Following the logic outlined in Box 5, a positive contribution from a given factor to the explained part implies that, compared with women, men have more of a particular endowment at that quantile. For example, on average men may have more experience (as captured by age) than women at that quantile, so the contribution of age to the explained part is positive. Likewise, a negative contribution from a given endowment to the explained part implies that women have more of that attribute compared with men at that quantile. In this complete version of the decomposition, the unexplained parts remain as they were in the simple decomposition displayed in the charts of Fig. 5.1.

The application of regression analysis leaves behind at each quantile two other components of the gender pay gap that need consideration. One is the so-called “residual” or statistical leftover, which should be fairly small if the model specification captures the wage determination process well. The other component gathers together everything that cannot be explained by either women’s or men’s endowments or characteristics or the returns thereon, at least in so far as these characteristics are observed in the data. In econometrics this is known as the “constant” term. It can cover, for example, the effects on wages of general macroeconomic tendencies, seasonal factors such as weather, and anything else that may affect the wage determination process but is not specific to individuals in the process of production.

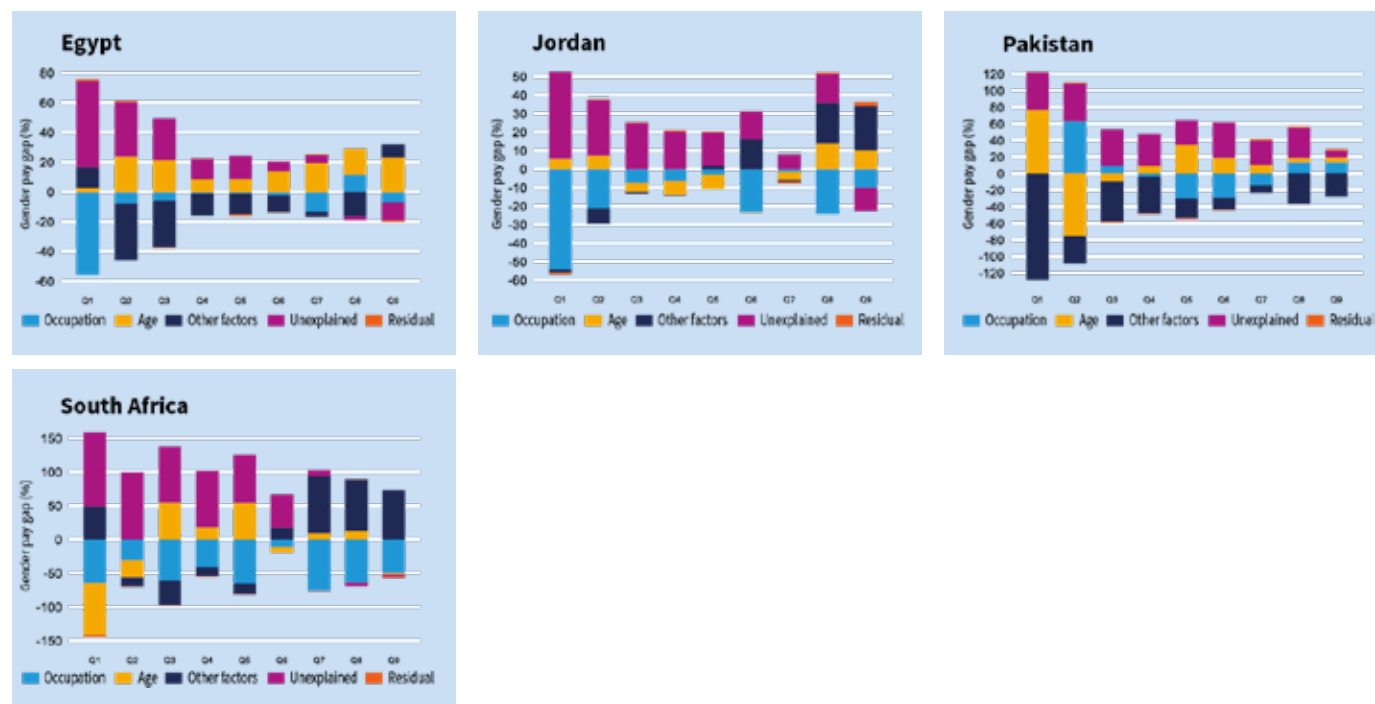
In theory, the estimate of this “unknown” part, which captures the difference between women and men with respect to labour market trends common to all, should be small. For example, there is no reason why, on average, macroeconomic outcomes, weather forecasts, and so on, should have different effects on women’s and men’s wages in the health and care sector or in any other sector. The constant term can, however, pick up on differences that are deeply rooted in society and affect women and men differently, such as gender stereotypes, the value that society places on certain economic sectors and occupational categories, and others. We have elected to interpret the constant as an element that adds, either positively or negatively, to the unexplained part.⁴⁰

⁴⁰ Although the potential effects of omitted variables are not negligible, the indicators in Table 5.1 and related interaction terms should, in practice, provide a fairly complete specification for the data-generating process. What is more worrisome is the fact that many of the variables included in the set are categories that enter as independent indicators in the regression. Econometric techniques require that at least one category of each categorical variable is excluded from a regression, thus complying with the usual requirement of exclusion restrictions for identification. Selecting which category to exclude is an arbitrary choice and, depending on this choice, the coefficient associated with the constant term can have one value or another. This limitation of the interpretation of the constant term in decomposition has been highlighted (see Fortin et al., 2011:41–44). One solution to this problem is to convert each category into two. For example, instead of having four categories for education and excluding one arbitrarily, we create a binary outcome that sets “less than secondary” against “high school and above”, and then use one of the two as the reference. This controls for some of the effects of arbitrarily excluding a category, but weakens the explanatory power of the indicators included in pursuit of estimating the weights. One way to control for possible effects on the constant is to always exclude those categories that apply more to one gender. Thus, for all countries and all the decompositions we used the following exclusions: older age group; semi-/low-skilled category; working in the private sector; working full time rather than part time; working in larger enterprises; and working with a permanent contract. Since all these exclusions are potentially closer to defining a man rather than a woman in the labour market in the health and care sector, the exclusion restrictions are not arbitrarily selected but are related to the condition of being a woman or man in the labour market.

FIG. 5.3

Decomposition of the gender pay gap, isolating the explanatory effect of occupational categories and age, selected countries, latest years

Africa and Eastern Mediterranean



Americas

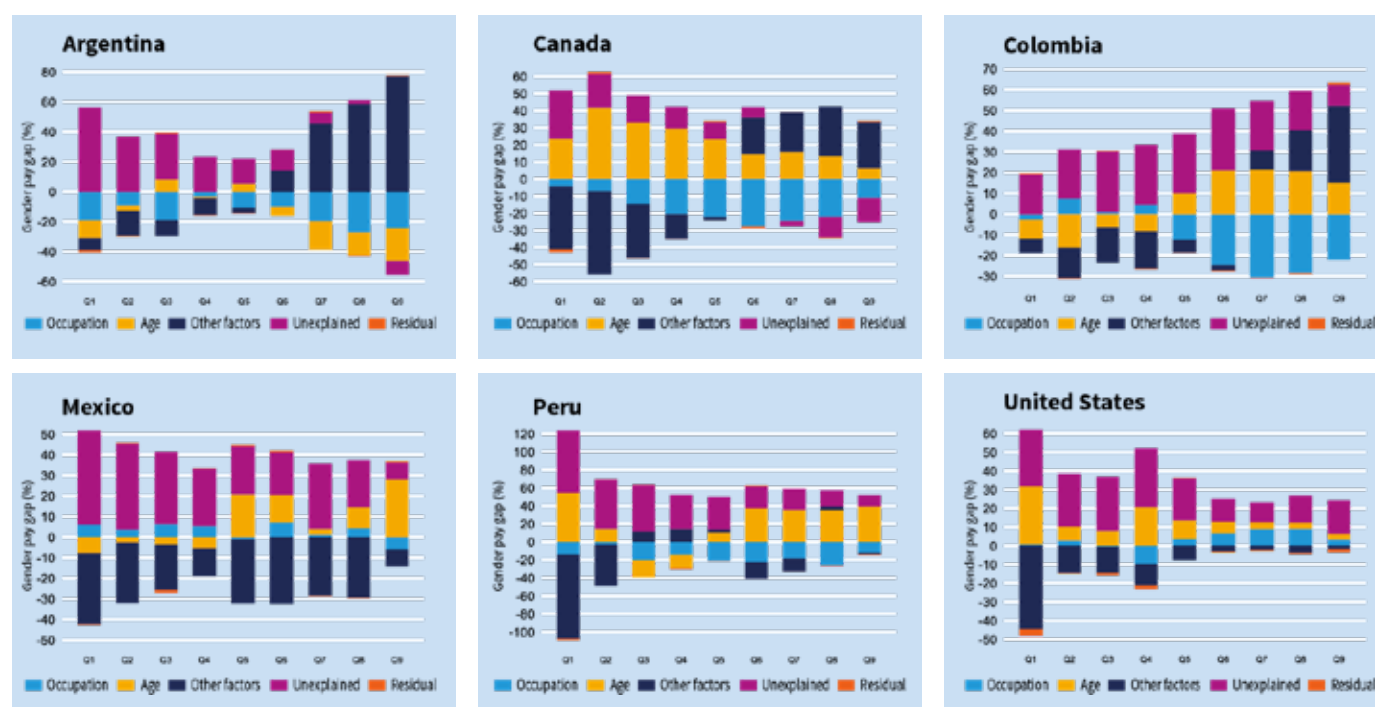
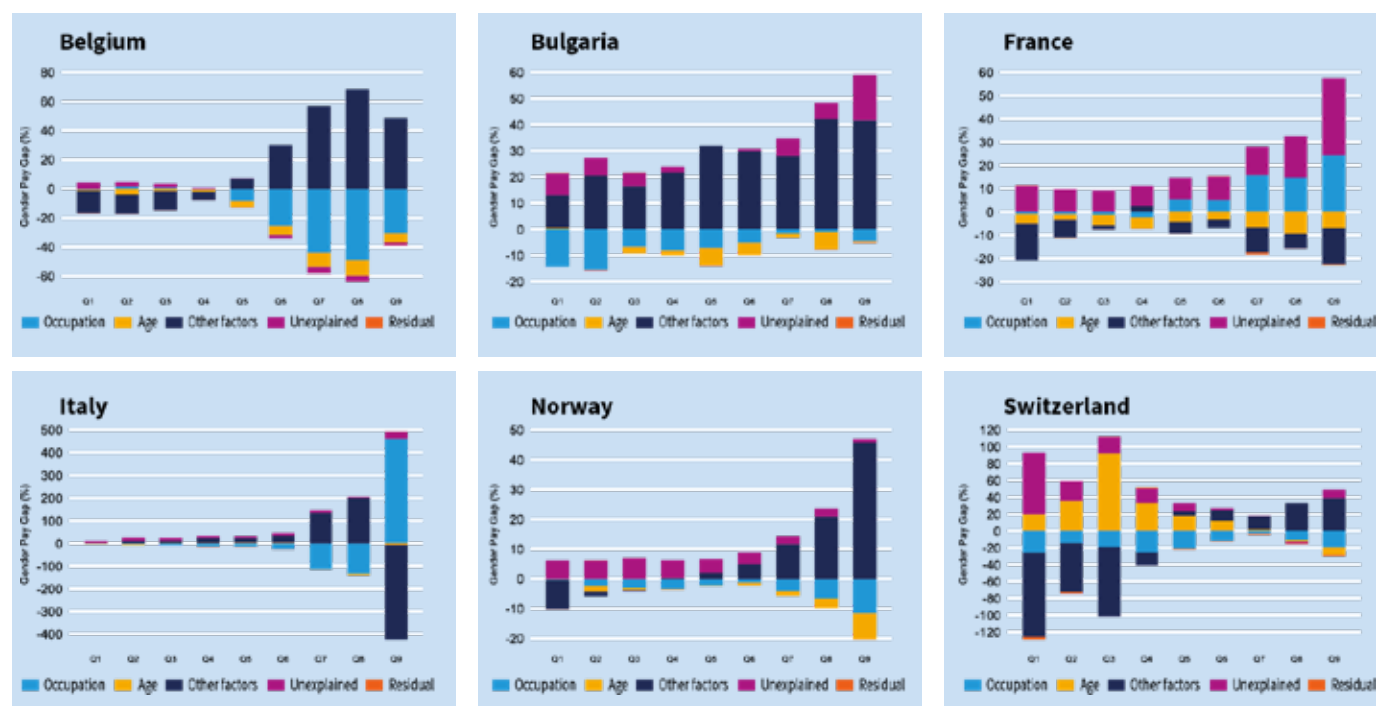


FIG. 5.3 CONT.

Europe



South-East Asia and Western Pacific

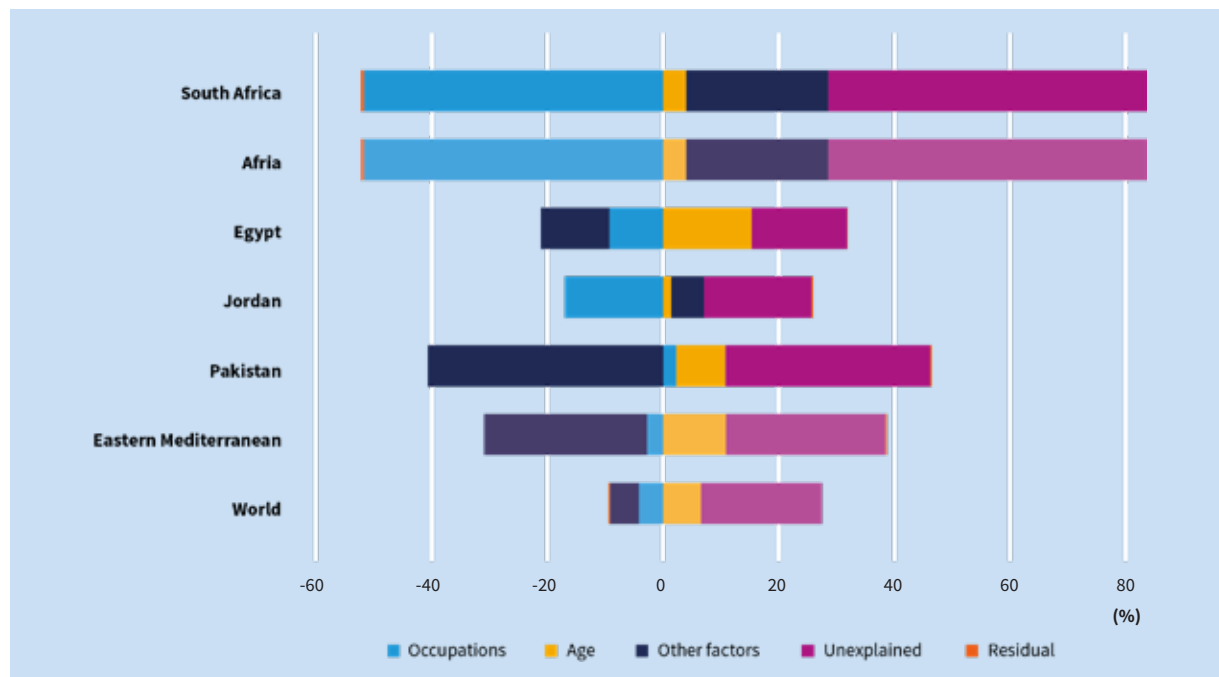


Source: ILO, WHO estimates based on survey data provided by national surveys (see Annex 1). See Annex 2 for more details on the method used to decompose the gender pay gap between the different explained components and the unexplained part.

FIG. 5.4

Weighted average of the explained and unexplained parts of the gender pay gap shown in Fig. 5.1, by region, latest years

Africa and Eastern Mediterranean

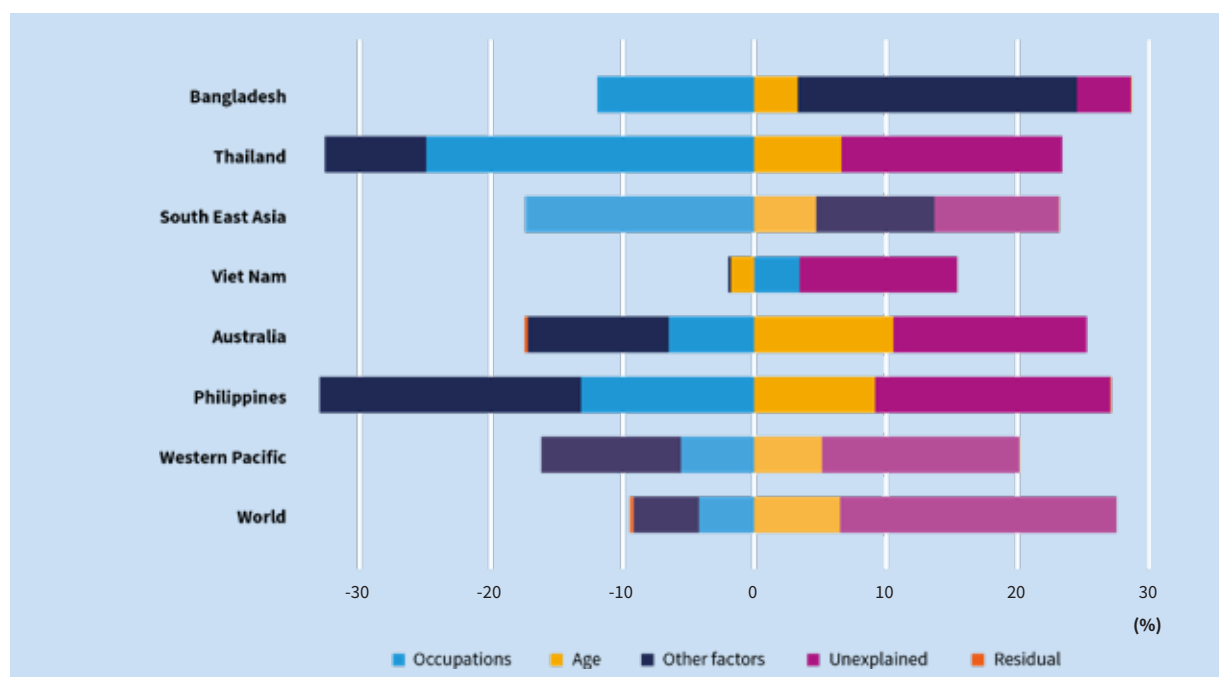


Americas



FIG. 5.4 CONT.

South-East Asia and Western Pacific



Europe



Source: ILO, WHO estimates based on survey data provided by national surveys (see Annex 1). See Annex 2 for more details on the method to decompose the gender pay gap between the different explained components and the unexplained part.

5.3 What lies behind the unexplained part of the gender pay gap?

The analysis in sections 5.1 and 5.2 suggest that **much of the gender pay gap across quantiles and across countries remains unexplained.** In fact, considering the 54 countries in our data, the estimates suggest that globally the unexplained part of the gender pay gap in the health and care sector is +22% and the explained part is -3.5%.

Literature that explores why women are paid less than men for no apparent reason (see Grimshaw & Rubery, 2015; or ILO, 2018a: Part II) highlights the important role played by conscious or unconscious discrimination in pay against women in relation to men for the same work or work of equal value. There are, however, two important factors that contribute to the gender pay gap and can be identified and isolated using survey data which can also be considered part of the discrimination that women face in the labour market. One is the so-called “motherhood gap” and the second is that of the lower wages paid on average in highly feminized sectors. We now provide empirical evidence for these two phenomena in the health and care sector. The motherhood gap and lower pay associated with highly feminized sectors and occupations both contribute to pay discrimination between women and men in the economy as a whole and thus to the unexplained part of the gender pay gap that cannot be objectively explained by differences in the abilities of men and women to contribute productively in paid work.

5.3.1 The motherhood gap in the health sector

The “motherhood gap” is defined as the pay gap between mothers and non-mothers holding all other factors constant. Despite difficulties with capturing this phenomenon using survey data (see ILO, 2018a: Box 7), many studies show that mothers appear to suffer a wage penalty while fathers seem to be rewarded with a wage premium (Blau & Kahn, 2003; Meurs et al., 2010). Lower wages for mothers may be related to a host of factors, including the time constraints mothers face compared with non-mothers, which may explain why in general many more women than men have part-time jobs.

To what extent does the motherhood gap play a role in the determination of the gender pay gap in the health sector? Although most datasets provide ambiguous information with regard to the motherhood or fatherhood status of individuals, one way to see how parenthood impacts the labour

market outcomes of women and men is to look at work-life balance effects in general across age cohorts.

Fig. 5.5 shows the hourly wage gender pay gap across age cohorts in the health sector. The same figure shows, for each age group, the proportion of full-time workers, distinguishing between women and men. This figure shows all 54 countries. The first thing to notice from Fig. 5.5 is that part-time employment is not a common practice in the health and care sector (see also Fig. 4.6). Thus, for almost all countries (except a few in Europe, such as Belgium, the Netherlands and Switzerland) the proportion of full-time workers across age cohorts is about 70% or higher for both women and men.⁴¹ In particular, we observe that in African and Eastern Mediterranean countries and in several examples from Asia (Sri Lanka, Thailand, the Philippines and Viet Nam), the proportion of part-time workers, either women or men, is close to zero. On the other hand, in many countries or geographic regions where part-time employment is a generally well-established working modality – in Europe, Australia and Canada, and in some countries in Latin America – the incidence of part-time employment among women in the health sector is higher than that of men across age cohorts. Thus, considering the Americas, Europe and Asia – and excluding the African and Eastern Mediterranean regions where part-time employment is almost non-existent – we observe that part-time employment across age cohorts is consistently higher for women compared with men in 29 of the 47 countries, similar between women and men across cohorts in 16 countries, and only consistently higher among men in two countries (Lithuania and Poland). In many of the 29 countries where women working part time dominates across age cohorts, there is a clear increase in the incidence of part-time employment in the cohorts most associated with child-rearing years (i.e. starting from about 30 years of age). For example, in the case of the United Kingdom, the proportion of women in full-time employment in the health sector in the younger cohort is approximately 70% (and 80% for men) but declines to approximately 57% among women aged between 25–34 (while rising slightly above 80% for the same age groups among men). In Switzerland, women working full time in the health sector declines from approximately 70% among those age 29 or younger to about 40% among those age 35–39; meanwhile the proportion of men aged 35–39 working full time as health care workers in Switzerland is close to 100%. The increase in part-time employment in the health and care sector among women of

⁴¹ The only exception to this rule is at the extremes of the age distribution where younger cohorts might be combining work with further education – thus potentially showing lower incidence of full-time employment – and among older cohorts where the decline in full-time employment is the result of a gradual decline in working time among retiring cohorts.

child-rearing age can be seen in several countries in Fig. 5.5: Australia, Belgium, Canada, Colombia, Costa Rica, Czechia, Dominican Republic, France, Finland, Italy, Latvia, Luxembourg, Malta, Nepal, Nigeria, Namibia, Norway, the Netherlands, Pakistan, Plurinational State of Bolivia, Slovenia, Switzerland, United Kingdom, United States and Uruguay.

Clearly, the facts that a) part-time work is more often higher among women; and b) in many countries the proportion of women part-time workers in the health sector jumps in the age cohorts associated with child-rearing age, indicate that “motherhood” likely has an adverse effect on women’s careers in the health sector. This effect is reflected in the size of the “unexplained” component, as the unexplained component captures that men with a similar mix of labour market attributes (e.g. same occupation, age, and geographic region) are getting higher earnings than women. In part, it may be that men of the same age as women have accumulated more experience – and therefore get higher returns – because women have to either leave the labour market or reduce their working hours in order to balance work with unpaid caregiving for offspring.

Another striking feature of Fig. 5.5 is that for almost all (51 of the 54) countries, the gender pay gap widens gradually as we move from the youngest to older cohorts (some variations in the extremes may be due to sample size effects). The fact is that in many of these countries, the gender pay gap increases significantly at ages when women and men begin having children. For example, in Mexico, the gender pay gap in the health sector among those aged 24 or younger is about 2.5%; this jumps to about 6% among those in the 25–29 age group and reaches 15% among those aged 30–34. In Canada the gender pay gap is negative among health care workers aged under 25, but jumps to about 5%

among those aged 25–29 and reaches almost 28% among those aged 30–34. Similar patterns apply to almost all countries in Europe (except Belgium and Malta) and in countries in other regions in the world, including Jordan, Pakistan, South Africa, Nepal, Viet Nam, and in almost all countries for which we have data in Latin America (except Ecuador and Uruguay).

Why would this hike take place at exactly child-rearing age? Unfortunately, the data cannot identify whether women who are out of the labour market at the time of the survey had previously worked in the health sector. However, if the incidence of part-time work increases among women at around the child-rearing years, it is also likely that many women leave the labour market rather than reducing their working time. Considering that women at the low end of the wage distribution are the ones less likely to be able to afford care services for their children and families, it is more likely that lower paid women leave the labour market at the time of having children. We have seen that the gender pay gap in the health sector becomes steeper at the upper end of the wage distribution, i.e. among higher paid women wage workers in the health and care sector. Thus, if lower paid women leave the labour market when they are having children, and the ones who remain face, on average, a higher gender pay gap, the resultant weighted effect is a jump in the gender pay gap at around the ages of 30–39 – as is observed in Fig. 5.5 for several countries.

The motherhood gap seems to manifest similarly in the health sector as has been observed in the economy as a whole (ILO, 2016). The motherhood effect has an impact on women’s careers, earnings and workforce participation. And the effects are not just short term – it can have relatively long-term consequences for a significant proportion of women.

FIG. 5.5

Age, part-time work, and the gender pay gap, selected countries, latest years

Africa and Eastern Mediterranean

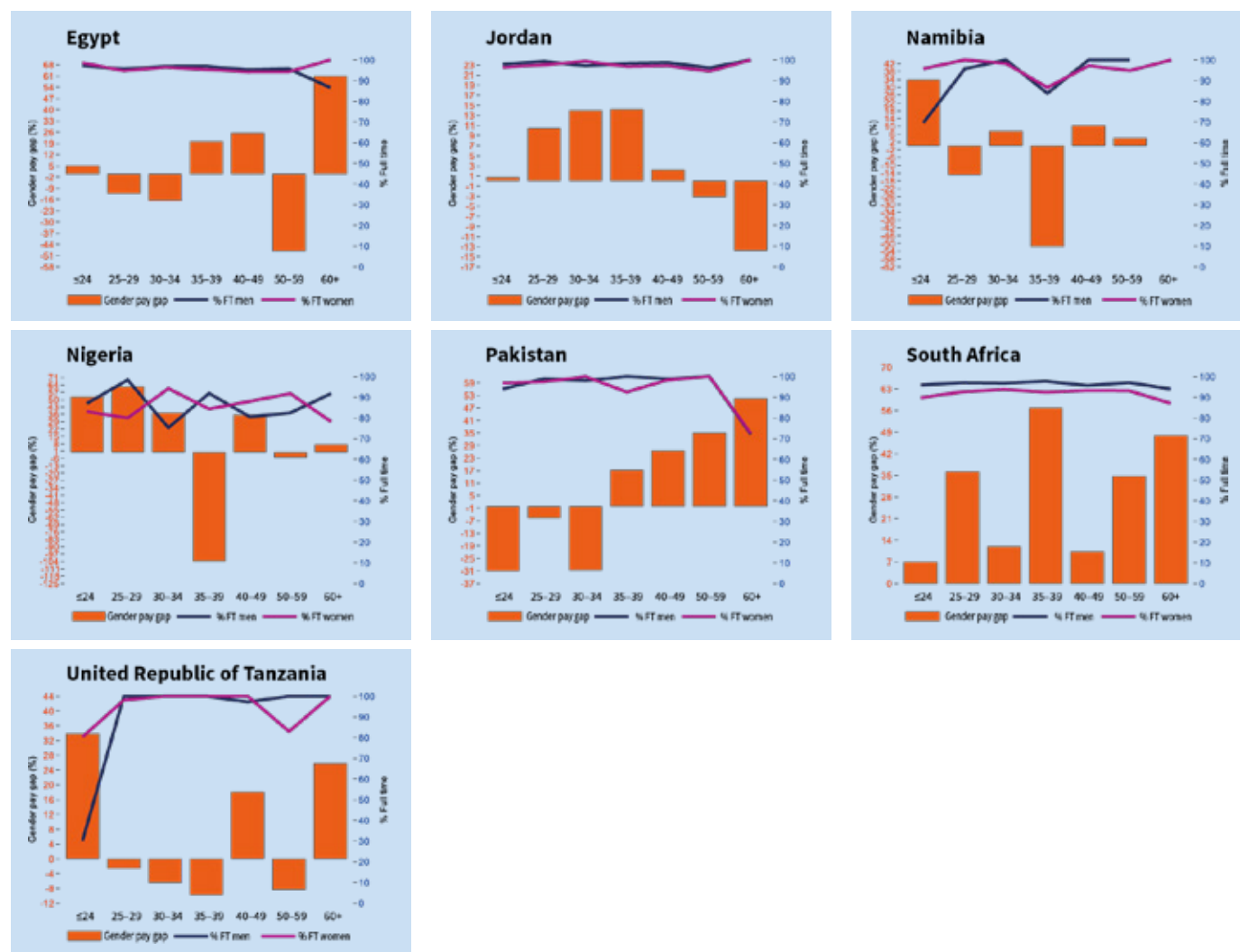


FIG. 5.5 CONT.

Americas



FIG. 5.5 CONT.

Europe



FIG. 5.5 CONT.

Europe

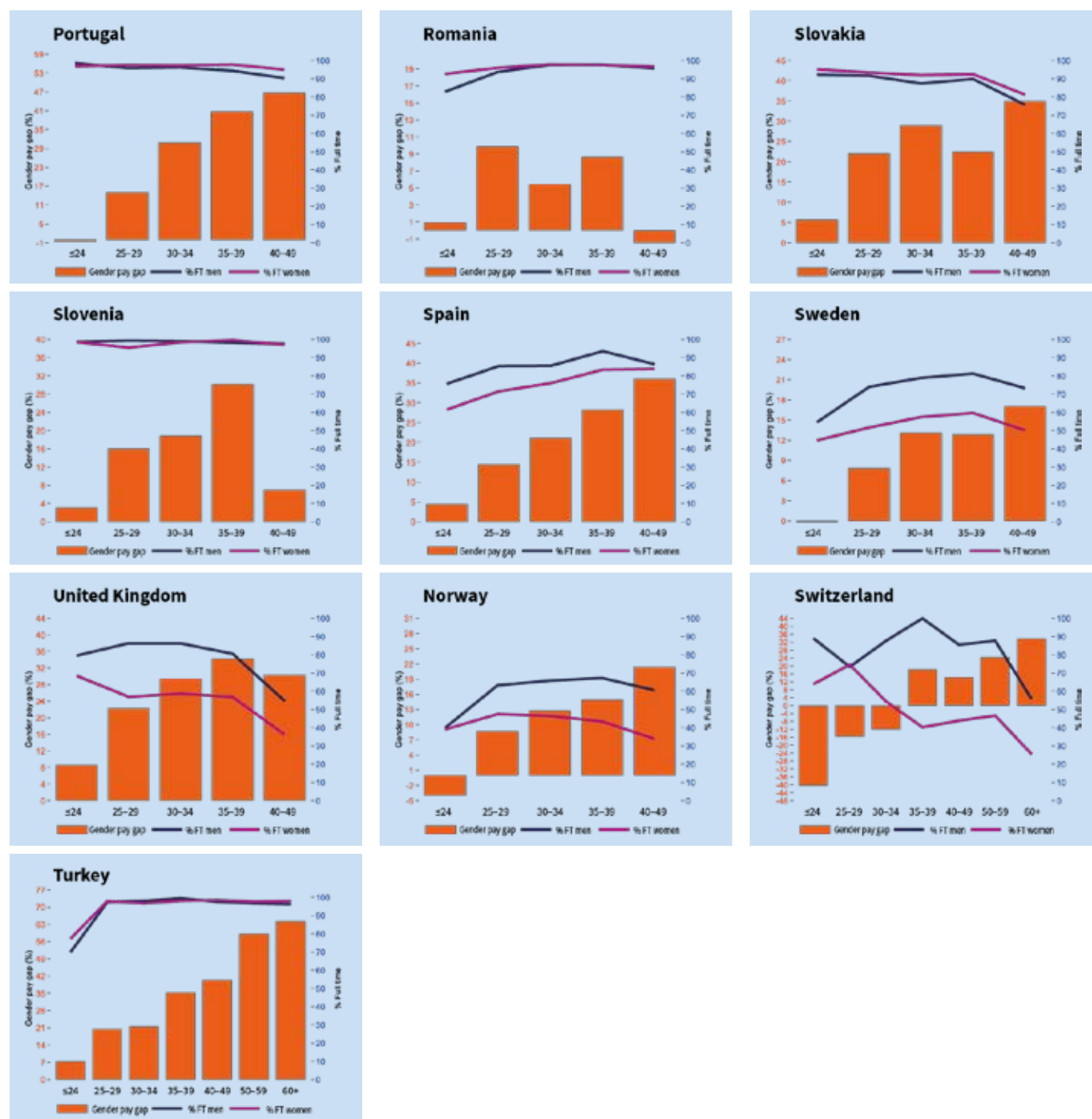
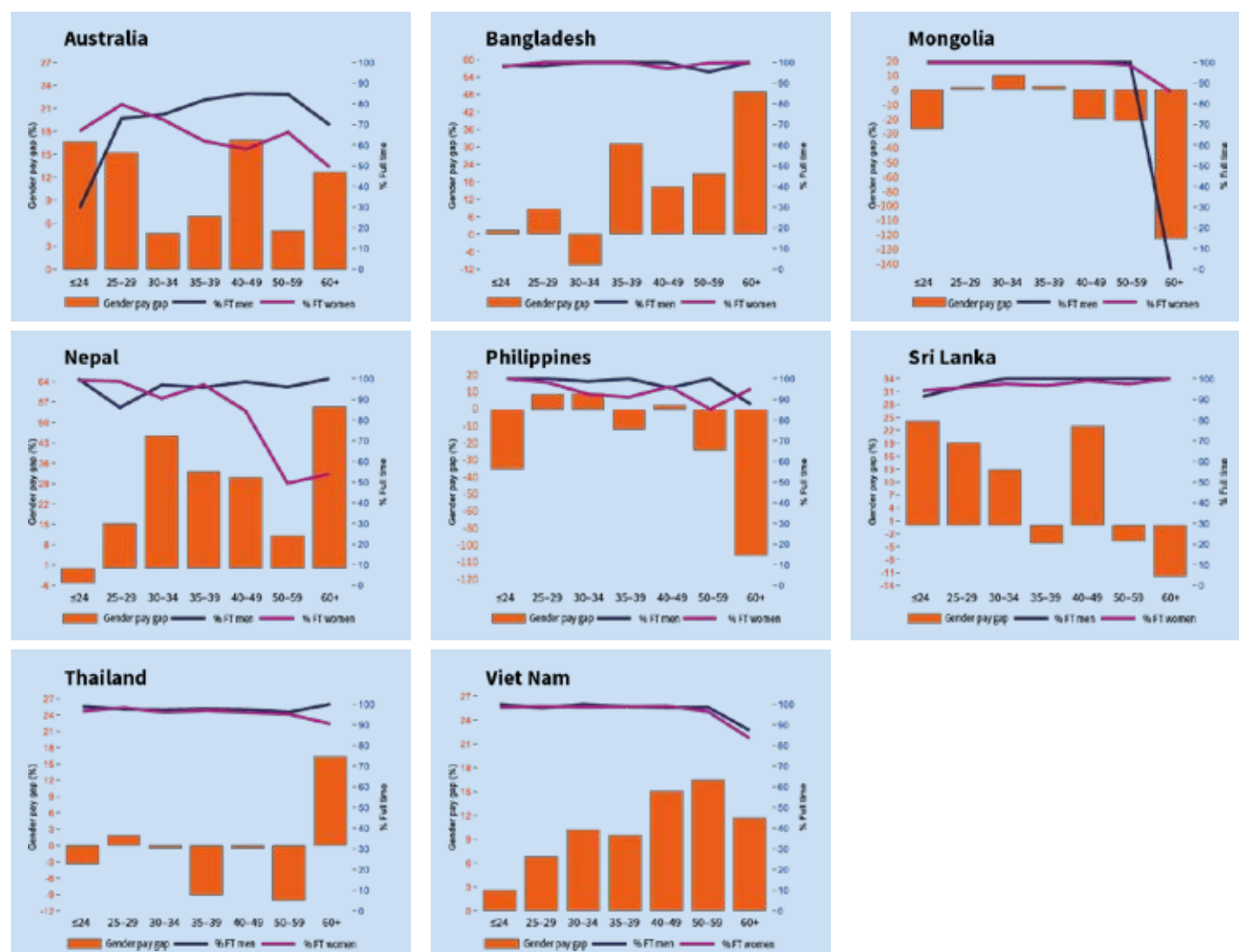


FIG. 5.5 CONT.

South-East Asia and Western Pacific



Source: ILO, WHO estimates based on survey data provided by national surveys (see Annex 1).

5.3.2 The degree of feminization and wages of workers in the health and care sector

There is no question that the health and care sector is a highly feminized sector, a fact that has been clearly illustrated in Sections 2 to 5. At the same time, it has been well documented that the more women are found in a certain job category or sector, the lower the wages for all workers, women and men, in that type of job or sector (Olez et al., 2013). Therefore, it is reasonable to explore the data to determine the extent to which the degree of feminization affects the average wages of workers in the health and care sector.

Fig. 5.6 compares the hourly wages of each occupational category in the health and care sector with the same occupational categories in other sectors, organized by degree of feminization. The scatter diagrams in Fig. 5.6 show the share of men per occupation and economic sector in relation to the average hourly wage by occupation and economic sector. The health and care sector is designated using a different colour (red). Occupational categories (in any sector) are distinguished using symbols: the category of “CEO/managerial” is a circle; the “professional” category is a diamond; the “technical” category is a triangle; the “semi-skilled” category is a square and the “low-skilled” category is a cross.⁴² Occupational categories in the health and care sector are further subdivided to distinguish: those classified as professional health care workers (e.g. medical doctors, advanced nursing) versus those classified as non-health professional workers (e.g. legal or financial professionals in hospitals); technical health care occupations (e.g. nurses, midwives) versus those classified as technical non-health occupations (e.g. lab analysis, accountants); semi-skilled health care (e.g. auxiliary nursing, health care assistants) versus those classified as semi-skilled non-health care (e.g. sales workers in hospital shops, cooks). Within the health sector, the category defined as “low-skilled” does include a distinction between health or non-health workers. Each diagram in Fig. 5.6 shows two dashed lines: the horizontal line shows the average wage in the economy and the vertical line shows the average number of men wage employees in the economy. These two dashed lines divide each chart into four quadrants such that, for example, in the southwest quadrant we find highly feminized occupational categories that receive lower than average hourly wages.

Our overall conclusion from Fig. 5.6 is that, irrespective of the occupational category, the health and care sector generally pays lower wages compared with other economic sectors. For almost all countries the red-coloured symbols appear in the southwest quadrant, where the fraction of women is higher and average pay is lower. At the same time, when a red symbol appears in higher earning locations (the northwest quadrant), comparable occupational categories in other economic sectors appear in even much higher paid locations (e.g. towards the top end of the northeast quadrant).

For example, in the case of the United States, CEO/managers in the health sector are paid, on average, about US\$ 30 per hour, and the blue circles indicating similar occupations in other sectors are located higher up in the wage scale and further to the right (indicating that the proportion of men is higher in other economic sectors). Likewise, professional health care workers in the United States are paid about US\$ 28 per hour; in other economic sectors (excepting two, education and public administration, that are also highly feminized) professional categories are paid, on average, hourly wages of US\$ 29 or above, with some reaching an average of US\$ 38 per hour. Similarly, in Italy, professional health care workers (of whom 70% are women) get about 25 euros per hour, whereas in sectors (again, other than education and public administration) where women account for less than 50% of workers in professional occupations, the average hourly wage is above 27 euros per hour. In some sectors the average hourly wage for professionals in Italy can reach 38 euros per hour (implying an occupational pay gap of 34% between professionals in health care and professionals in other sectors). It is also worth noting that there seems to be very little difference between economic sectors in the hourly wages of low-skilled workers; therefore, feminization does not seem to affect the wages of workers at the low end of the pay scale.

What Fig. 5.6 shows is that the higher the proportion of men in an economic sector and occupation, the higher the average wage received. The fact that the health and care sector is a highly feminized sector implies that on average, workers are getting earnings lower than their counterfactuals (in terms of occupational categories) in other sectors of the economy. This reflects the discrimination that women face in the labour market and is possibly one part of the explanation of the wide unexplained gender wage gaps observed in the health sector illustrated in Figs 5.3 and 5.4.

⁴² See Box 1 for the occupational category definitions used throughout the report, including in Fig. 5.6.

FIG. 5.6

Hourly wages by degree of feminization, sectors and occupations, selected countries, latest years Africa and Eastern Mediterranean

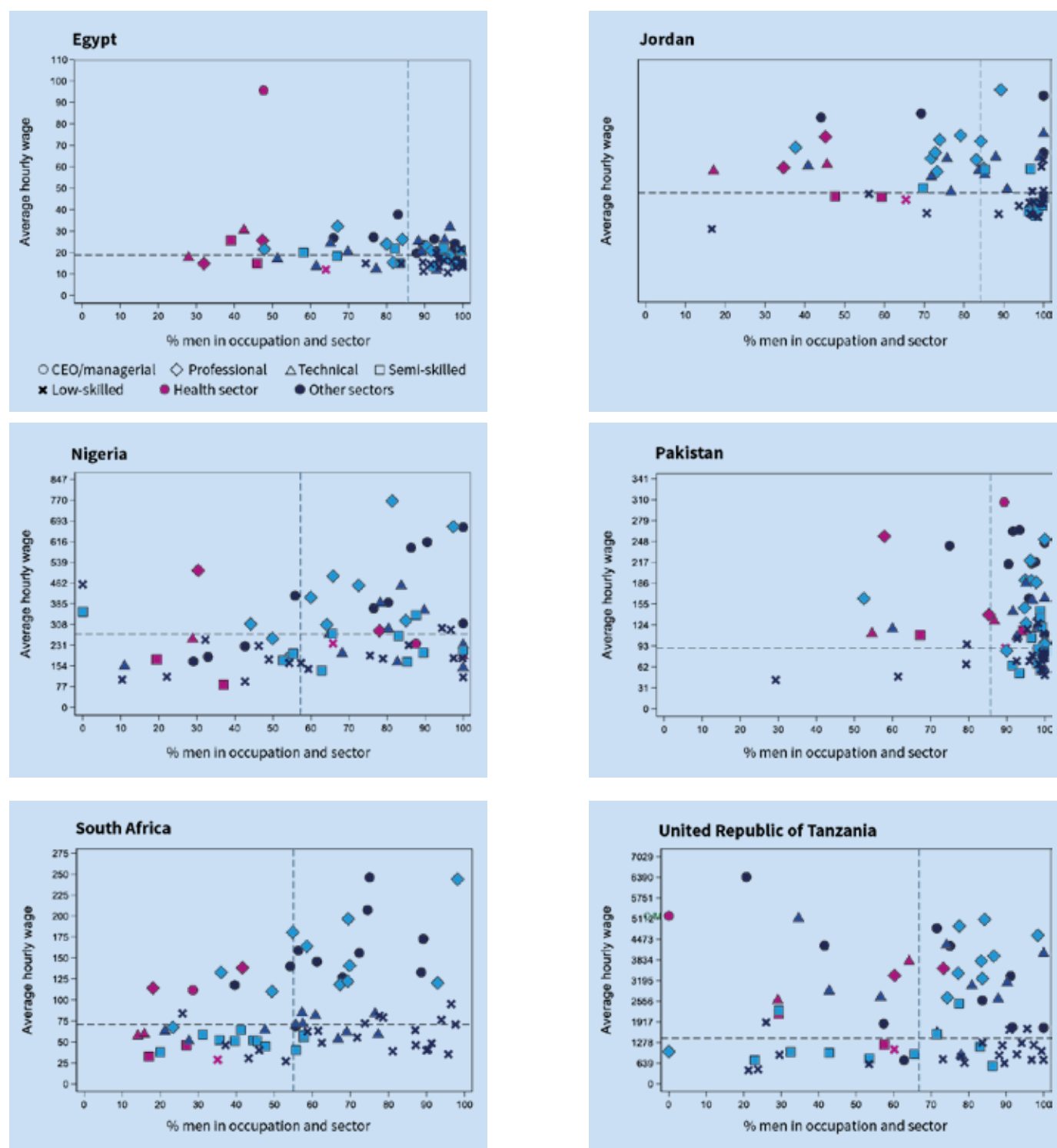


FIG. 5.6 CONT.

Americas

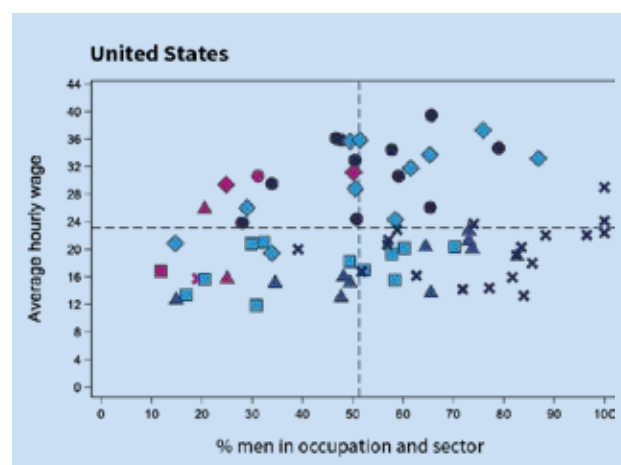
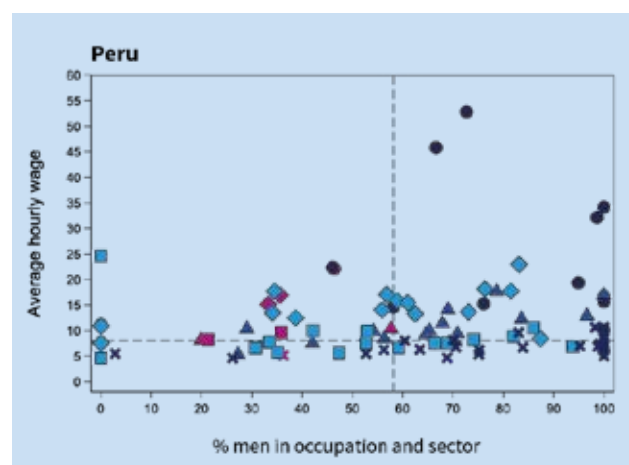
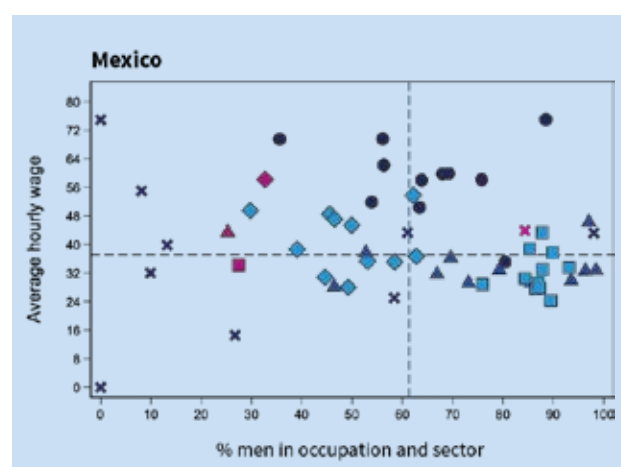
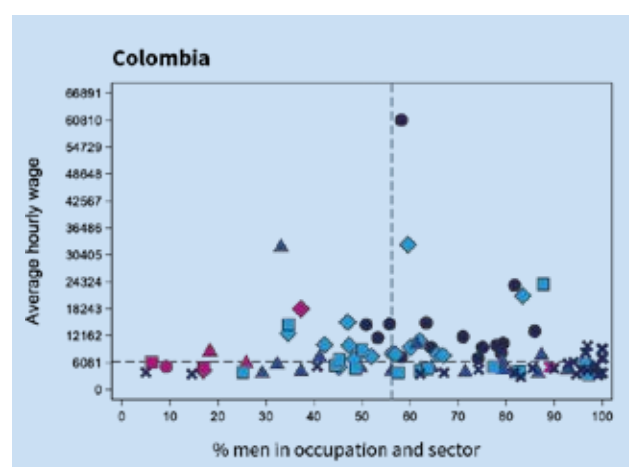
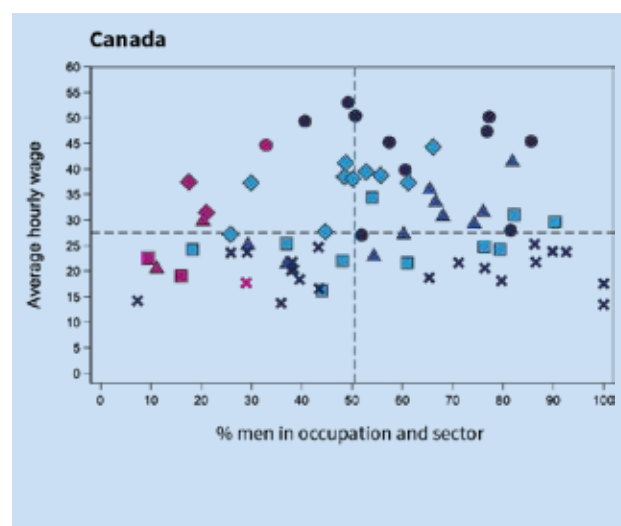
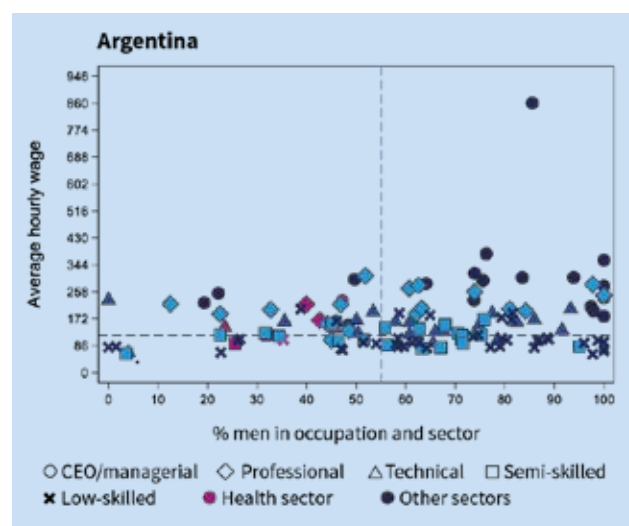


FIG. 5.6 CONT.

Europe

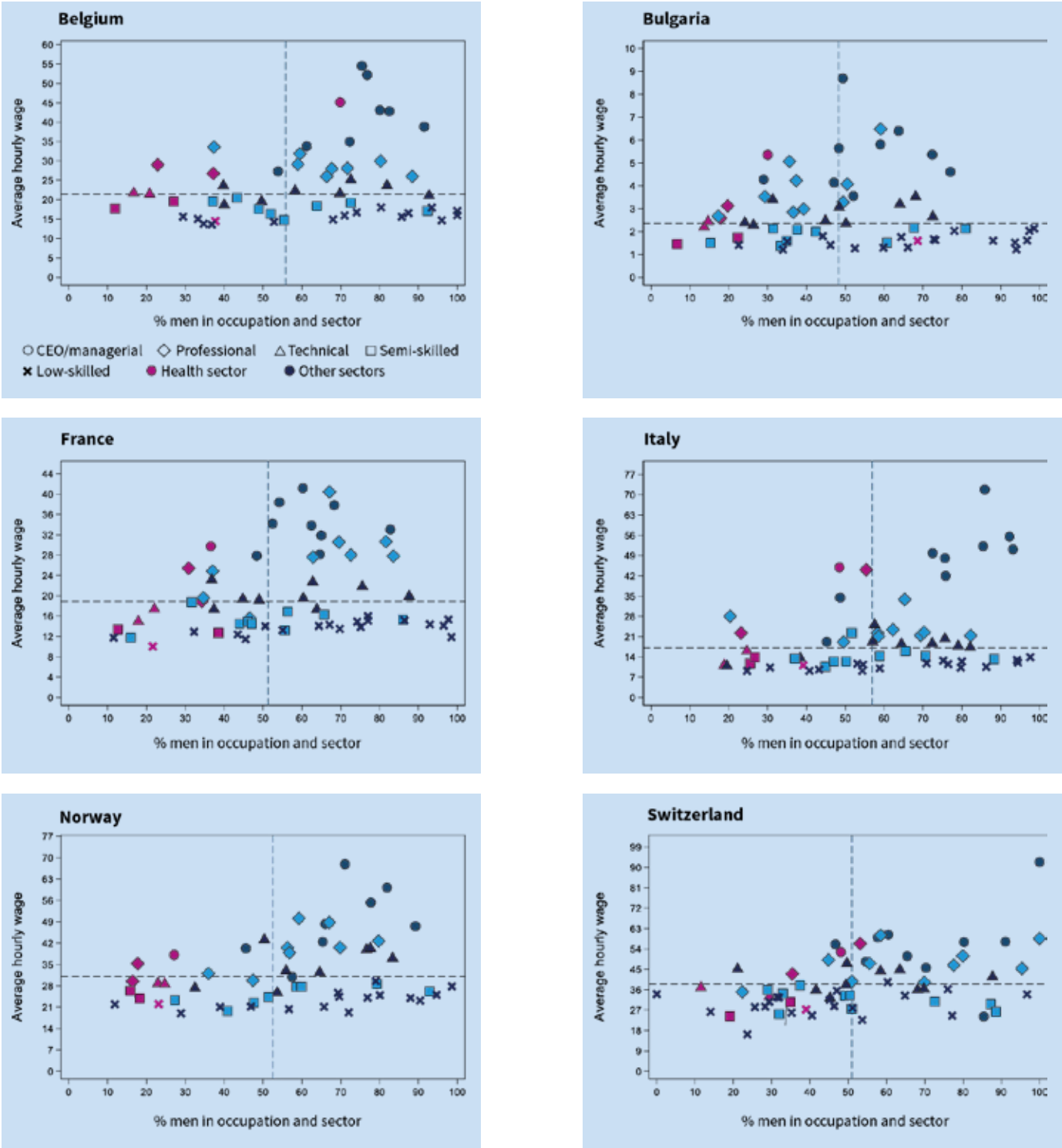
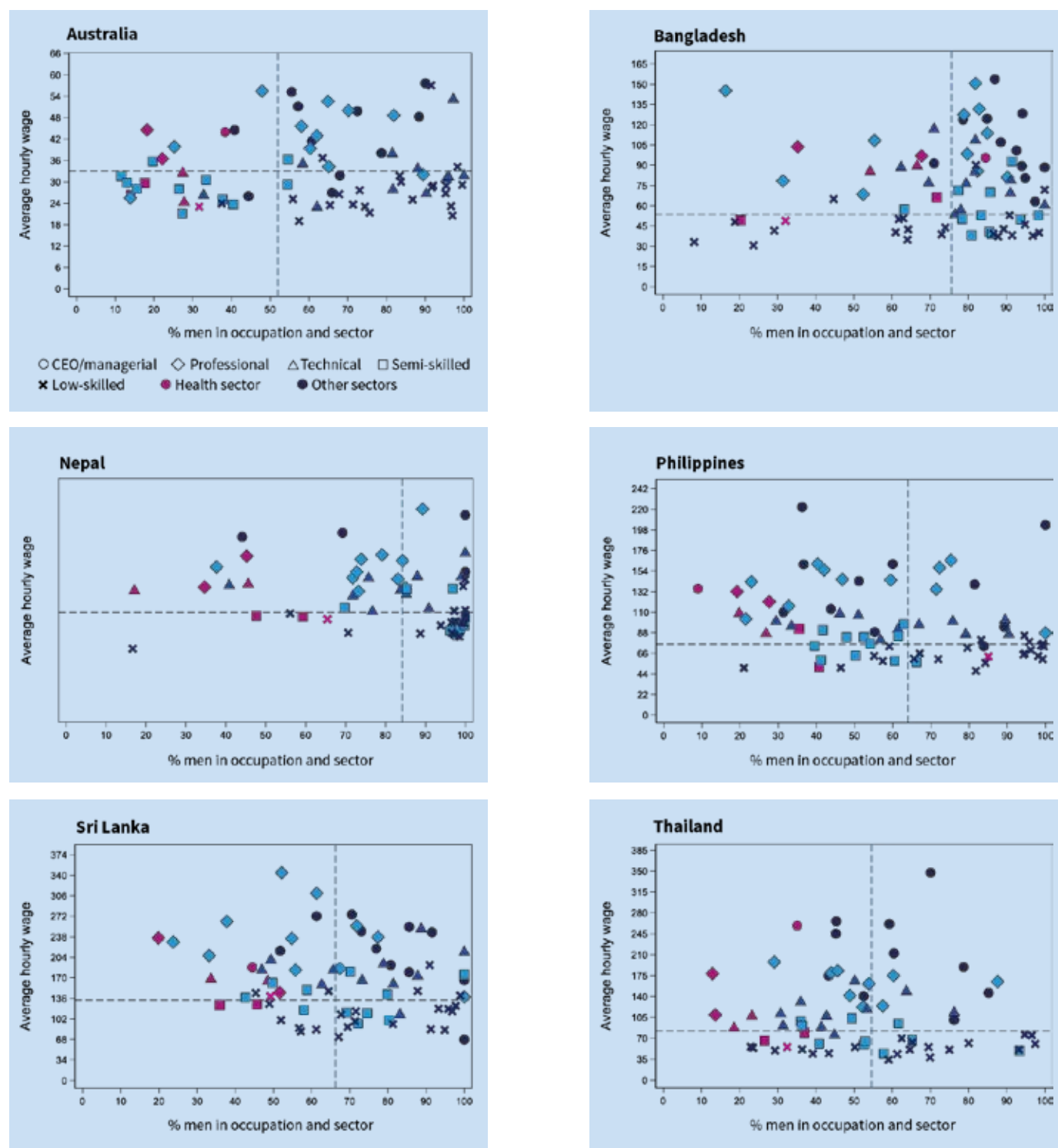


FIG. 5.6 CONT.

South-East Asia and Western Pacific



Source: ILO, WHO estimates based on survey data provided by national surveys (see Annex 1). See Box 1 for definitions of economic sectors and occupational categories.

Employment characteristics and the gender pay gap over time in the health and care sector

Section 6 explores the evolution of the gender pay gap and the extent to which it relates to changes in women's and men's employment characteristics in the health and care sector. To do so we explore available data from (approximately) 2000 to 2019. This period covers a span that should have brought visible changes on gender equality in the world, considering the commitments made and actions taken at national and multilateral level starting towards the end of the 20th century. These included the 1995 Beijing Declaration at the 4th World Conference on Women; increasing awareness of the need for gender equality that emerged in the 1990s in the humanitarian sector – and particularly in the UN family of agencies – when several institutions started “mainstreaming” gender (Holloway et al., 2019); and the foundation of UN Women in 2010. Estimates show that the share of men in the health and care sector workforce has grown during the past two decades, but at a pace that is not sufficient to reduce the significant feminization that characterizes the sector. The estimates provide some evidence of a gradual shift among women to higher occupational categories, although in all countries women continue to be overrepresented in occupational categories associated with nursing and other lower skilled health- and care-related functions. In all, the gender pay gap in the health and care sector has increased over time in some countries, while it has declined or remained relatively static in others.

6.1 The size and characteristics of the health and care workforce over time in selected countries

This section explores the evolution of the gender pay gap over time, starting with employment trends and trends in the characteristics of women and men in the health and care sector; these findings lay the groundwork for a discussion of observed changes in the sector's gender pay gap in Section 6.2. The gender pay gap is a phenomenon that changes slowly, so exploring meaningful changes requires considering a long span of time, which is why estimates in this section explore trends from the beginning of the 21st century up to 2019.⁴³ The two-decade span enables us to capture changes in gender pay gaps; however, this is accomplished at the expense of limiting the number of countries included in the analysis, as many countries do not have regularly collected publicly available survey data for such a long period. Thus, in this section the empirical evidence comes from a restricted set of countries: Canada, Chile, countries in Europe,⁴⁴ Mexico, the Philippines, Thailand, the United States and Uruguay. Thus in this section, the empirical analysis and the narrative cannot present a regional

perspective (as in previous sections) since (except for the case of Europe) there are only a few countries in each region. Instead, the included countries are analysed individually to provide examples of trends in a variety of countries with different contexts and levels of economic development. The estimates show how the outcomes change between two points in time: the early 2000s and about 2019. Annex 3 complements these findings by illustrating yearly trends for a selection of countries. It shows an interesting finding: compared with other sectors in the economy, employment in the health and care sector seems to have responded with more resilience to the global financial crisis of 2008–2010. This resilience seems to be absent at the onset of the COVID-19 crisis in 2020, as will be shown in Section 7.

Fig. 6.1 shows that in the first two decades of the 21st century in the middle-income countries of Mexico, the Philippines and Thailand, employment in the health and care sector grew at a slower rate compared with employment in other economic sectors. In contrast, during the same period, the opposite is true in HIC (particularly in Canada, Europe and the United States), with employment growing at a higher rate in the health and care

⁴³ The timespan covered in this section ends in 2019 to avoid capturing 2020, which was an atypical year due to the COVID-19 pandemic. Section 7 addresses how the COVID-19 crisis may have impacted on the wages of women and men in the health and care sector.

⁴⁴ The data for Europe have been collected every 4 years since 2006. Countries included in the sample: Belgium, Bulgaria, Cyprus, Czechia, Estonia, Finland, France, Hungary, Italy, Latvia, Lithuania, Luxembourg, the Netherlands, Poland, Portugal, Romania, Slovakia, Spain, Sweden, the United Kingdom and Norway. See Annex 1 for more details.

sector compared with other sectors.⁴⁵ This may be due to the fact that employment across all sectors (including industrial sectors and manufacturing) is expanding in LMIC. In HIC the growth rate in the industrial and manufacturing sectors is flatter, while employment expansion occurs mostly in the service sectors, including in the health and care sector, which needs to grow to cater to the expanding ageing population (see Colombo et al., 2011). Fig. 6.1 shows that, except in the Philippines, the employment growth in other sectors has been either equal or higher for women when compared with men. In six of the eight countries (i.e. except in the Philippines and Thailand) the employment growth for women is higher in the health and care sector compared with other sectors. In the case of men, employment growth in the health and care sector is also higher compared with that in other sectors except in Thailand and marginally in the case of Mexico. In the cases of Canada, Mexico, the Philippines and the United States, employment growth among men is equal or higher to that of women. Together these results show that for the economies displayed in Fig. 6.1 the share of men among the workforce in the health and care sector is growing, but at a pace that is not sufficient to counteract the significant degree of feminization that has characterized the sector for decades.

Considering that occupational segregation is an important factor behind the gender pay gap, Fig. 6.2 explores changes in occupational categories across time. One would expect to find that the distribution of women in occupational categories in recent years (as discussed in Sections 3 to 5) has shifted towards higher occupational categories compared with the start of the 21st century. This would follow from the fact that there has been significant improvements in girls' and women's educational achievements over the past 20 years across countries.⁴⁶ **Fig. 6.2 does provide some evidence of a shift among women to higher occupational categories, although in all countries women continue to be overrepresented in occupational categories associated with nursing (technical health functions) or semi-/low-skilled health functions (auxiliary nurses and low-skilled care workers).** For example, in Europe the proportion of women in professional occupations with health functions (e.g. medical

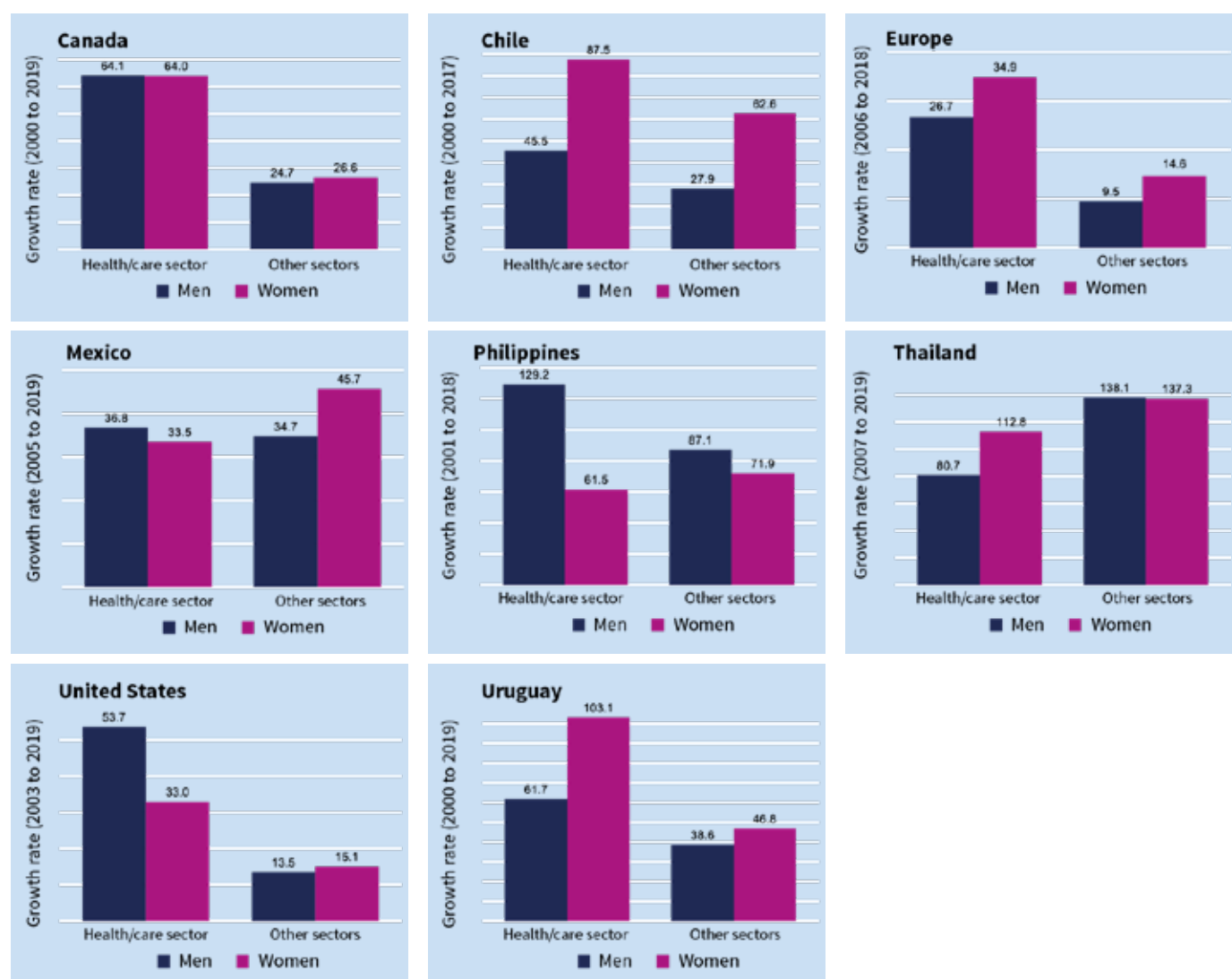
doctor) increased from 10% in 2006 to 23% by 2018. The proportion of women in the technical health functions category (e.g. nurses, laboratory work) declined during the period from approximately 27% to 12%. In Chile there have been 3 and 15 percentage points increases in professional and technical occupations, respectively, among women, while the proportion of women (among women) in semi-/low-skilled occupations (with health and non-health functions) declined by 18 percentage points. In the United States the share of women in professional occupations also increased, from about 28% in 2003 to 40% in 2019 (to reach 28% in health functions and 12% in non-health functions). The share of women in all semi-skilled occupations, meanwhile, declined by about 7 percentage points to reach 25% in health functions and 13% in semi-/low-skilled non-health functions. The Philippines also shows a slight shift of women to higher occupational categories, particularly among professional occupations with health functions (3 percentage points more), technical occupations with health functions (5 percentage points more) and technical occupations without health function (5 percentage points more), while the proportion of women in semi-/low-skilled functions has declined (7 percentage points less). In Thailand a remarkable increase from 3% to 8% is evident among women in the professional categories with non-health functions, although there has also been a notable decline among women with professional occupations in health functions (from 42% to 35%). In Uruguay the proportion of women in professional occupations increased marginally, from 19% in 2000 to 22% in 2019, while the share of women in semi-/low-skilled occupations declined by 3 percentage points, from 59% to 56%. In Canada, although the share of women in professional occupations with health functions declined by 2 percentage points, from 23% to 21%, the share of women in technical occupations with health functions increased from 10% to 13%; and the share of women in semi-/low-skilled occupations declined from 44% to 40%. Taken together, these findings seem to indicate that women are moving gradually into professional occupations while reducing their share in other occupational groups, particularly in semi-/low-skilled health functions.

⁴⁵ In the case of Europe, the estimated growth in the health and care sector cannot be directly checked against official figures. Eurostat provides estimates that aggregate three sectors (public administration, education and health), showing that between 2006 and 2018 they grew by 16%. The data for Europe used in this report, from the Structure of Earnings Survey (SES), were provided by Eurostat and should produce similar results. Differences between Eurostat's findings and the estimates in this report may result from the exclusion of some countries in the report, such as Denmark, Germany or Greece.

⁴⁶ According to recent report by UNESCO, since 1995 the global enrolment rate in education for girls across the world has increased from 73% to 89%, with the biggest improvements seen in sub-Saharan Africa and southern Asia, especially in India. Significant progress has been made in primary education enrolment in 23 countries where, in 1995, fewer than 80 girls attended school for every 100 boys. Likewise, across the world three times more women are now enrolled in universities than in 1995, with particular progress seen in northern Africa and western Asia (UNESCO, 2020).

FIG. 6.1

Employment growth in the health and care sector, 2000s–2018/19, by gender and compared with other economic sectors



Source: ILO, WHO estimates based on survey data provided by national surveys (see Annex 1).

In the case of men, Fig. 6.2 shows that in around 2019, the representation of men (among men) in the professional categories – particularly those with health functions – is still higher than that of women (among women) for all countries included in the figure except the Philippines and Thailand. And except in the cases of Chile, Thailand and Uruguay, the share of men that occupy professional health functions has increased over the past 20 years – notably in Canada (from 15% to 22%) and Mexico (from 58% to 72%). Men in Canada, Chile, the Philippines and Thailand have also increased in share (among men) in the technical occupational category with health functions, while in most cases (excepting the Philippines, Thailand and Uruguay) the share of men in semi-/low-skilled jobs without health functions has declined – significantly, in the cases of Canada (from 30% to 16%) and Chile (from 24% to 19%), and to a lesser extent in Europe (from 22% to 19%) and the United States (from 17% to 13%). Thus, overall, it seems that men, like women, have also shifted towards higher occupational categories in the health and care sector.

Previous sections showed that gender pay gaps are also partly due to differences in age, education, working time modality and institutional sectors. Fig. 6.3 shows how these characteristics have changed over approximately the past 20 years among the same set of countries included in Figs 6.1 and 6.2. **Fig. 6.3 shows there has been a slight shift towards older age cohorts and a decline among younger age groups. This is particularly the case for women, whose incidence increased in the two older age groups.** For example, in 2005 in Mexico women in the age groups 50–59 and 60+ were, respectively, 8% and 2%; in 2019 these percentages had increased to 15% and 5%, respectively. Overall, the movement towards greater incidence in older age cohorts among women (bringing them closer to the incidence of men at each age cohort) shows that women are catching up with men in prevalence by remaining in the labour market longer. Although we do not have specific data on tenure, this situation is likely to increase if we continue to observe the movement of women over time to older age cohorts.

Fig. 6.3 also shows that, for all the included countries, the full-time work modality continues to be the dominant category, compared with part time, and women show a greater representation, compared with men, in the part-time category in all countries and across time. The only region where there has been a slight increase in the incidence of part-time work is Europe, and this has been for both women (from 35% to 37%) and men (from 17% to 20%).

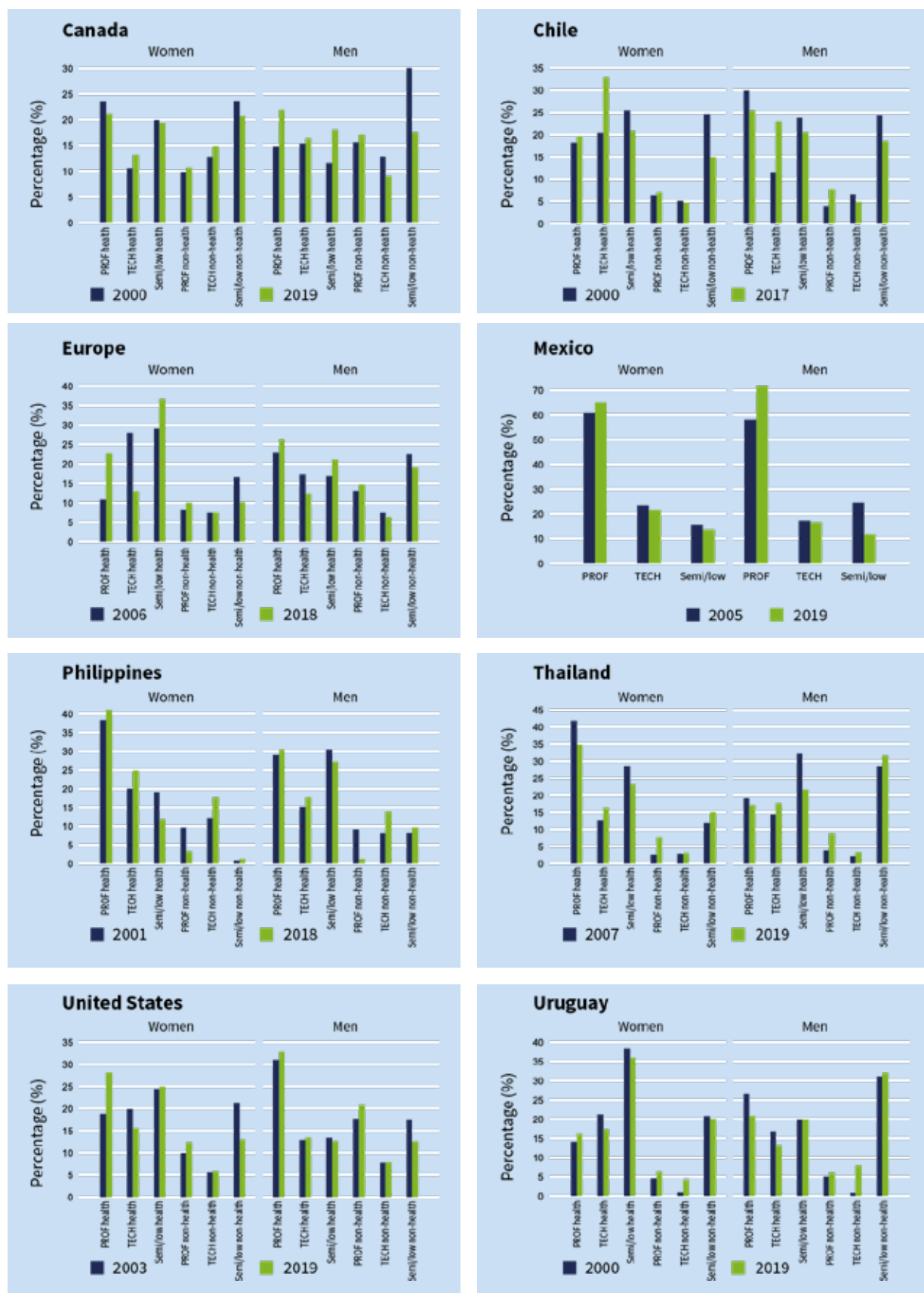
Fig. 6.3 shows that there seems to be a greater proportion of men – compared with women – working in the public sector in Canada, Europe and Mexico; otherwise, for all other countries the proportion of women vis-à-vis men in the private versus public sector is similar. In Canada and Chile the distribution of wage workers between private and public is similar; in the Philippines, the United States and Uruguay the private sector dominates, while in Europe, Mexico and Thailand the public sector employs more wage workers (women and men). The most noticeable changes over time have been the increases in the private sector for Mexico (10% more women and men), the Philippines (18% more women, 20% more men) and Uruguay (12% more women and 5% more men).

Finally, Fig. 6.3 shows that for all countries except Uruguay, there has been a gradual increase in educational attainment among both men and women working in the health and care sector, with more of each gender in the categories of high school/ vocational training (HS/VOC) and university or above (+UNI) as we move from around 2000 towards 2019. It is noticeable that for all countries except Uruguay, the increase in the proportion of workers with university-level education has increased for both men and women. In the cases of Europe and the Philippines the increase for women substantially exceeds that for men: 8 percentage points for women in Europe (compared with 4 percentage points for men) and 21 percentage points among women in the Philippines (compared with 10 percentage points for men).

Overall, the charts in Fig. 6.3 suggest that over time women wage workers in the health and care sector have acquired labour market endowments that are very close to the labour market endowments displayed by men in the sector, particularly in terms of tenure, education and their representation in higher occupational categories.

FIG. 6.2

Employment share by occupational category in the health and care sector, 2000–2007 and 2017–2019, by gender

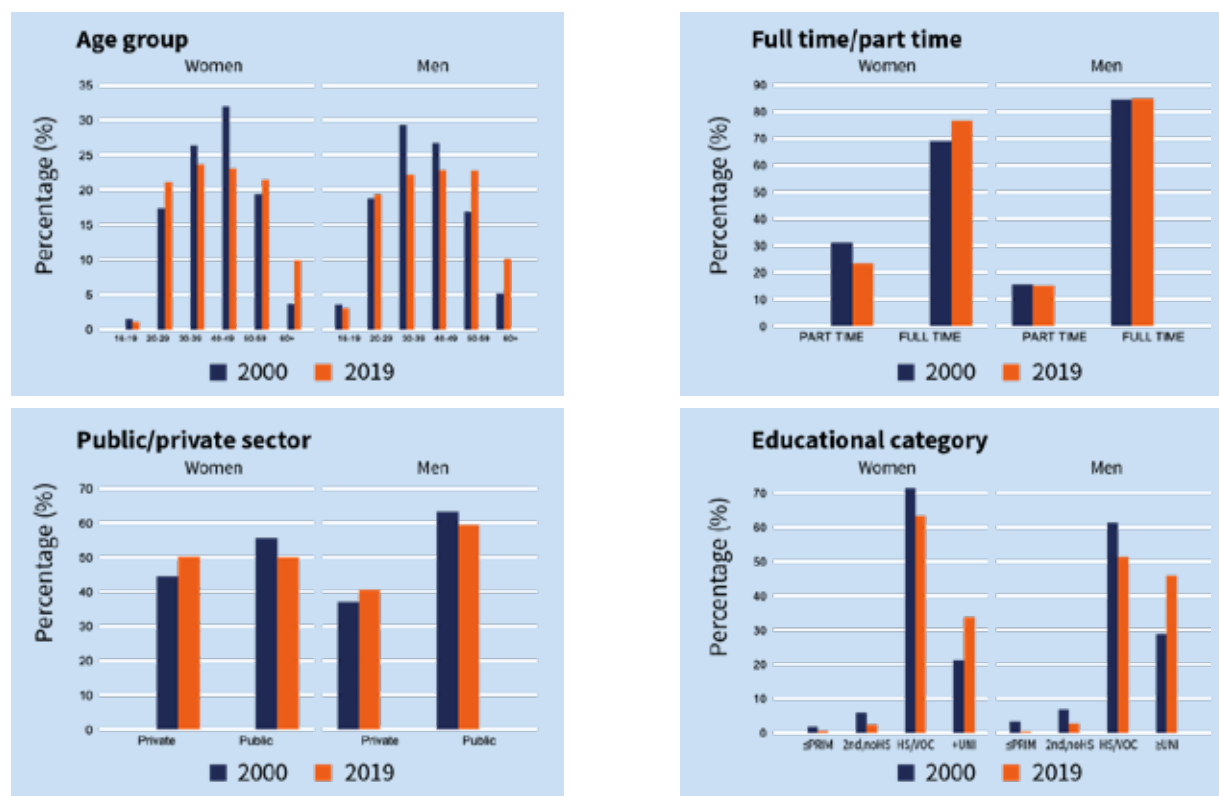


Source: ILO, WHO estimates based on survey data provided by national surveys (see Annex 1).

FIG. 6.3

Share of workers by gender, by age and other characteristics, in the health and care sector, selected countries, 2000–2007 and 2017–2019

Canada



Chile

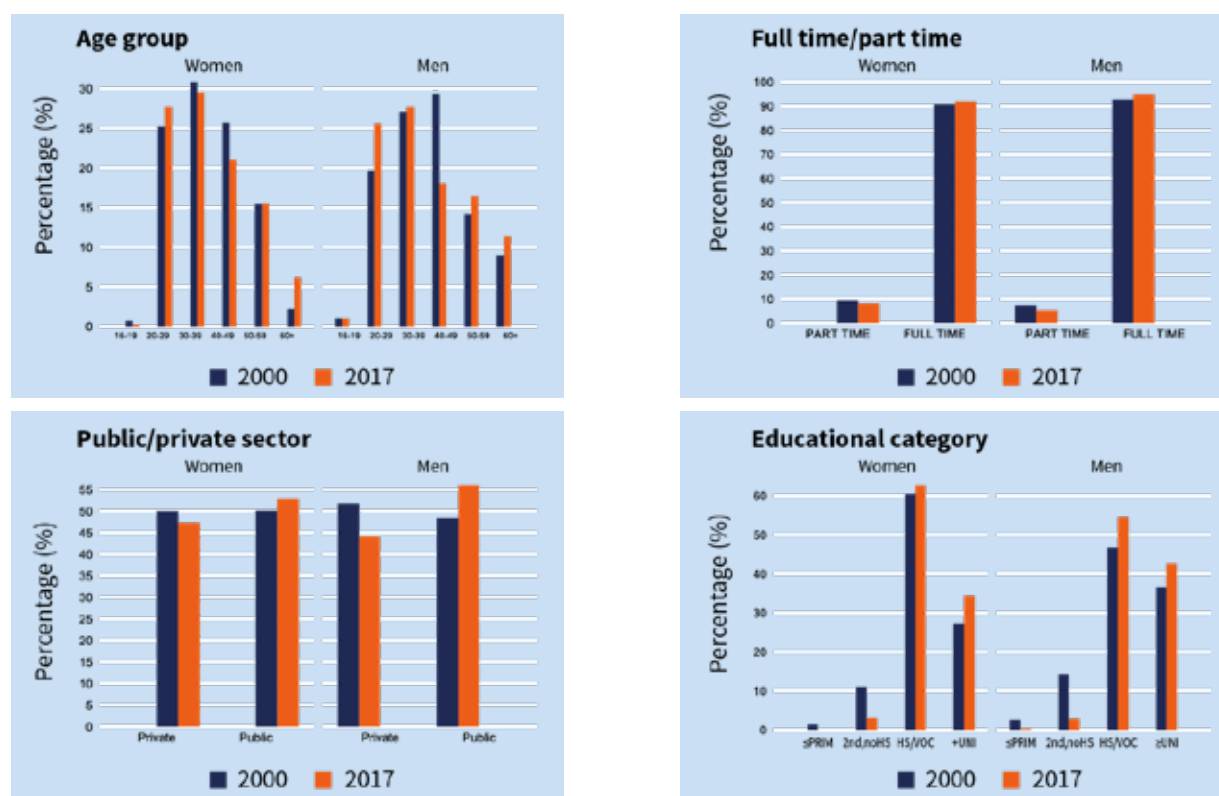
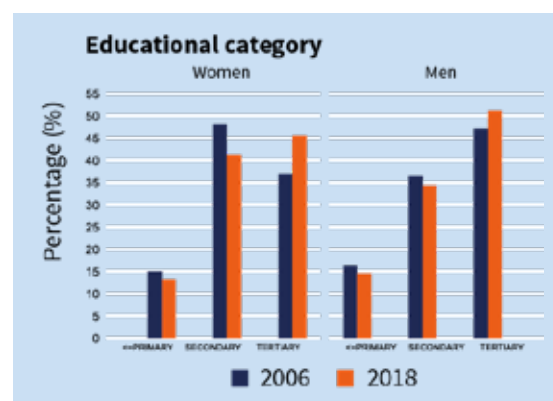
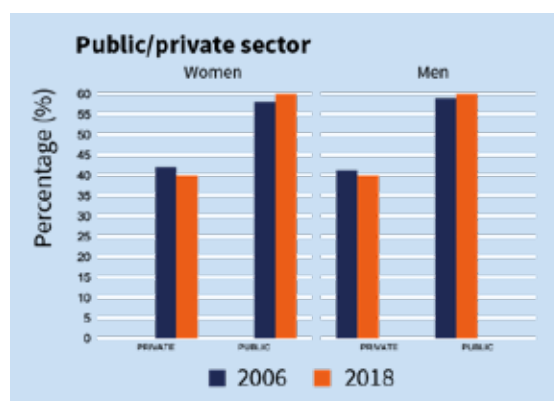
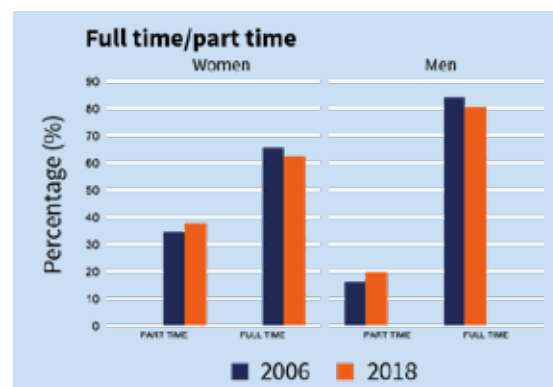
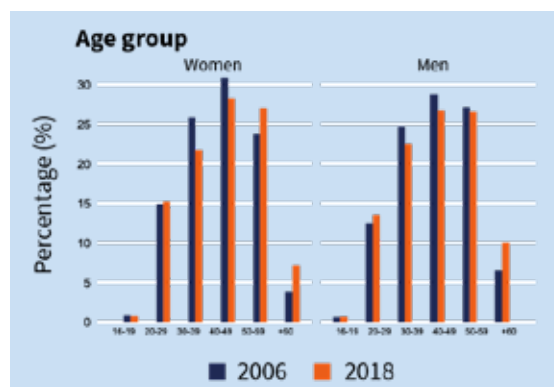


FIG. 6.3 CONT.

Europe



Mexico

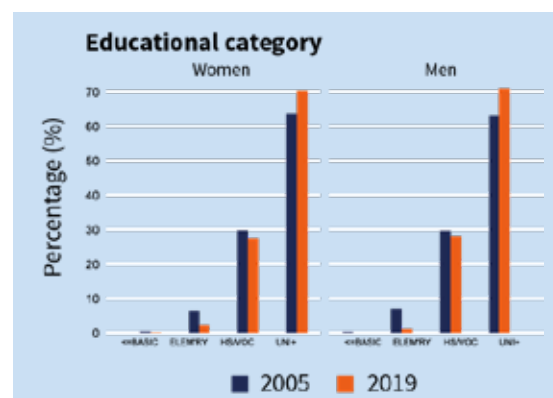
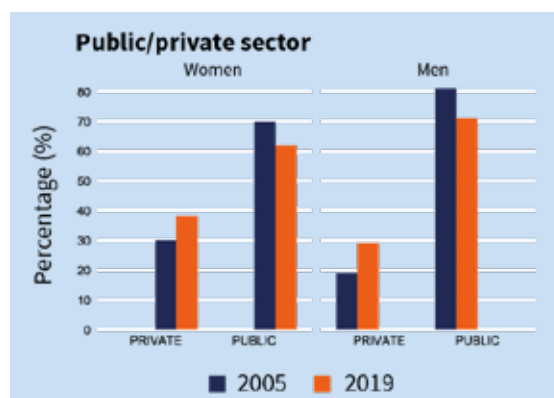
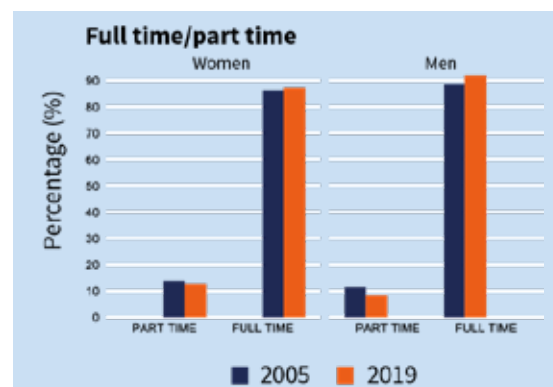
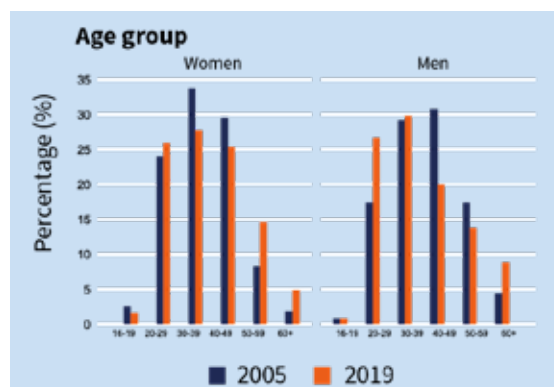
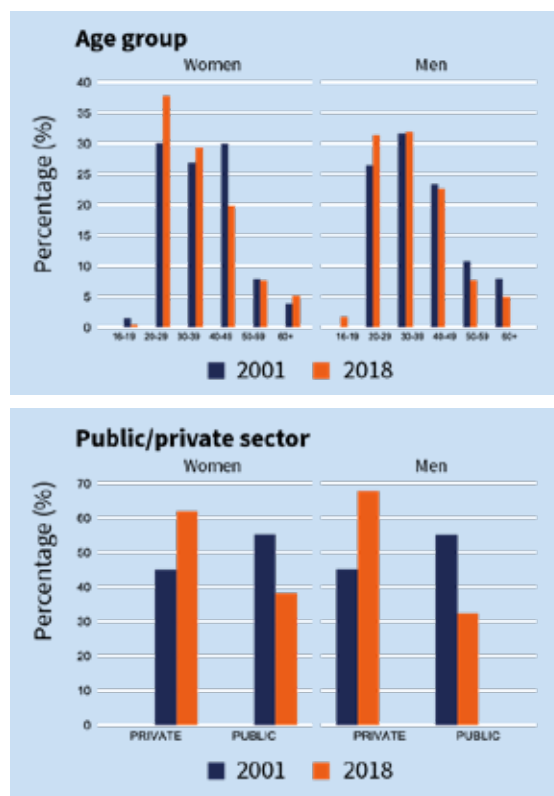


FIG. 6.3 CONT.

Philippines



Thailand

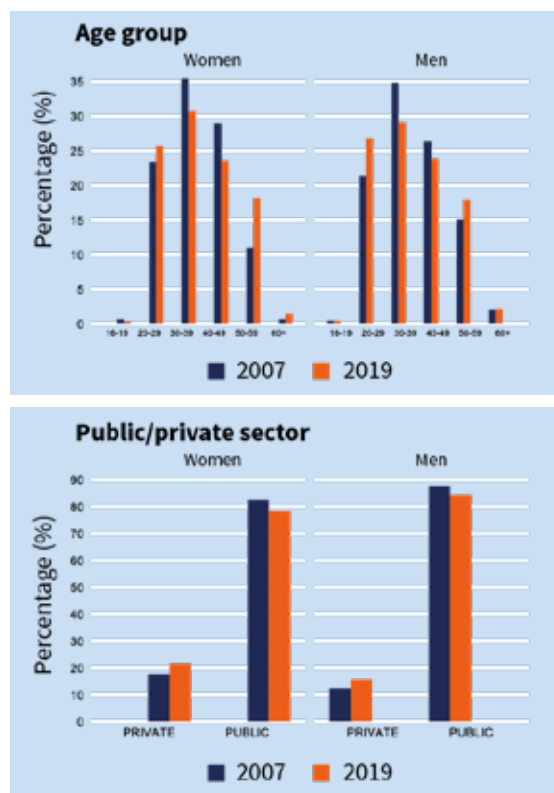
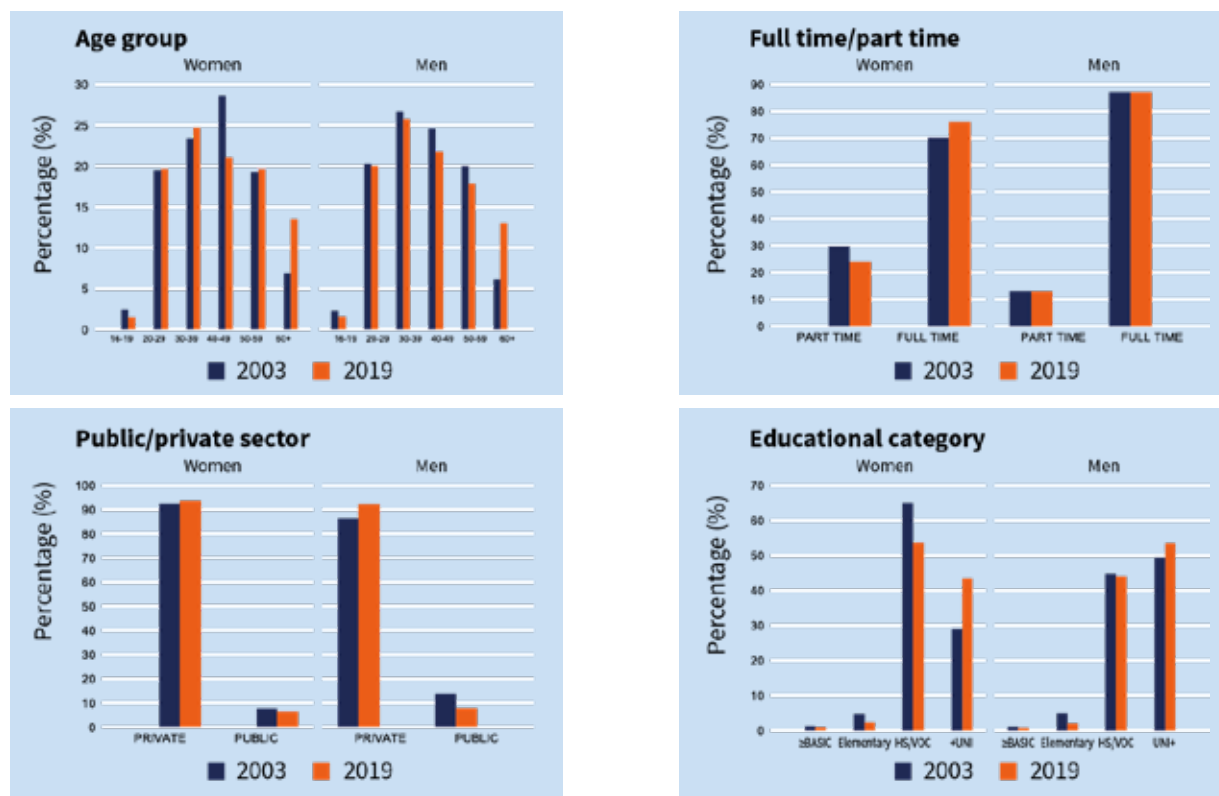
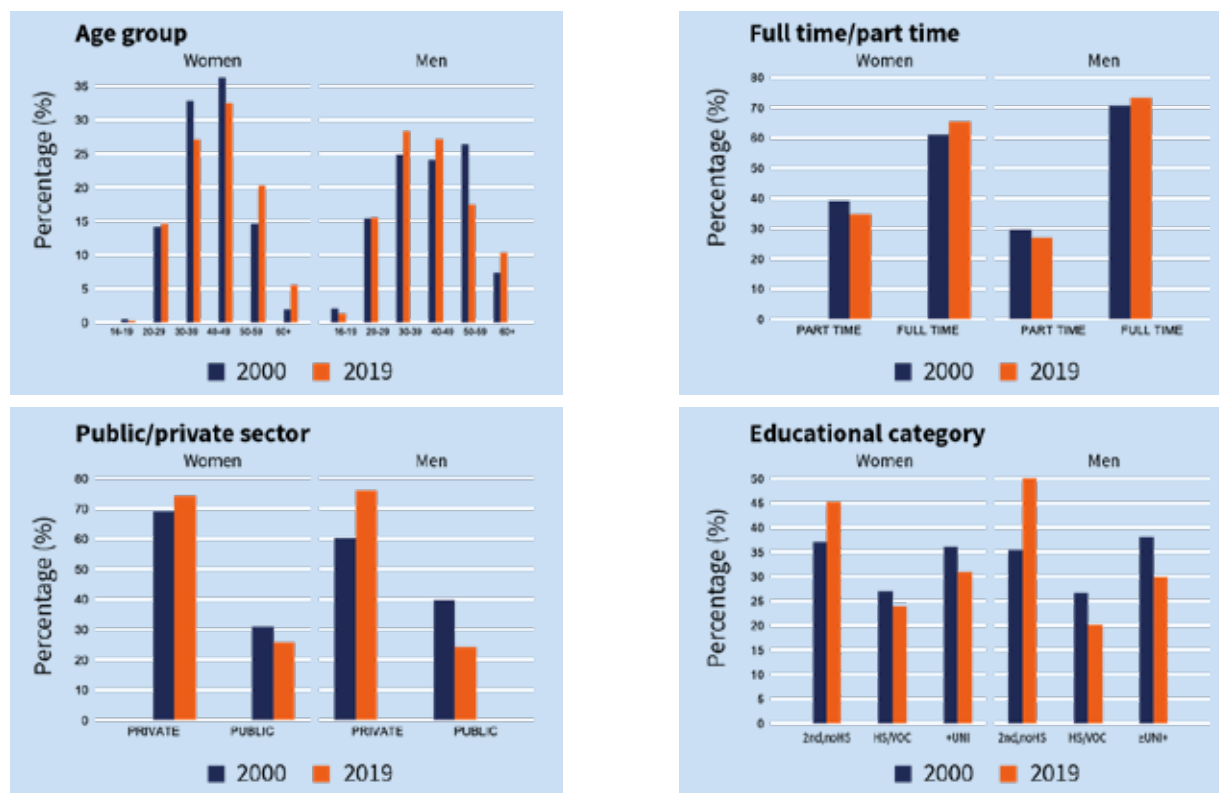


FIG. 6.3 CONT.

United States



Uruguay



Source: ILO, WHO estimates based on survey data provided by national surveys (see Annex 1).

6.2 Evolution of the gender pay gap in the 21st century

In this section we continue to explore the evolution of the gender pay gap over the same period and in the same countries as in Section 6.1. Sections 3 to 5 showed different ways to approach the estimation of the gender pay gap, from factor-weighted estimates that controlled for composition effects on summary measures, to estimates that allow a full decomposition across the hourly wage distribution. In this section we again explore the gender pay gap by decomposing it between the explained and the unexplained parts and then analyse how each of these parts has changed over the first two decades of the 21st century. It is important to distinguish among the changes in the two components because eliminating the gender pay gap would require different policy measures depending on how each part has evolved and which of the two parts dominates in the overall composition of the gap.

Thus, in the following analysis, the gender pay gap is estimated in the same way as in Fig. 5.2. However, this time we consider, for each country separately, each of the two time points in time introduced in Section 6.1. To do this, the following procedure is applied at each time period: first, we estimate the pay gap at each of the nine quantiles of the hourly wage distribution (see Fig. 4.1); second, we decompose each of the nine estimates of the gender pay gap into the explained and unexplained parts (see Fig. 5.1); and finally, for each point in time and each country, we take weighted averages across the nine quantiles for the overall gap, the explained part, and the unexplained parts. The result is a decomposition of the hourly wage pay gap similar to that presented in Fig. 5.2 for each country and at each point in time. As noted in Section 5, generating estimates of the pay gap at different locations on the wage distribution, and weighting these into a single value, is also a way to control for the heterogeneities of women and men in the labour market, since within a quantile women and men are bound share similar labour market endowments and characteristics (see Boxes 4 and 5).

Fig. 6.4 shows three bars for each country and time period. Together the six bars illustrate the change in the gender pay gap between the early 2000s and around 2019 and disaggregate this change into changes in the explained and unexplained parts of the gender pay gap. We recall from Section 5 that when the *explained part is positive* this implies that on average, within quantiles, men have more attributes and endowments than women who share

similar quantiles (such difference in attributes and endowments explains a positive gap in favour of men). In contrast, when the *explained part is negative* it means that on average within quantiles, women have better attributes and endowments but are underpaid for these (i.e. a negative *explained* gap can be attributed to better attributes and endowments among women compared with men). When the *unexplained part is positive*, it implies that on average across quantiles, women are getting returns for their attributes that are below the returns that men get for a similar mix of attributes across the population. In other words, when men and women have similar attributes but women are getting paid less, the difference cannot be explained by difference in labour market attributes and characteristics. Finally, when the *unexplained part is negative*, it implies that on average across quantiles, women are obtaining greater returns for their attributes compared with men with similar attributes. Fig. 6.4 includes the same countries shown in Figs 6.2 and 6.3, but also separately shows each of the countries included in the weighted average for Europe.⁴⁷

Our analysis starts by observing four groups among the 28 countries exhibited: the first includes seven countries where the hourly wage gender pay gap has increased over time, namely, Chile, Czechia, Estonia, Hungary, Latvia, Lithuania and Slovakia. A second group includes two countries, Italy and the United States, where there has been almost no change in the gender pay gap between periods. The third group includes 15 countries where the pay gap has declined over the first two decades of the 21st century. The final group includes four countries (the Philippines, Thailand, Belgium and Luxembourg) where the weighted average of the pay gap remains a negative estimate.

Within each of the four groups, countries display very different changes (within country, between periods) between the explained and the unexplained parts of the gender pay gap. In the group of seven countries with an increase in the gender pay gap over time, only two countries (Latvia and Lithuania) had both the explained and unexplained parts increase. Thus, in these two countries, on average, the gap between women's endowments and men's endowments widened within quantiles, which explains some of the increase in the gender pay gap; however, in part the gap increased because, across quantiles, the return that women received for their endowments has not increased as much as that of men with similar endowments – that is, some of the increase in the gap is unexplained. For the other five countries in the group, the widening of the gender pay gap

⁴⁷ The detailed country-by-country analysis of Europe was not presented in Section 6.1 for the sake of space. However, estimates of employment trends for each of the 21 countries included in the “Europe” group are available on demand from the authors.

comprises a mix of changes among the explained and unexplained components. In the case of Chile, for example, the explained component has become negative by the second point in time; this means that on average, within quantiles, women have better attributes and endowments but are underpaid for them. Figs 6.2 and 6.3 showed that women in Chile's health and care sector had become better equipped over time in terms of education, experience and a higher prevalence in technical occupations, while reducing their prevalence in lower skilled occupational categories. The fact that they have better endowments, however, did not translate into lower gender pay gaps in Chile, nor in the elimination of the explained part.

The other two countries with increased gender pay gaps are Hungary and Estonia. In Hungary the increase in the gender pay gap is fully due to a higher unexplained component, whereas in the case of Estonia the unexplained part declined while the explained component increased. Thus, in the case of Estonia, it is important to recognize that there have been advances for women between 2006 and 2018 since, on average, women's returns are now closer to that of men who share similar endowments, although the overall gender pay gap increased by 3 percentage points. The problem in Estonia is that, in comparison with 2006, the mix of endowments that men achieved by 2018 (within quantiles) was better than the mix of endowments that women achieved; this is what explains the increase in Estonia's gender pay gap between 2006 and 2018. In this situation, policies that target the endowments of women in the health and care sector (such as, for example, policies that reduce occupational segregation and lead to increased tenure among women) would help reduce the explained component of the gender pay gap going forward.

Among the group of 15 countries where the gender pay gap has clearly declined, seven countries show declines occurring in both the explained and unexplained parts. That is, women and men are becoming more similar within quantiles in terms of endowments (e.g. in education, occupational categories, tenure, etc.), and the gap in returns for equal endowments between women and men has also shrunk across quantiles. Take, for example, the case of Spain: the hourly wage gender pay gap in the health and care sector declined by 13.2 percentage points between 2006 and 2018 – a rate of 1 percentage points decline per year. Of this change, only 3.4% was due to a decline in the explained part (women have caught up with men in their

labour market endowments) while 9.8% was due to a decline in the unexplained part (women's return for their endowments have become closer to that of men's return with a similar mix of endowments, across quantiles). Similar comments apply in the cases of Canada, Finland, Mexico, the United Kingdom, Norway and Uruguay. Figs 6.2 and 6.3 are consistent with these estimates because in all these countries (and on average in Europe) women have improved in endowments that would make them better equipped for productivity, which is a possible cause for the decline in the explained component of the gender pay gap.

The gender pay gap declined in eight other countries as well, but in different ways. In Bulgaria, Cyprus and France, the gender pay gap changed due to a decline in the explained part (with no change in the unexplained component). The Netherlands is the only one among the 15 where the decline was fully due to the decline in the unexplained component. In the remaining four countries (Poland, Portugal, Romania and Sweden) there was a decline in the overall gender pay gap, but the unexplained component increased. In these four countries, a policy package that could help reduce the gender pay gap should consider prioritizing factors such as stereotyping, the lower valuation of feminized occupations, or the impact that work-life balance has on women's outcomes in the labour market, among others.

The fourth group of countries in Fig. 6.4 has negative gender pay gaps across the period. In the Philippines, Thailand, Belgium and Luxembourg, the explained component remains negative across time: this means that, on average within quantiles, women have better attributes and endowments compared with men (see Box 4) but are underpaid for these. Again, these findings are consistent with the improvements in endowments among women observed in Figs 6.2 and 6.3. Thus, in the four countries, if women were paid for their endowments the same as men (within quantiles), the negative explained part would vanish, leaving only the unexplained component. In the Philippines and Thailand, the unexplained component was positive in 2019 – both countries experienced declines in the unexplained part since the early 2000s, but only by a few percentage points. Belgium is the only of the four countries where the unexplained component seems to have vanished entirely by 2018. The estimate for Luxembourg suggests this is the only country in Fig. 6.4 where the pay gap in the health and care sector has become negative over the first part of the 21st century.

FIG. 6.4

Change in the gender pay gap, including explained and unexplained components, in the health and care sector, 2000–2007 and 2017–2019

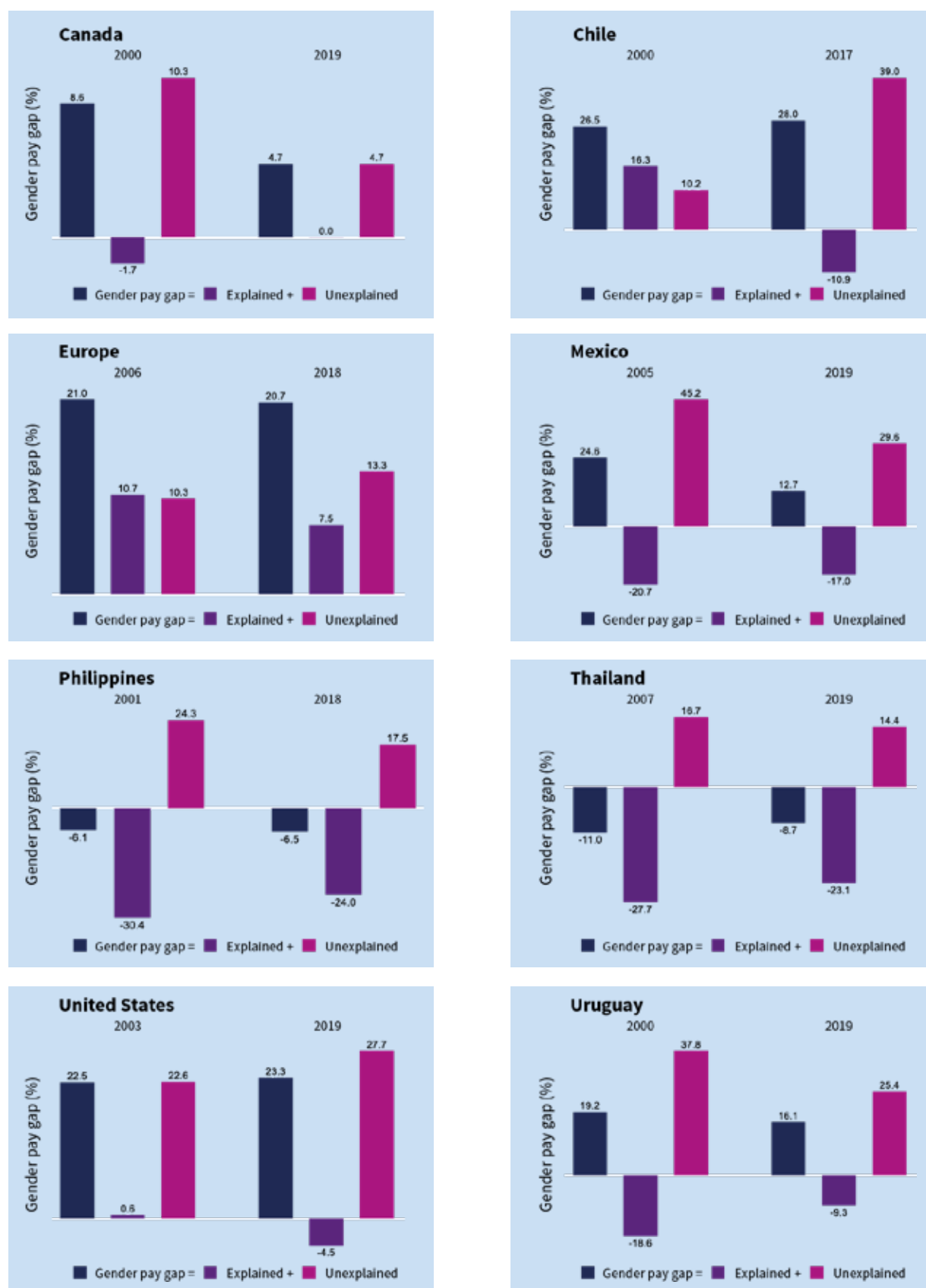
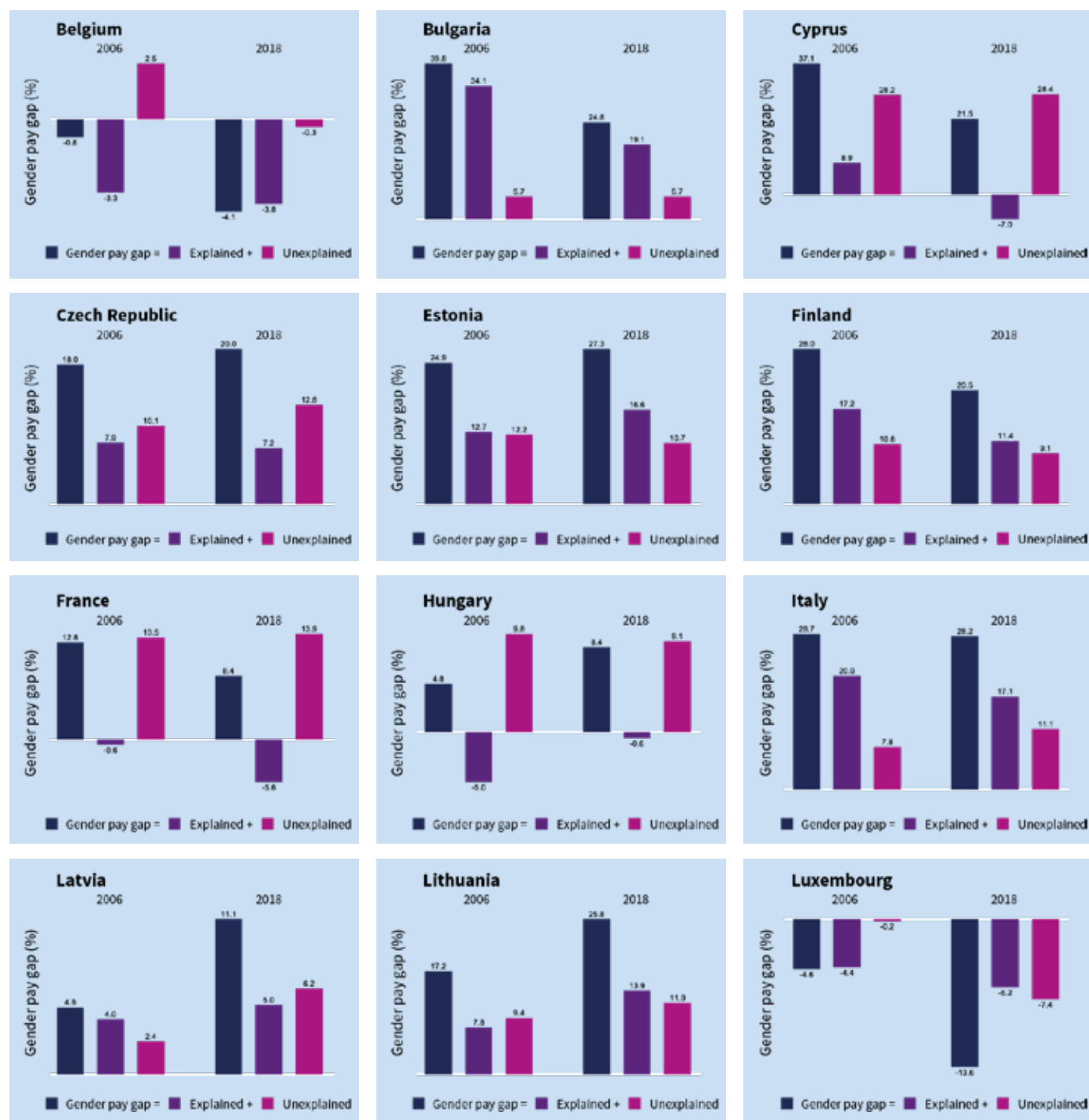
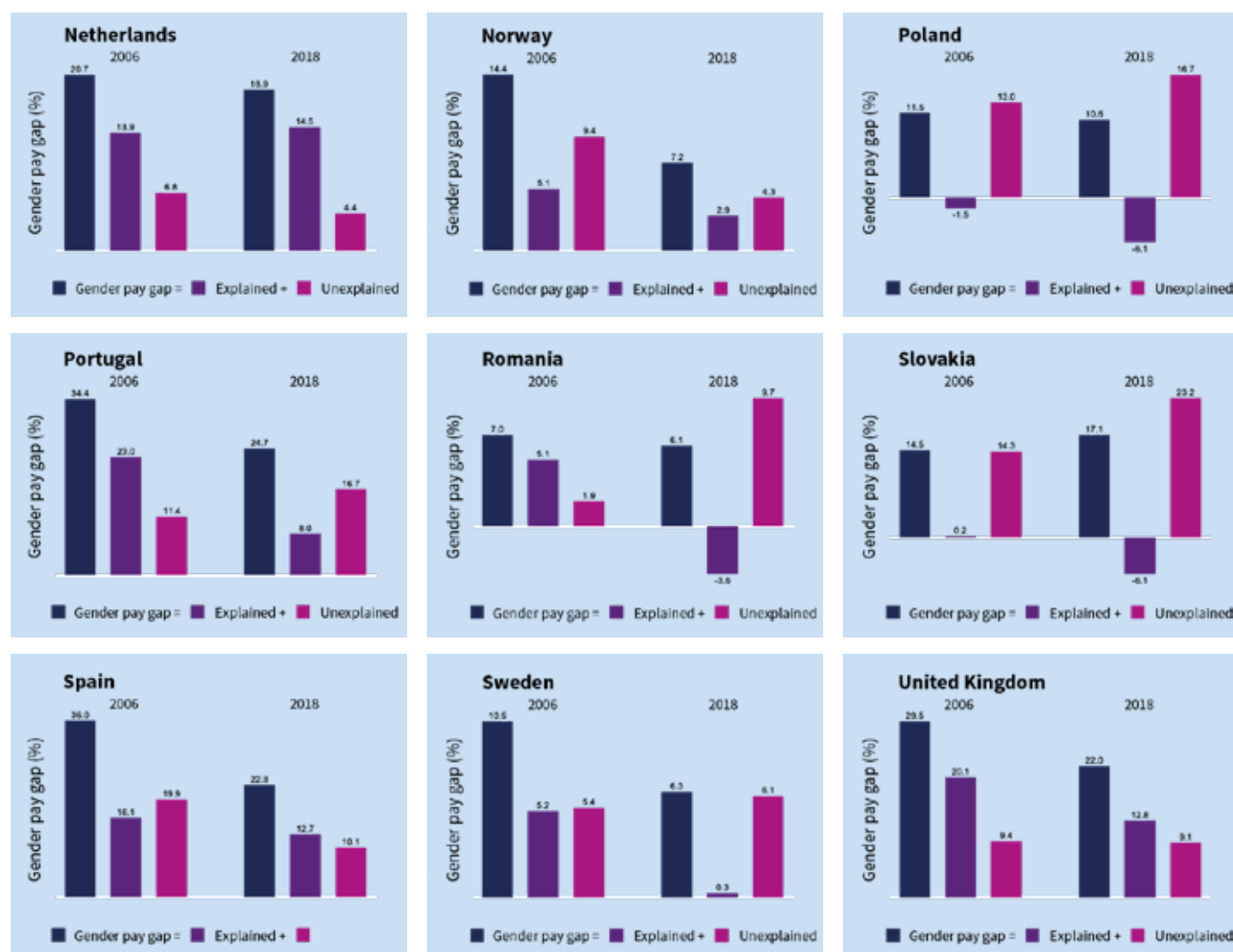


FIG. 6.4 CONT.

European countries



European countries



Source: ILO, WHO estimates based on survey data provided by national surveys (see Annex 1). See Annex 2 for more details on the method used to decompose the gender pay gap between the explained and unexplained components.

The effect of COVID-19 on employment and earnings in the health and care sector

The health and care sector has experienced fewer employment losses than non-health economic sectors due to the economic downturn associated with the COVID-19 pandemic. However, working conditions for the sector's workers, in particular those at the forefront in the fight against the pandemic – most of whom are women – have deteriorated dramatically; they also face a disproportionately high risk of infection. While there has been almost full recovery of employment in the health and care sector on average, the recovery has lagged behind for some types of workers, in particular less educated women workers and women in informal employment. Because the COVID-19 crisis has disproportionately affected workers at the low end of the pay scale, most of whom are women, the average hourly wage or monthly income of workers who remain in the sector artificially appears to have increased, although the real total wage bill in the sector has fallen. Controlling for composition effects in terms of the characteristics of health and care workers before and after the onset of the pandemic, the gender pay gap in the sector appears to have declined only slightly between January 2019 and December 2020.

By January 2022, 22 months after WHO declared COVID-19 a pandemic, there had been more than 360 million confirmed COVID-19 cases around the world, and more than 5.6 million people had died directly from the disease (WHO COVID-19 Dashboard, 2022).⁴⁸ From the onset of the pandemic, almost all countries across the world reacted by putting in place drastic measures intended to curtail the effect of the virus on human health, including full or partial lockdown of their economies, and the full or partial closure of national borders. The inevitable result has been a global economic crisis of unprecedented scale with a massive impact on labour markets across the world.

According to ILO estimates, the total working-hour losses in the second quarter of 2020 (relative to the fourth quarter of 2019) were 17.3%, or 495 million full-time equivalent (FTE) jobs (ILO Monitor, 2020b). Revised estimates for the fourth quarter of 2020 suggest that there was a gradual recovery in lost hours and lost employment in the labour market. In all, in 2020, 8.8% of global working hours were lost relative to the fourth quarter of 2019, equivalent to 255 million full-time jobs. Working-hour losses were particularly high in Latin America and the Caribbean, southern Europe and southern Asia. By way of comparison, working-hour losses in 2020 were approximately four times greater than during the global financial crisis in 2009 (ILO Monitor, 2021).

Some economic sectors and groups of individuals faced more impact than others from the economic,

social and health crises precipitated by COVID-19. Literature and quantitative analyses have shown that women, low-skilled workers and workers in the informal economy – the last represents 60% of the employed population worldwide (ILO, 2018d) – have been the worst affected. In the case of women, 40% worldwide are employed in the sectors hardest hit by the crisis, (namely: trade, manufacturing, hospitality, transportation, communications, and the service sector), compared with 37% of men (ILO Monitor, 2020a).

The health and care sector is perhaps a lower risk sector in terms of expected employment loss in the face of the crisis. However, the sector has been at the forefront in the fight against the disease. In fact, since the pandemic was declared, the working conditions of health workers, in particular those dealing with COVID-19 patients, have dramatically deteriorated, the majority of whom are women. Extremely long working hours in intensive care units, insufficient personal protection equipment, understaffed and resource-constrained environments exacerbate the intense emotional and psychological stress health workers have faced (see, for example, Pappa et al., 2020). Health workers also face higher risks of COVID-19 infection and transmission. While many workers in non-health sectors shifted to teleworking arrangements at the peak of the pandemic, this was not possible for many health and care workers due to the intrinsically presential nature of their work.

⁴⁸ WHO Coronavirus Disease (COVID-19) Dashboard (<https://covid19.who.int/>).

Moreover, the COVID-19 pandemic has shed light on fissures in health systems and the care sector in countries characterized by underinvestment in social policies and the public sector as a whole, shortages in the health workforce, poor working conditions, and the urgent need to strengthen public services (ILO, 2020a). As shown in Section 5.3, jobs in the health and care sector are often characterized by lower average salaries compared with similar occupations in other sectors, as well as work overload and long hours. And although the care economy encompasses other sectors in addition to the health and care sector, it is important to highlight that the care pay penalty⁴⁹ is more pronounced for women, in particular in occupations in which they predominate, such as nursing (ILO, 2018c). Lower pay for women health workers can undermine their capacity to procure needed care for their family members, thus potentially adding to their overall care responsibilities. This could easily contribute to reducing the participation of women in paid employment in the health and care sector at the onset of the pandemic, especially if they needed to care for dependents during lockdowns.

In sum, when compared with other sectors, the fact that the health and care sector is a lower risk sector with respect to the COVID-19 pandemic, may at first be perceived as one where workers may be at a lower risk in terms of employment and income losses. But this assumption may not be true across all categories of workers in the sector. Previous sections of this report showed that before the pandemic the health and care sector across the world had a significant share of low-paid workers, workers with lower skills or precarious contracts; in LMIC, a significant number of workers in the health and care sector have jobs in the informal economy (see Section 4). Thus it is important to investigate the extent to which the health and care sector has suffered employment and income losses as result of the pandemic, including the extent to which women and men have been differently impacted by such losses.

To do this analysis we need survey data (at the micro level) to capture information on a monthly or quarterly basis. These data would allow us to identify short-run dynamics in the employment and earnings of health and care workers, and specifically to examine how these outcomes might have been

affected by disruptions to the economy due to COVID-19. The proposed analysis should rely on monthly or quarterly data that covers two periods: a period prior to the COVID-19 pandemic (the control period) and a second period that covers months (or quarters) during the COVID-19 pandemic (the treatment period). Another important requirement is that the data elicit information on those who remain in paid employment but are temporarily out of daily work activity (on furlough). At the onset of the pandemic many countries adopted large-scale fiscal packages to support the incomes of workers and counteract the collapse of businesses; for example, in European countries, the lowest paid 50% of workers lost about 6.5% of their wages, but temporary wage subsidies prevented them from losing as much as 17.3% (ILO, 2020b). Thus, we also need data that identify “temporarily absent workers” (including the reasons for their temporary status) in order to avoid overstating the impact of the pandemic on employment and income losses.

These data requirements, added to the restrictions pointed out in Section 2, further restrict the availability of surveys for the proposed analysis. Nevertheless, some countries do provide data that meet the criteria, allowing us to estimate the impact of COVID-19 on the health and care sector, including the impact of COVID-19 on the earnings of women and men during the hardest months of the pandemic. Our analysis covers three countries: Canada, Mexico and the United States. Thus this section provides an analysis of how COVID-19 has impacted employment and earnings in the health and care sector in the three countries in the period from January 2019 to December 2020. The analysis is conducted on a monthly basis for Canada and the United States, and with a mix of monthly and quarterly data in the case of Mexico.⁵⁰ Although the estimates in the section cannot be extrapolated to other countries, regions, and certainly not to a global level, they do provide important findings for framing the policy considerations that follows in Section 8.

⁴⁹ The care pay penalty is the difference in hourly wages between workers in non-care sectors and workers in care sectors that cannot be attributed to differences in skills, experience or credentials (ILO, 2018c).

⁵⁰ The data for Mexico (ENOE) have been provided on a quarterly basis since the first quarter of 2005, with household level surveys conducted face to face. At the onset of the COVID-19 pandemic, the collection process changed temporarily and became a monthly survey for the months of April to September 2020. The collection of data during the confinement period was done using a mixture of telephone and face-to-face interviews. The structure of the data is such that the monthly surveys are equally representative of the population as the quarterly ones (through the use of appropriate weights). To facilitate the illustration of our results, the figures for Mexico show point estimates for each month based on quarterly estimates for 2019Q1 to 2020Q1, monthly estimates as provided by the data from 2020M4 to 2020M7, and then point estimates based on quarterly measures for 2020Q4. In the case of Canada (LFS) and the United States (Current Population Survey [CPS]) the collection of monthly data through their surveys continued without disruption during the pandemic.

7.1 The effect of the COVID-19 pandemic on the employment of wage workers in the health and care sector: the cases of Canada, Mexico and the United States

Fig. 7.1 shows the evolution of wage employment in the health and care sector from January 2019 to December 2020 in Canada, the United States and Mexico, separating women and men and comparing each of these groups with the same ones in other sectors of the economy (i.e. with all other economic sectors in aggregate while excluding the health and care sector, as was done in previous sections). For each country, each line in each of the charts shows employment growth indexed either to the month of January 2019 (for Canada and the United States) or the first quarter of 2019 (2019Q1) in the case of Mexico. The estimates in all figures in this section are based on workers who claim wage employment. The sample includes wage employees who claim to be temporarily absent from work but are still getting paid as wage employees – and therefore retain their working status (as wage employees) and are expected to go back to work in the same workplace in the near future. Temporarily absent employees include furloughed workers, workers on holiday at the time of the survey, and any other workers that may not have been actively working when they were surveyed but who count as active wage employees. The estimates do not include individuals who are “temporarily absent from work but who are not getting paid wages” during their absence.⁵¹ In the case of Mexico, the data show that being temporarily absent from work and not getting paid is almost synonymous with being a wage worker in the informal economy. Taking October 2019 as a reference month, in Mexico, 15% of all workers temporarily absent from work were not being paid

during their absence; of these, 87% are workers with informal employment. Interestingly, the data for Canada and the United States (where informality is not directly identified in the survey) show that a rather large number of wage employees were temporarily absent from a workplace where they are expected to return to work (e.g. after a holiday or temporary illness) but were not getting earnings or pay during the period of absence.⁵²

Fig. 7.1 shows that in all three countries at the onset of the health crisis (indicated with a red vertical line), wage employment in the health and care sector shrank sharply, similar to the rest of the economy (shown as dashed lines). The patterns in the three countries show that the employment loss affected both women and men. In Canada and the United States the sharp decline in employment (as percentage of own group) affected women more than men, while in Mexico the opposite was true. In fact, in Canada and the United States the estimates show a significant growth in the volume of men wage employees during 2019 and almost up to the onset of the pandemic, with 6% more men wage employees in Canada and 2% more men wage employees in the United States in February 2020, compared with January 2019.⁵³ Thereafter, the decline in employment growth is visible for men in Canada and even more striking for men in the United States.

Men’s employment also shrank noticeably in the case of Mexico, where the volume dropped by 47% compared with January 2019. As shown in Fig. 7.2, the drop among men in the case of Mexico is explained by the sharp employment loss among those with semi-skilled jobs, particularly affecting those in the informal economy (explored in Fig. 7.8). The volume of men wage employees also dropped significantly in the United States, with 8% fewer men

⁵¹ For each of the three countries the data can identify furloughed workers and workers that are temporarily not working (but remain in paid employment) every month. This information was available in the surveys even before the outbreak of the pandemic. In the case of Canada, employed but temporarily not active are identified combining the codes YBSENT and PAYAWAY. In the case of the United States they are identified combining the variables PABSRN and PEMLR. In the case of Mexico, for both the ENOE and ETOE (temporary monthly survey from 2020M4 to 2020M7), these are identified mixing the variables CLASE3 and P1C.

⁵² In the case of Canada, for example, in May 2020, when the effects of the pandemic on the economy were strongest, 15% of wage workers in the health and care sector were “temporarily absent from work”. Of these, 30% were on furlough, 27% absent due to temporary illness, 39% temporarily caring for dependents at home, and the remaining 4% on vacation. The data show that the proportion of “not being paid during their temporary absence” were 83% among furlough workers, 56% among “absent due to temporary illness”, 79% among those “absent due to temporarily caring for dependents” and 17% among those on holiday. The proportion of “temporarily absent wage workers not getting paid” in the health and care sector in Canada is also significant in periods previous to the pandemic. Thus the weak wage protection system among wage workers in the sector is not an event related to COVID-19, although COVID-19 seems to have magnified it. Estimates were similar in the United States and higher in the case of Mexico where, as suggested in the main text, non-paid temporary absence is almost totally associated with employment in the informal economy.

⁵³ As in Section 6, the estimated numbers and percentage values of men across time can be subject to variations due to sample size; the samples are representative at population level, and estimates from such samples can be used to make inferences on the population. However, the share of men is a smaller fraction compared with women, meaning that over the course of months, the sampling of wage employees can vary more widely among men compared with women. At the same time, the peaks and troughs – for both women and men – can be the result of seasonality. For example, in the case of Canada there are two peaks in the employment growth during 2019 for men (August 2019 and December 2019/January 2020), which coincide with holiday periods. The analysis in this section is based on the series without removing seasonality. In fact, seasonality is not an issue in this context because we are describing the data rather than using it for a regression-based time series analysis (where seasonality would be a problem when interpreting causal relations that involves serial correlation). Showing trends including seasonality is also a way of showing how peaks and troughs vary between women and men, such as during holidays, when taking time off to care for children may be a gendered choice.

wage employees in the health and care sector in April/May 2020 when compared with January 2019. In Canada, men wage employees in the health and care sector in January 2020 was about 12% higher compared with January 2019, but by April/May 2020 the volume of men wage employees in the health and care sector had declined back to the numbers observed in January 2019, i.e. between January 2020 and April/May 2020 the number of men wage employees in the sector declined by 12%.

In the case of women working in the health and care sector, the time series shows that there was not much employment growth during 2019 in any of the three countries. Employment growth then started declining sharply exactly at the onset of the pandemic in March to May 2020. At that point, the number of women wage employees in the health and care sectors in Canada, Mexico and the United States drops by 19%, 17% and 14%, respectively, by April/May 2020, when compared with the number of women's wage employment in the sector in January 2019.⁵⁴

Fig. 7.1 also shows a comparison with the rest of the economy. Employment growth shrank more in other sectors (in aggregate) than in the health and care sector alone. However, in contrast with the drop in employment among men, the employment shrinkage of women in the health and care sector is closer in percentage points to that observed in the rest of the economy. For example, in Canada, between January 2019 and April/May 2020, the employment of women and men in the economy (excluding the health and care sector) shrank by 27% and 22%, respectively. These figures are close to the employment loss of women in the health and care sector (19%) and far from the 2% increase in the volume of men in the health and care sector between January 2019 and April/May 2020. Similar findings appear in the United States and Mexico. In the United States, wage employment in the rest of the economy declined by 22% among women and 16% among men; here again the two estimates are close to the 14% employment loss among women in the health and care sector, but significantly more than the 8% employment loss among men in the health and care sector. In Mexico, the proportion of employment loss among wage women in the health and care sector (17%) was similar the employment loss among men in the rest of the economy (21%).

The sharp employment loss at the onset of the pandemic seems to have been followed by a gradual but steady recovery starting from about May/June 2020, which led to similar or higher employment levels in the health and care sector at the end of the period under observation. Thus, by December 2020, employment levels in the health and care sector: in Canada were equal to the volume of employment in January 2019 among women and 15% higher among men; equal among women and 3% higher among men in the United States; and 12% higher among women and 8% higher among men in Mexico. It is possible that the increases are the result of increasing demand for health and care services (in the health and care sector) to deal with the increased number of people attending health and care centres as result of the COVID-19 pandemic. However, the rest of all three countries' economies have also recovered at a similar rate as the health and care sector (noticing that, within countries, the trends in all three charts of Fig. 7.1 show similar gradients starting from May/June 2020). In all three countries the employment levels in December 2020 in the rest of the economy were slightly below the levels observed in January 2019 (98% for women in Canada; 95% and 97% for women and men in the United States, respectively; and 94% and 96% for women and men in Mexico, respectively).

At this point it is interesting to look back at the findings in Section 6 to compare the impact of the global financial crisis on wage employment in the health and care sector with the impact of the COVID-19 pandemic on employment in the health and care sector. Because Section 6 shows annual changes, the estimates in Fig. 6.2 cannot be directly compared with the month-by-month estimates in Fig. 7.1. However, the monthly dynamics of the health and care sector for either Canada, Mexico or the United States⁵⁵ for the period 2007–2010/2011 would show the health and care sector growing steadily without significant bumps (while all other sectors show gradually declining rates of employment, which eventually translated into the deepening of the curves displayed in Fig. 6.2 for the period between 2000–2007 and 2017–2019). Thus, in terms of employment effect, the COVID-19 crisis has been of a completely different nature as compared with past economic crises such as the global financial crisis (which was fuelled by financial

⁵⁴ We emphasize here that we are talking about the health and care sector; this excludes care workers in other sectors of the economy. Of particular note is the household sector (domestic workers) where the employment loss will have been far larger than that estimated in this report. Using NACE Rev.4 (or NAICS) this implies workers covered by the codes 86 (human health activities), 87 (residential care) and 88 (other social care work without accommodation). In fact, the care economy extends to cover the "education" sector (85) and activities of households as employers of domestic personnel (97).

⁵⁵ This can be done using the same datasets used in this report, but for months or quarters covering 2008 to 2010, for which the datasets LFS (Canada), CPS (United States) and ENOE (Mexico) are available.

turmoil to start with, followed by a sustained decline in aggregate demand) (The Economist, 2020).

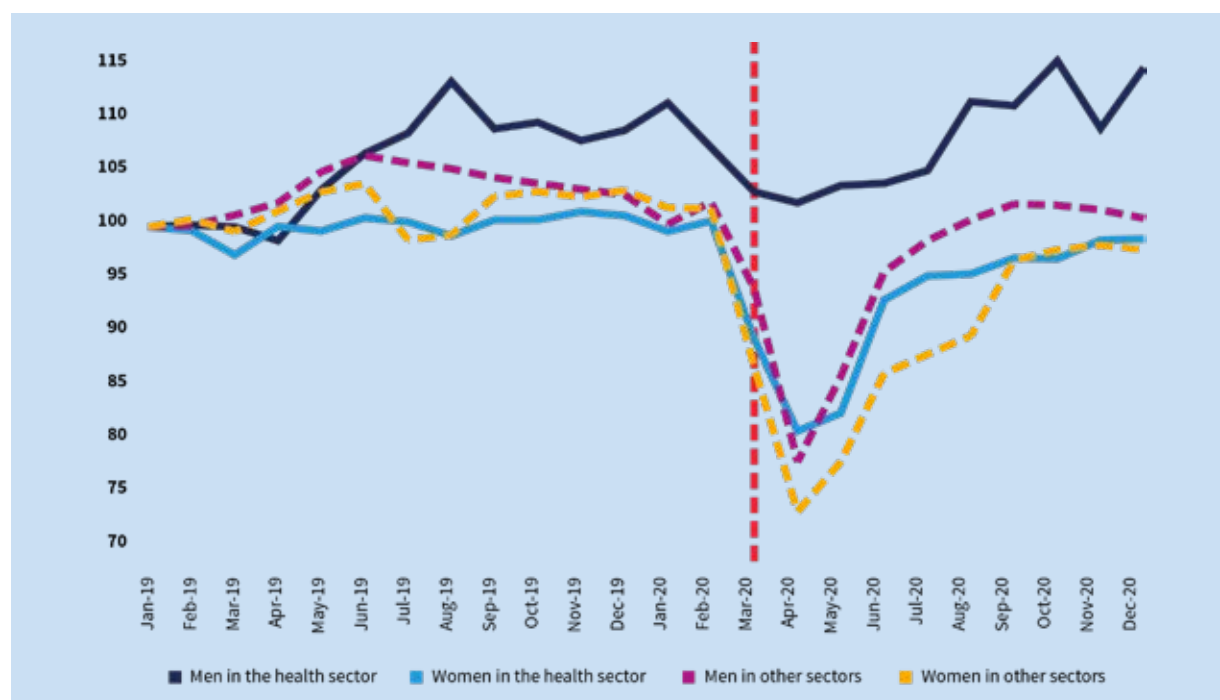
The fact is that, because women are more likely to work in services that require interacting with people, including in the health and care sector, women have borne the brunt of the economic disruptions caused by the COVID-19 pandemic. In past economic crises, men were more heavily affected because male-dominated sectors (e.g. construction or manufacturing) suffered gradual declines in aggregate demand; meanwhile, a significant number of services provided by women showed resilience to economic downturns (e.g. personal care services, health and care services, public administration or education). And whereas past economic crises may have served to reduce gender inequalities in the labour market (Alon et al., 2020), the current pandemic could, over the long run,

drive a reverse in gains made in the progress towards gender equality. This is perceptible in Fig. 7.1, which shows that while “employment” in the health and care sector had recovered by December 2020, the recovery was greater for men than for women. And, as will be shown in Figs 7.2 to 7.7 in Section 7.2, the employment crisis in the health and care sector was not experienced equally by all women. Those whose jobs have certain characteristics – namely low skills, part time, temporary employment, private sector, or informal employment – are more likely to have remained out of employment after the onset of the pandemic. Section 7.3 then explores the earnings of women and men before and during the pandemic in the health and care sector, providing empirical evidence to show that the characteristics of workers during the period April 2020 to December 2020 are not necessarily the same as those before the outbreak of the pandemic.

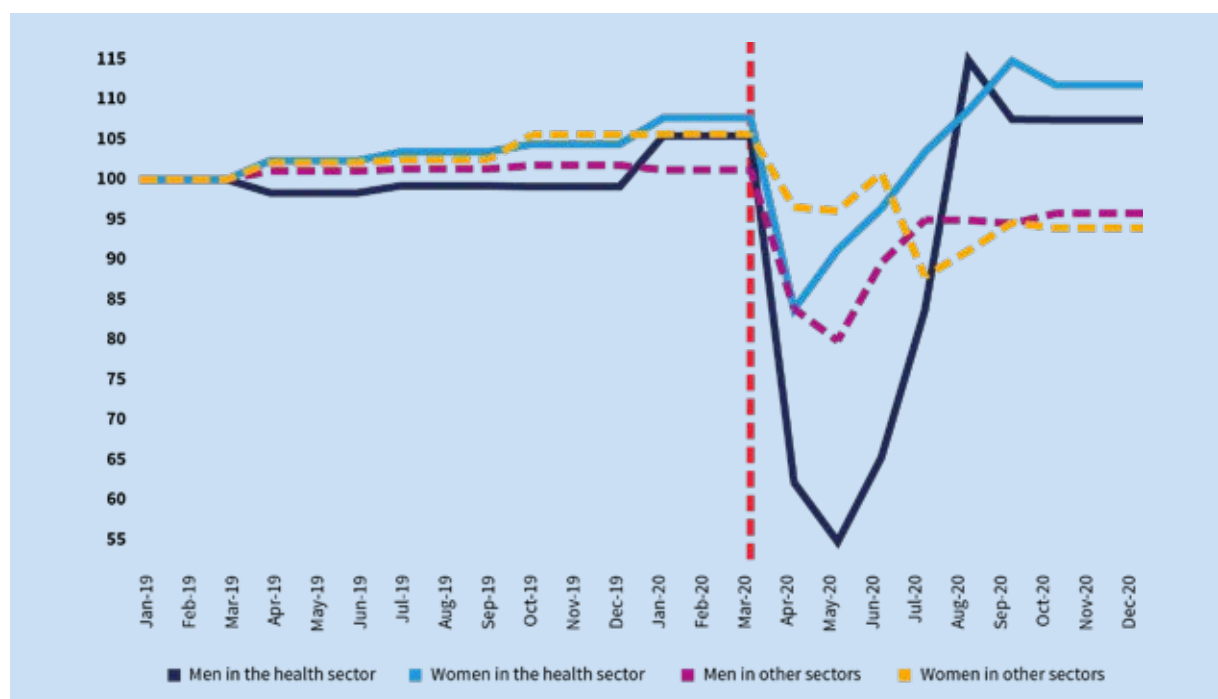
FIG. 7.1

Employment growth in the health and care sector, compared with other economic sectors, January 1919 to December 2020, selected countries

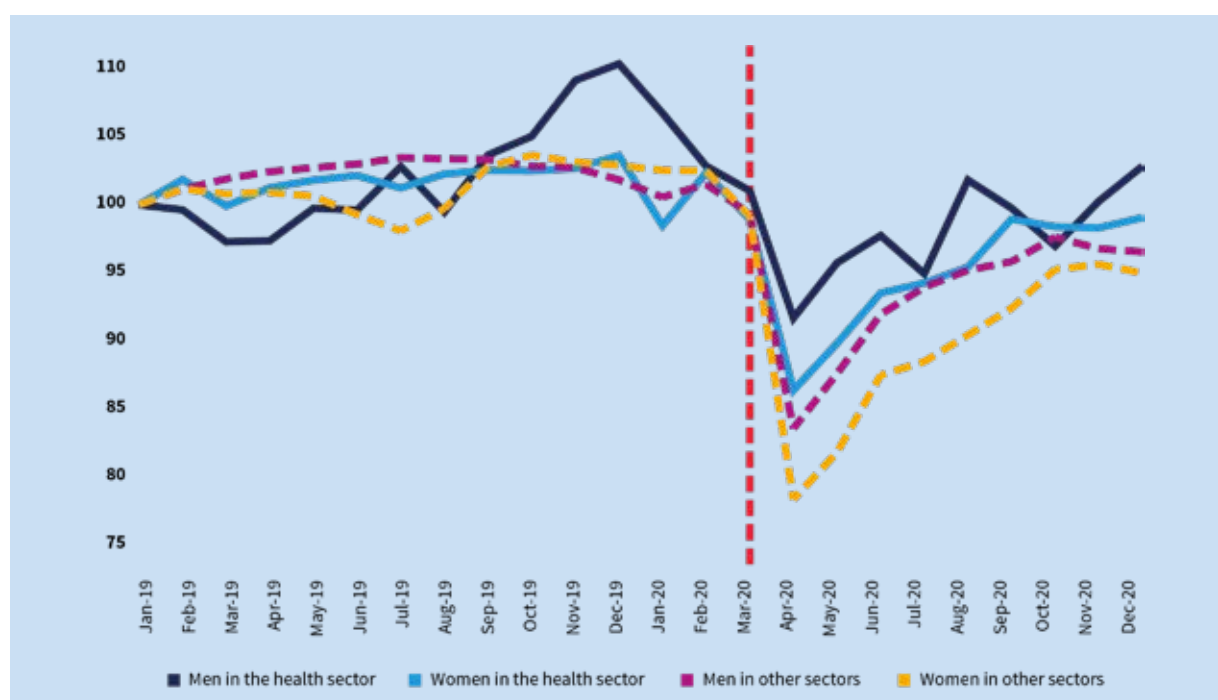
Canada



Mexico



United States



Source: ILO, WHO estimates. NB: Mexico data refer to quarterly estimates from January 2019 to March 2020, to monthly estimates between April 2020 and September 2020, and back to quarterly estimates in 2020Q4. The red dashed line shows the month of March 2020 when the pandemic was declared by WHO (on 15 March 2020).

7.2 The changing characteristics of wage workers in the health and care sector as result of the COVID-19 pandemic: the cases of Canada, Mexico and the United States

This section presents several analyses. Figs 7.2 to 7.6 shows employment figures disaggregated by occupational category, education, age, part time versus full time, and private versus public sector.⁵⁶ They show similar trends as those in Fig. 7.1; but these figures illustrate that **whereas there was an almost full recovery in employment in the health and care sector by December 2020, this was not the same for all workers, with some wage employees losing out more than others.** Fig. 7.7 then complements the set of estimates by showing the change in the share of workers that claimed “temporary absence” from employment over the same period of time (January 2019 to December 2020), and comparing between those who were paid during their absences and those who were not. Finally, Fig. 7.8 shows how the crisis has had different impacts on workers with formal and informal employment; in this case we can only consider the case of Mexico, since it is the only one of the three countries that tracks informality.

Fig. 7.2 shows employment growth by occupational categories, considering the six categories explored throughout the report: professional health (e.g. medical doctors and high-skilled nursing); technical health (e.g. nursing or midwife services, laboratory analysis); semi-/low-skilled health (e.g. health and care auxiliary assistance, hospital cleaners, etc.); professional non-health (e.g. CEOs/hospital managers, lawyers, financial officers); technical non-health (e.g. accountants, legal assistance, cultural and sports, etc.); and semi-/low-skilled non-health (e.g. cooks, clerks, etc.). In Mexico we see a significant decline in employment in all categories and then all of them recover, to a large extent, by December 2020. Canada and the United States are different. In Canada, by December 2020, all categories among men had recovered to, or surpassed, the employment levels of January 2019. However, women in semi-/low-skilled non-health occupations and women in technical non-health occupations had lost about 10% of the volume of wage employees by December 2020, with no signs of recovery. In the United States, the category semi-/low-skilled occupations among men had lost 10% in

volume by December 2020, compared with January 2019, while women in the same period experienced a loss in volume of 12% among technical health occupations and 8% among semi-/low-skilled occupations.

The trends in Canada show a striking detail: the category “technical non-health” suffered major employment losses during the hardest hit periods in the crisis among both women and men; although the volume in the case of men seems to have recovered, in December 2020 there were about 10% fewer women wage employees in technical non-health occupations compared with January 2019. Although the survey does not provide labour market information for those who are no longer employed, it does include those who are temporarily absent from work and who declare their occupational categories. Data from June 2020 show that 15% of wage employees in Canada were temporarily absent from work; among the category “technical non-health” the fraction temporarily absent increased to 21%, while the fraction of technical non-health claiming to be “temporarily absent and not getting paid during their absence” was 87% – by far the largest share among the six categories – followed closely by temporary absent workers not paid in the semi-skilled health occupations (78%) and semi-skilled in non-health occupations (67%). These estimates show that, despite the fact that the health and care sector was an essential sector during the outbreak of the pandemic, a significant fraction of workers in the health and care sector suffered employment effects of the crisis similar to workers in other sectors of the economy (see Gabler et al., 2020).⁵⁷

Fig. 7.3 shows trends by educational category. As was the case with occupational categories, Mexico shows a loss in employment for women and men alike for all educational categories at the onset of the crisis, and they all recover by December 2020; this includes significant increases among women wage employees with education below high school (35% more than in January 2019) and among women with education up to university (10% more than in January 2019). Similar trends apply also to men in Canada and the United States – in both cases, men in all educational categories recovered their employment volumes by December 2020, after the initial employment loss in April 2020. However, the same cannot be said for women in Canada or the United States. In Canada,

⁵⁶ It is important to note that there is greater variability in the data across time in the case of men. This, again, shows that men are a relatively lower share of workers in the health and care sector, and although in each of the three countries the data are representative of men in the sector, the characteristics of men can sometimes vary significantly between time periods (e.g. see Fig. 7.4, men in Canada age 16 to 24, or Fig. 7.5, part-time employment among men in Mexico; these are both examples where it is likely that movements in the data are due to the small number of men in such age and working modality, respectively).

⁵⁷ The article provided some explanation for this in the case of the United States: many health care worker, including specialized medical personnel, did not have immediately transferrable skills necessary to deal with the direct needs of COVID-19 patients. These health care workers, particularly in the private sector, would have been forced to be furloughed without pay or take temporary pay cuts.

in December 2020, the health and care sector employed 10% fewer women with high school or vocational training, 38% fewer among those with lower secondary education, and 52% fewer among those with primary or less than primary education, compared with January 2019. The figures seem to show a continued fall in employment for each of these three categories as of December 2020. In the United States, similar losses are evident among women, with 9% fewer women wage employees among those with lower secondary, high school, or vocational training, and 25% fewer women wage employees among those with primary or less than primary education.

Fig. 7.4 shows there are also differences across age categories that affect women more than men, particularly in the United States. In that case, by December 2020 there was a 7% increase among the younger age groups (25–34) and a decrease of about 10% in the volume of wage employees in older cohorts (age 55 and above). There is, on the other hand, a striking increase among older wage workers in Canada, with the category aged 55 and above increasing by 33% among men. This is likely to be the effect of older retired and pre-retired health and care workers returning temporarily to work to cover the need for more health staff during the COVID-19 crisis.

Figs 7.5 and 7.6 disaggregate the data by working modality and institutional sector. They show the most striking changes related to worker characteristics. In the case of men in Mexico, the trends for part-time employment seem odd – there are few men part-time wage employees in the health sector; the fluctuations could be a data effect. However, in the case of women in Mexico, the increase in part-time employment is the result of the increasing volume of women in semi-/low-skilled occupations (Fig. 7.2), who are also mostly in the category with education at or below lower secondary level (Fig. 7.4). The data suggest that Mexico dealt with the urgent need to cover health and care services as result of the crisis by increasing the number of wage employees in the lower occupational categories as part-time workers and particularly in the public sector (Fig. 7.6).

In Canada and the United States, the drop in volume among part-time workers (men and women) during the hardest hit months at the onset of the pandemic was significantly higher than the drop among full-time workers. This could signal that, before the onset of the COVID-19 crisis, part-time employment was the result of workers' need for time to deal with family and care responsibilities; once the crisis began, part-time workers were then more likely than full-time workers to leave employment because of their need to care for dependents, which was already present

before the lockdown period. In Canada part-time wage employment among men had recovered by December 2020, and in fact increased to 25% higher than in January 2020. However, in the case of women the volume of part-time workers in December 2020 was 5% less than in January 2019. In the United States part-time employment in the health and care sector, for both women and men, remained at 8% less than in January 2019.

With respect to institutional sectors, Fig. 7.6 shows that public employment in the health and care sector has been more resilient to the effects of the crisis compared with the private sector – and the fraction of women is higher in the private than in the public sector, particularly for women at the low end of the wage distribution (see Section 5). Thus, compared with January 2019, the public sector has experienced growth in employment in all three countries: in Canada (20% among men, 4% among women), in Mexico (10% among men, 15% among women), and in the United States among men (2%). In contrast, employment volumes in the private sector declined significantly at the onset of the crisis (April/May 2020) in Canada (among men and women), in Mexico (particularly among women), and in the United States (particularly among women). It is notable that in the case of Canada employment volumes in December 2020 were still 10% below those observed in January 2019. It is also striking that in the United States, where public employment accounts for less than 10% of total employment in the health and care sector, the volume of women wage employees in the health and care sector declined by 18% compared with January 2019.

To complement Figs 7.2 to 7.6, Fig. 7.7 shows the distributions of workers who are temporarily absent from work over time. The figure distinguishes between those who are temporarily absent but paid during their absence (as with furlough, due to care/family responsibilities, and other circumstances such as holidays and training) and those who do not get paid during their absence. As would have been expected, the proportion of furloughed wage employees in the health and care sector increased at the onset of the pandemic for women and for men. In Mexico, it increased more for women (up to 14% in April 2020) than for men (up to 7% in April 2020), whereas in Canada and the United States the proportions of furloughed wage workers with pay are similar: approximately 1.0% in Canada and 2.2% in the United States.

Although the health and care sector would have continued operations throughout the crisis, these estimates are different from those in countries where the fraction of wage workers in job protection schemes was much higher. For example, in France,

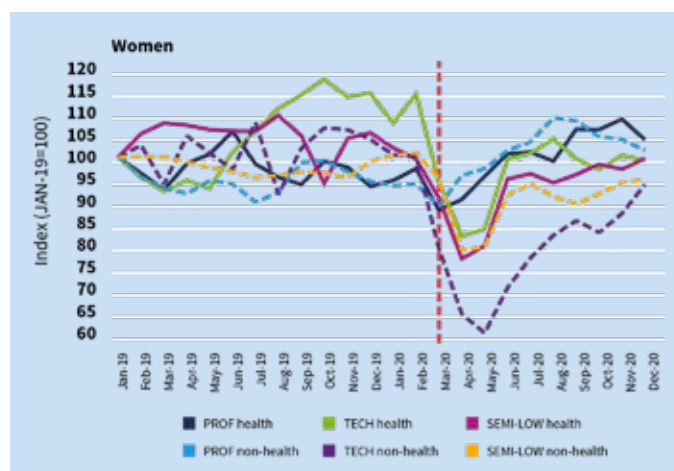
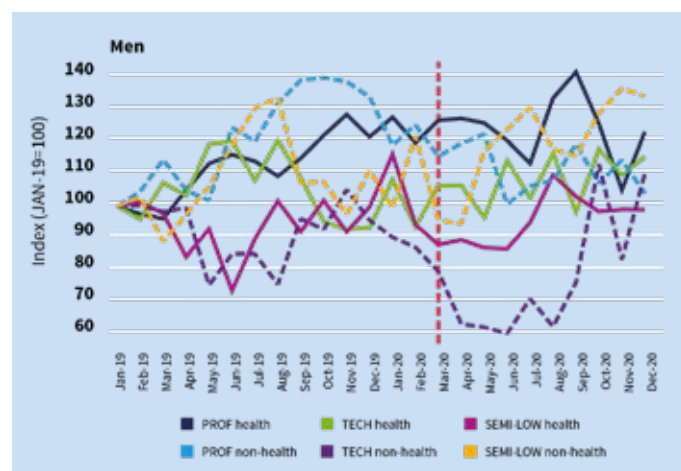
Germany and the United Kingdom, the fractions of wage workers furloughed were 8%, 6% and 9%, respectively, by April 2020 (European Commission, 2020). What is striking in Fig. 7.7 is the surge in the proportion of workers in the health and care sector that, at the onset of the crisis, become “temporarily absent from work” without pay but with the intention to go back to work in the same workplace in the near future. In Canada, this was the case for 7% of men and 13% of women wage employees; in the United States, 3% of men and 4% of women wage employees were in this category. Only in the case of Mexico is this group’s percentage close to zero. As was previously pointed out, wage workers temporarily absent without pay are not necessarily low-skilled workers, as a significant fraction of them are in technical or higher occupations

within the health and care sector. For example, in Canada in April 2020, 53% of wage employees temporarily absent without pay occupied technical and professional occupations; in the case of the United States, the proportion for the same period was 63%. In total, the data from one of the worst months of the pandemic in terms of employment loss (April 2020) in Canada and the United States found that approximately 68% of wage employees temporarily absent from work in the health and care sector were not getting paid during their absence from work. Although this requires more detailed investigation, the estimate suggests that a fraction of workers in the health and care sector in these two countries are probably not equally covered by formal arrangements that allow for social protection in the labour market.

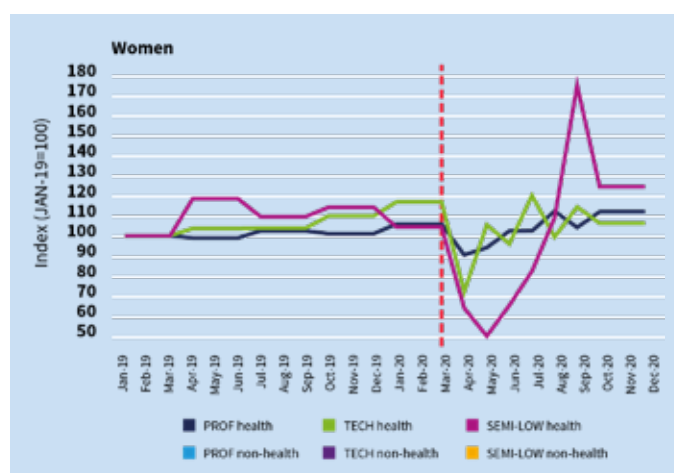
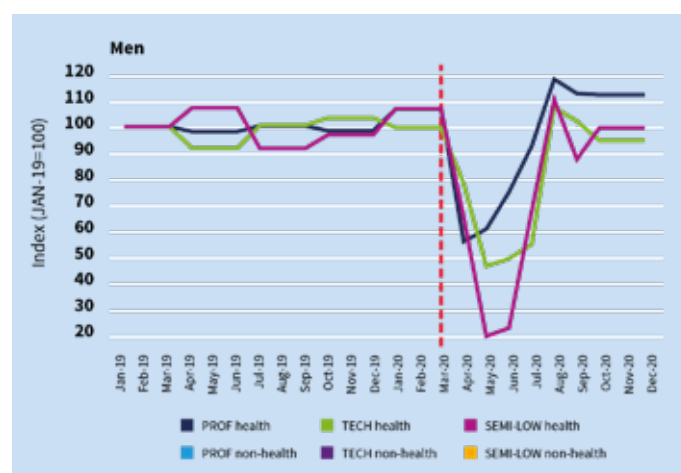
FIG. 7.2

Employment growth in the health and care sector, by occupational categories, January 2019 to December 2020, selected countries

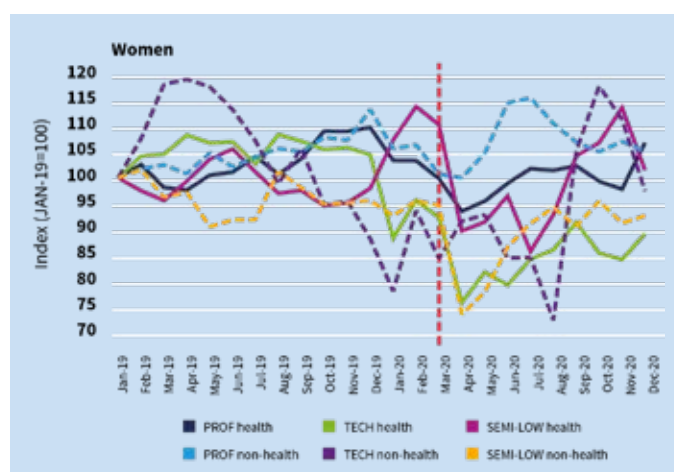
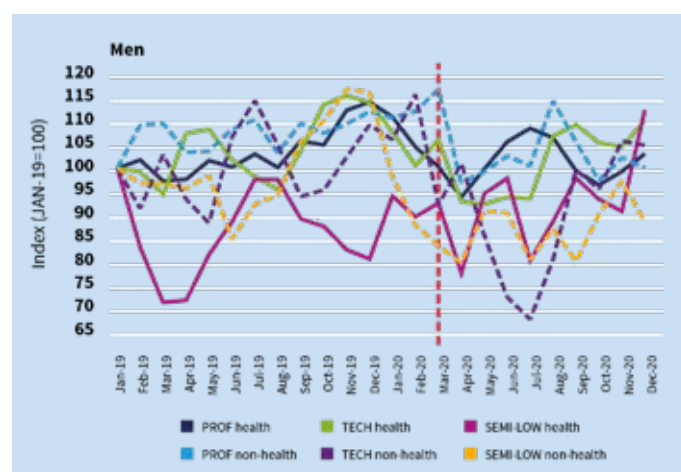
Canada



Mexico



United States

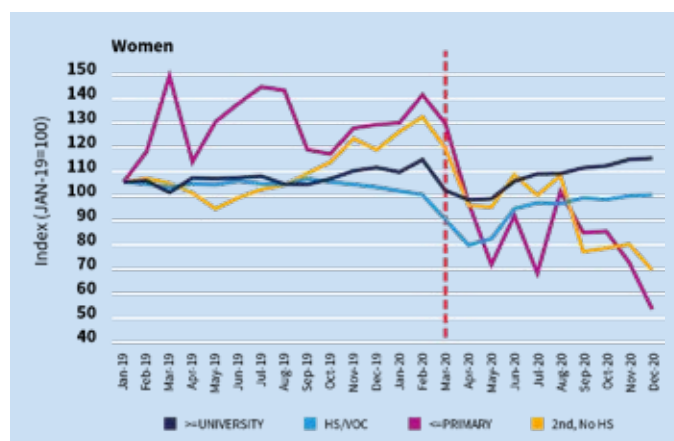
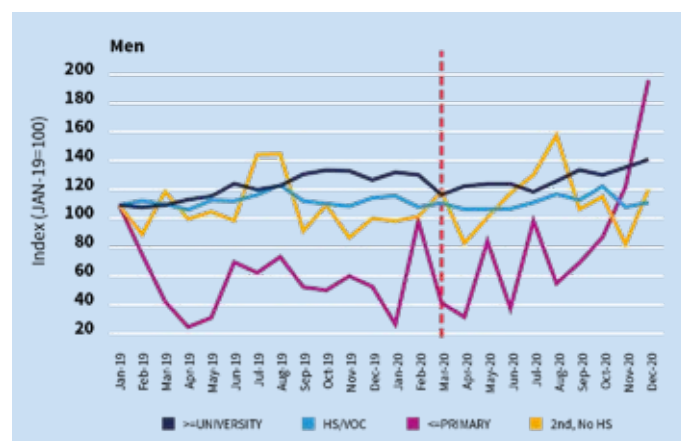


Source: ILO, WHO estimates.

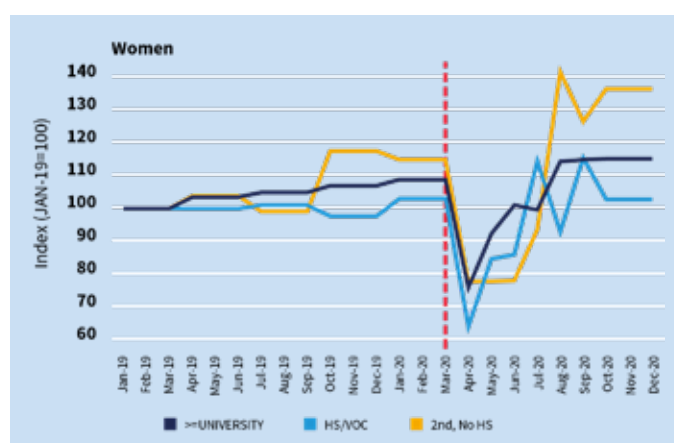
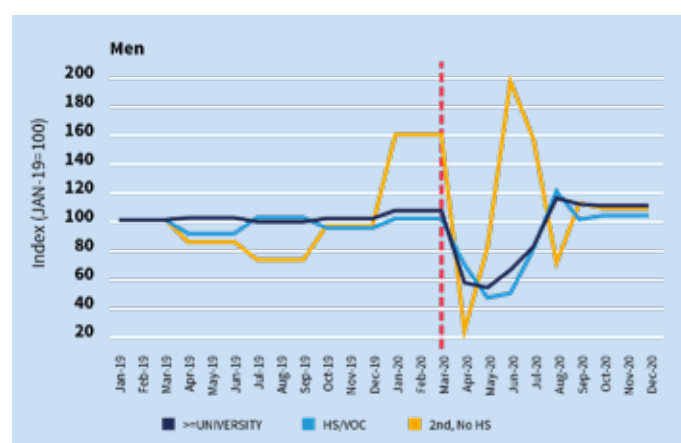
FIG. 7.3

Employment growth in the health and care sector, by educational categories, January 2019 to December 2020, selected countries

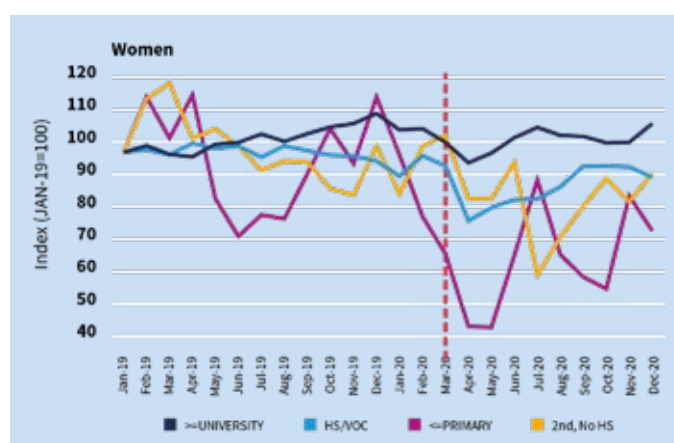
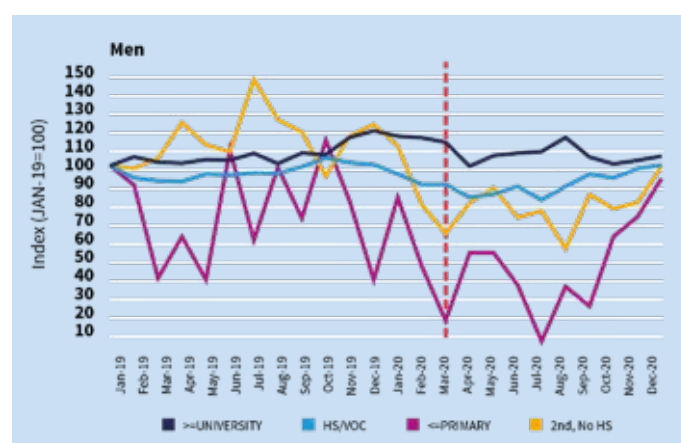
Canada



Mexico



United States

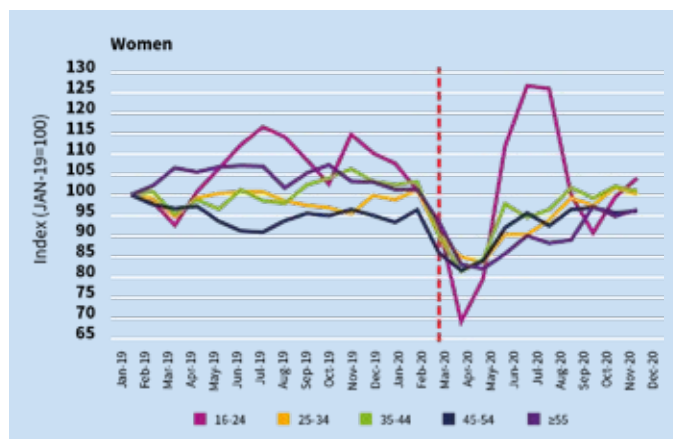
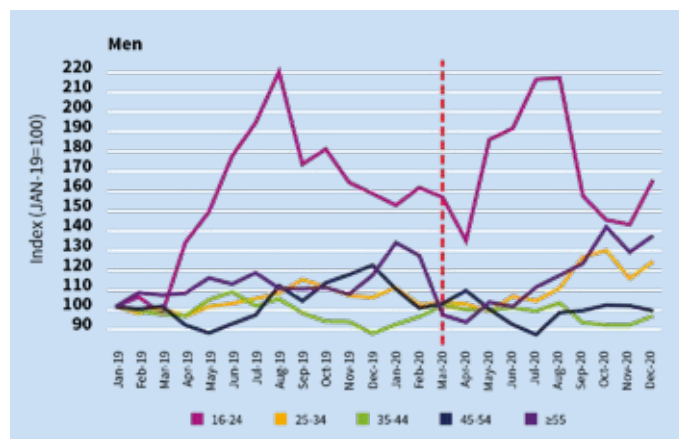


Source: ILO, WHO estimates.

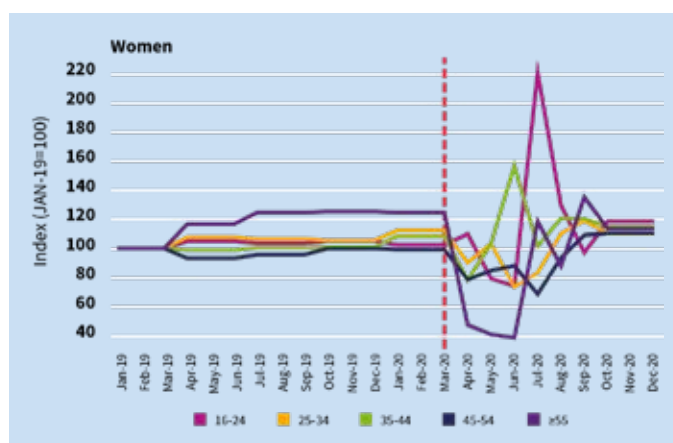
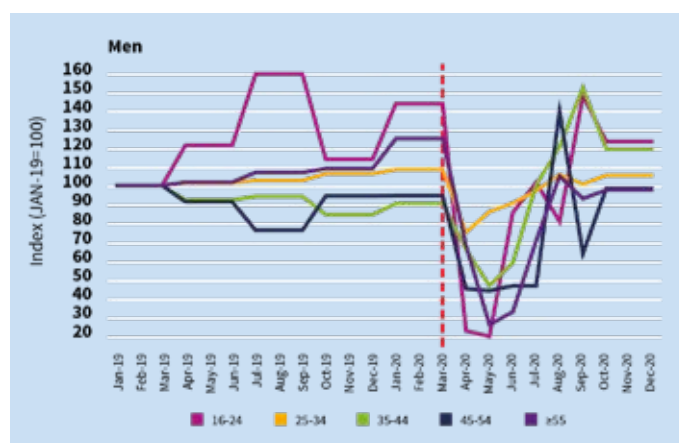
FIG. 7.4

Employment growth in the health and care sector, by age groups, January 2019 to December 2020, selected countries

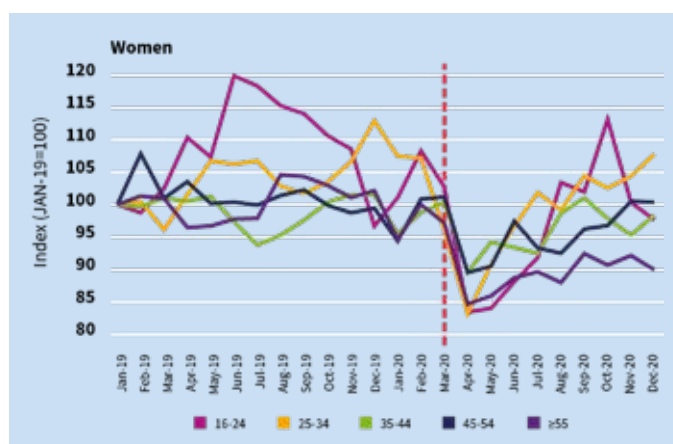
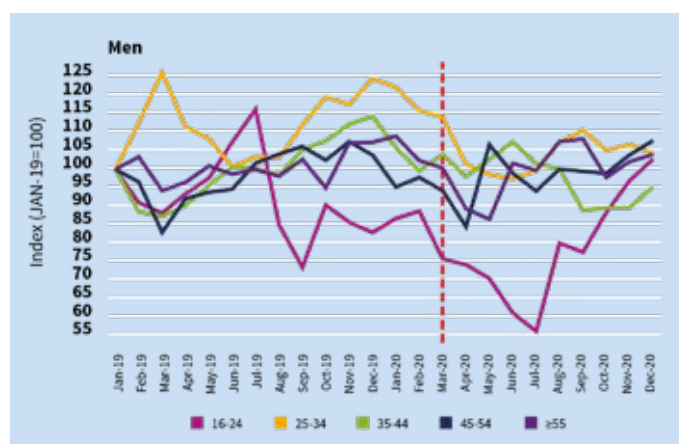
Canada



Mexico



United States

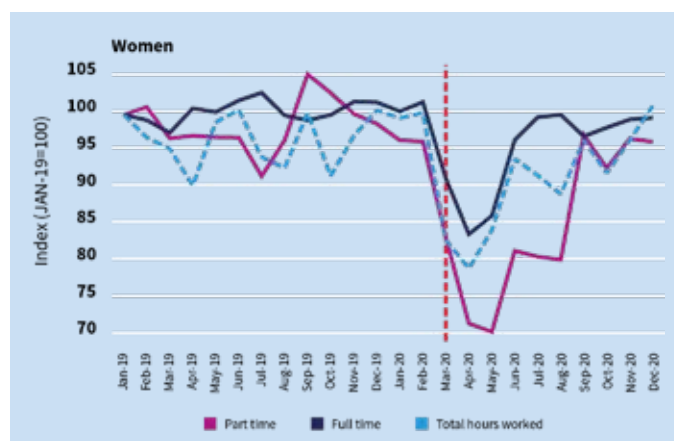
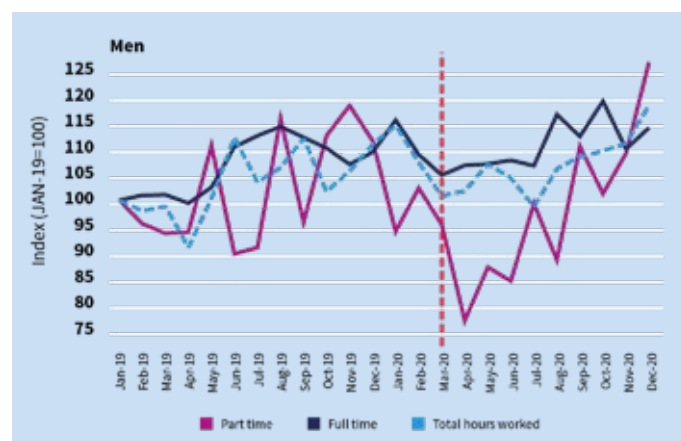


Source: ILO, WHO estimates.

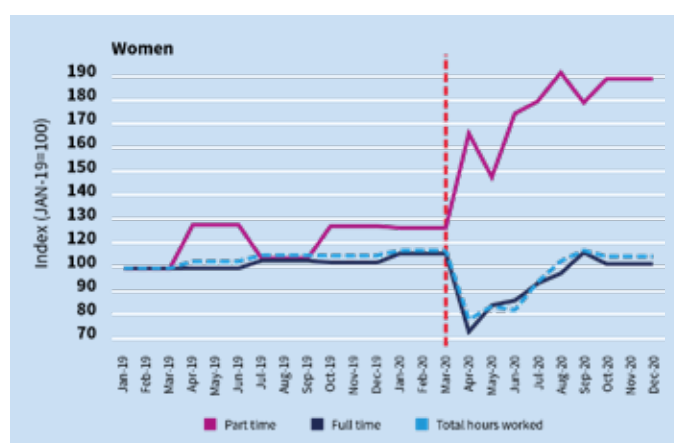
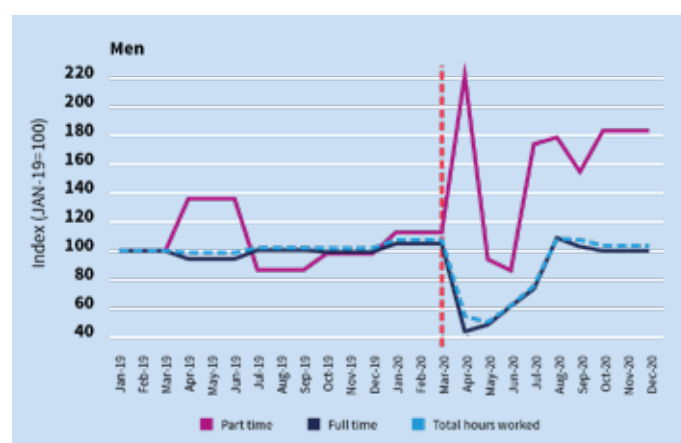
FIG. 7.5

Employment growth in the health and care sector, by working modality (full time or part time), January 2019 to December 2020, selected countries

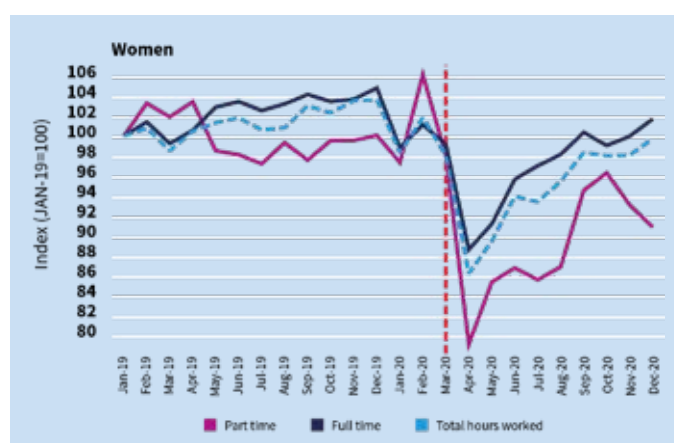
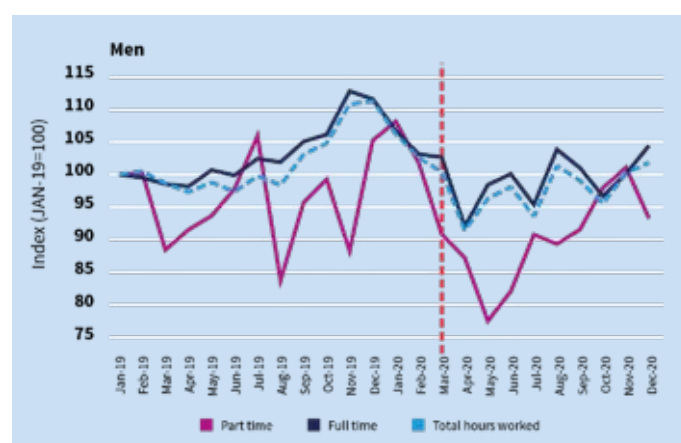
Canada



Mexico



United States

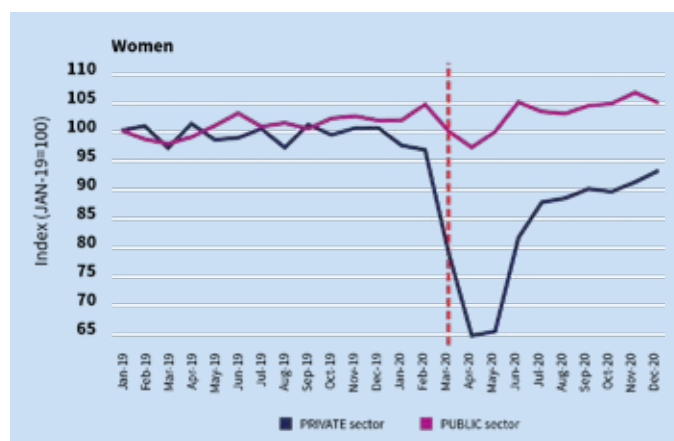
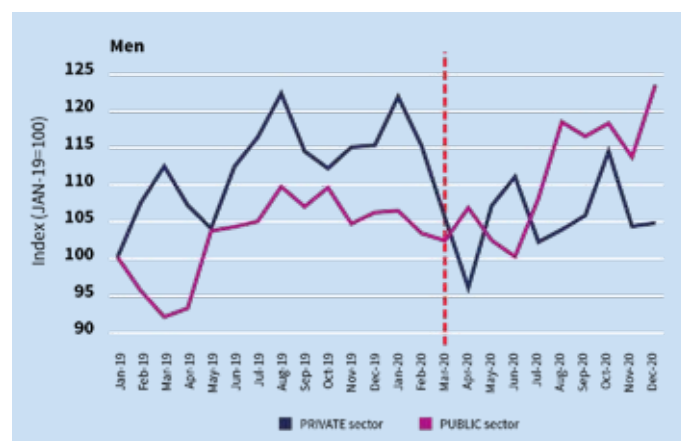


Source: ILO, WHO estimates.

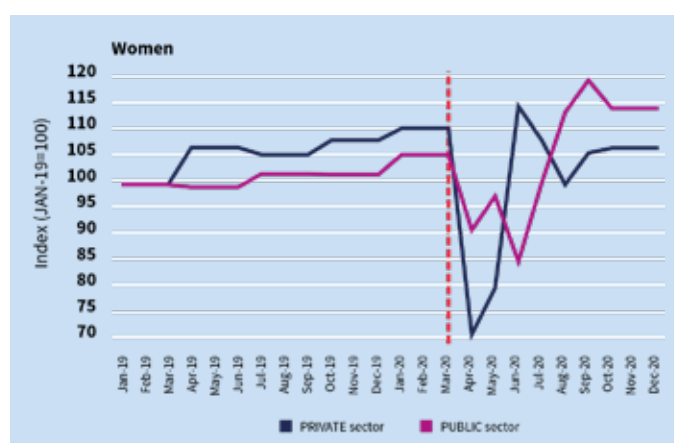
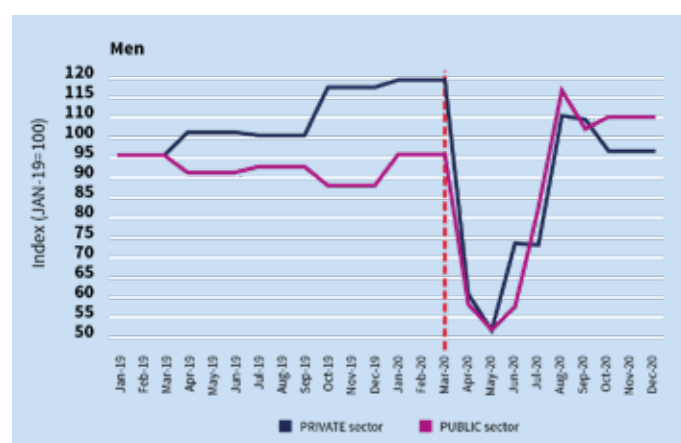
FIG. 7.6

Employment growth in the health and care sector, by institutional sector, January 2019 to December 2020, selected countries

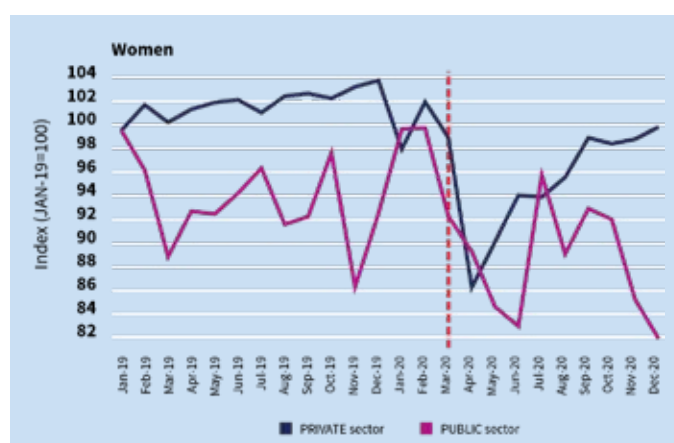
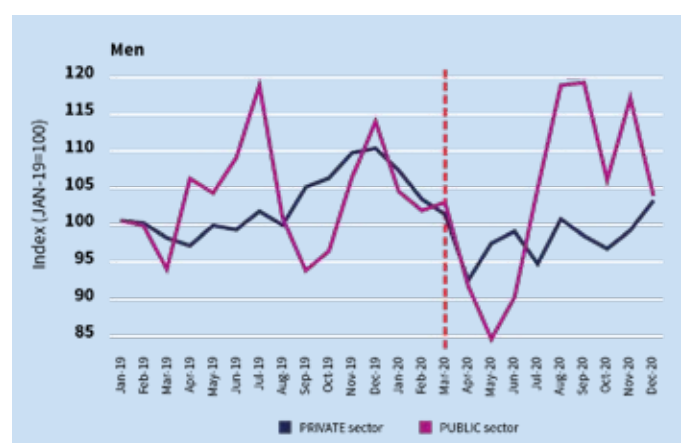
Canada



Mexico



United States

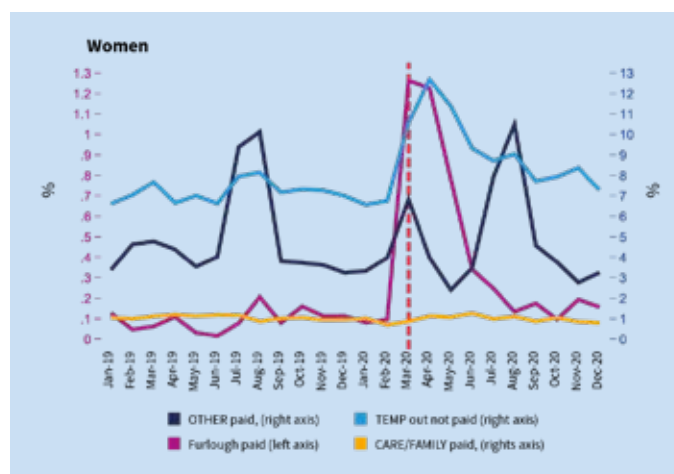
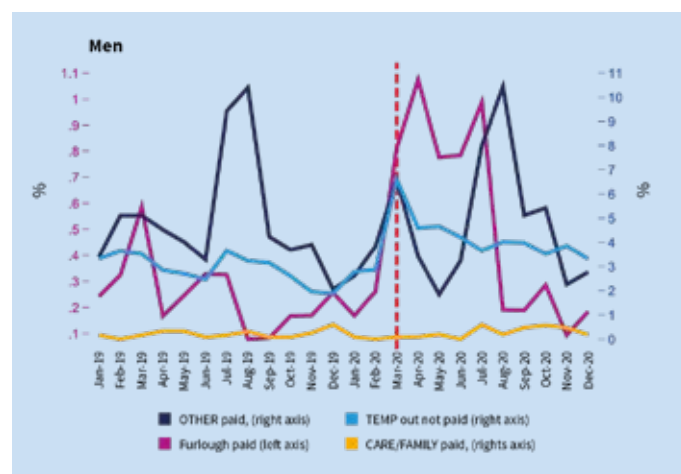


Source: ILO, WHO estimates.

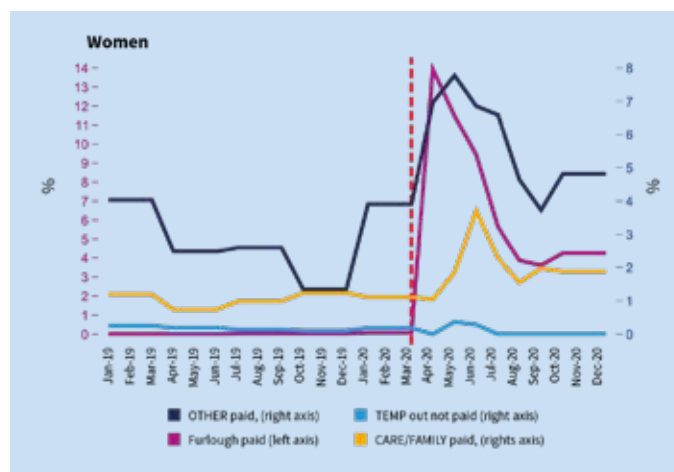
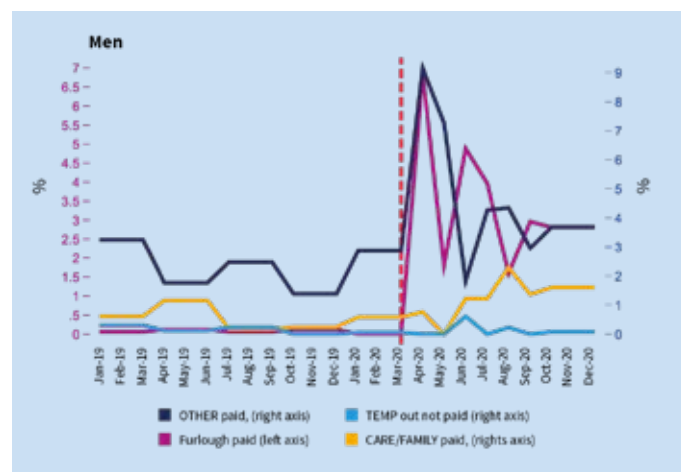
FIG. 7.7

Growth in temporary absence from work among wage employees in the health and care sector, January 2019 to December 2020, selected countries

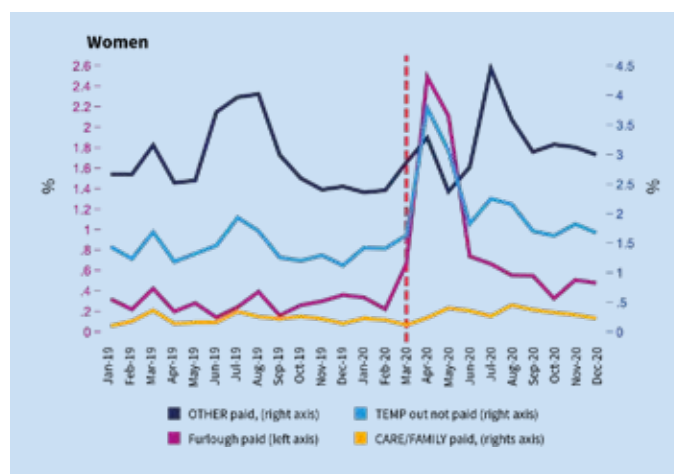
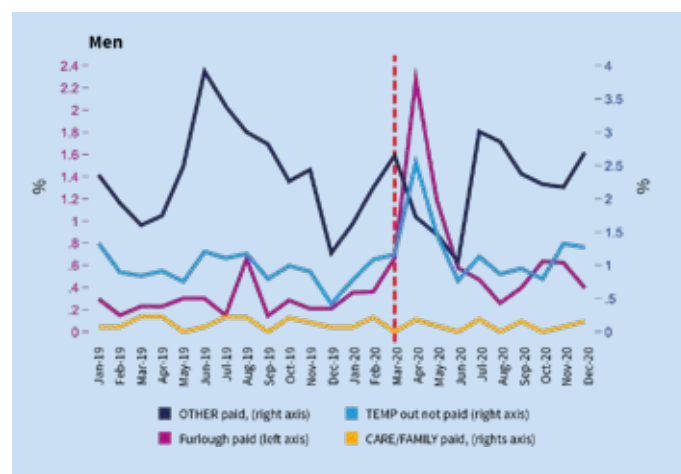
Canada



Mexico



United States



Source: ILO, WHO estimates; the righthand axis corresponds to “care/family responsibilities” and the lefthand axis to “other reasons”.

The final figure in this section, Fig. 7.8, looks only at Mexico, for which we have pre- and during-COVID-19 data in which formal versus informal status in wage employment can be identified. For men, the drop in employment during the hardest hit months of the pandemic was similar for men in formal and informal employment, with each falling by 50% in relation to the number of men employed in the health and care sector in January 2019. The volume of men with both formal and informal jobs recovered by December 2020, particularly in the case of men with formal jobs, which increased by 5% at the end of the period. Women, on the other hand, show a completely different trend. Women with both formal and informal wage employment in the health and care sector suffered effects of the crisis. The volume of women wage employees with formal jobs fell by 22%, but then recovered to reach 22% more women wage employees with formal jobs by December 2020. However, wage women with informal jobs in the health and care sector experienced a staggering fall, of 61%, by June 2020. Wage women with informal jobs in the sector also experienced a recovery by December 2020, but at the end of the period they were still at just 22% the volume of employment observed in January 2019.

The two charts in the second row of Fig. 7.8 show the employment effects of COVID-19 for the formal and informal sectors separately. Before COVID-19, the formal sector in Mexico accounted for about 46% of all wage employees with informal employment.⁵⁸ The data show that wage employees with informal wage employment in the health and care sector are almost exclusively employed in the formal sector. The low incidence of informal workplaces or enterprises in the health and care sector is behind the huge variations in the “informal sector” in the second row of Fig. 7.8. What the charts in Fig. 7.8 show is that the formal sector was able to weather the economic impact of the COVID-19 crisis by reducing employment among women wage employees with informal employment.

Men also suffered employment losses, which occurred equally among those with formal and informal employment. At the end of the period in December 2020, the formal sector had returned to employment levels similar to those in January 2019 for both women and men; this was accomplished by hiring back a slightly higher number of men with informal jobs, increasing the fraction of women with formal jobs, and reducing the fraction of women in informal employment. The overall effect has been to reduce the proportion of wage employees in informal employment when compared with January 2019. Thus, whereas in January 2019, 25% of wage employees were in informal employment in the health and care sector (19% among men, 28% among women), by December 2020 this proportion had fallen to 20% (19% among men and 20% among women). This means that the crisis left fewer women with informal employment in the health and care sector, probably as a result of the increase of women wage employees in the public sector and a parallel reduction of women wage employees in the private sector.

The final four charts in Fig. 7.8 show that the wage employees in the health and care sector who benefit from paid temporary absence from work are mostly employees with formal employment status. However, the fraction of those with informal status who were getting paid while temporarily absent at the peak of the pandemic was not entirely negligible: approximately 4% among men and 10% among women. The data show this was mostly the result of extending wage subsidies to wage employees with informal wage employment in the formal sector. But the data also indicate that a greater proportion of women wage employees with informal employment (2%) were temporarily absent and not getting paid, when compared with those with formal employment (less than 0.2%).

⁵⁸ Other informal wage employees would have been shared between the informal sector (28%), domestic workers (14%) and the agricultural and fishery sector (12%).

FIG. 7.8

Growth in formal and informal employment among wage employees in the health and care sector, January 2019 to December 2020, Mexico

Formal versus informal employment growth, by employment status and formal/informal sector

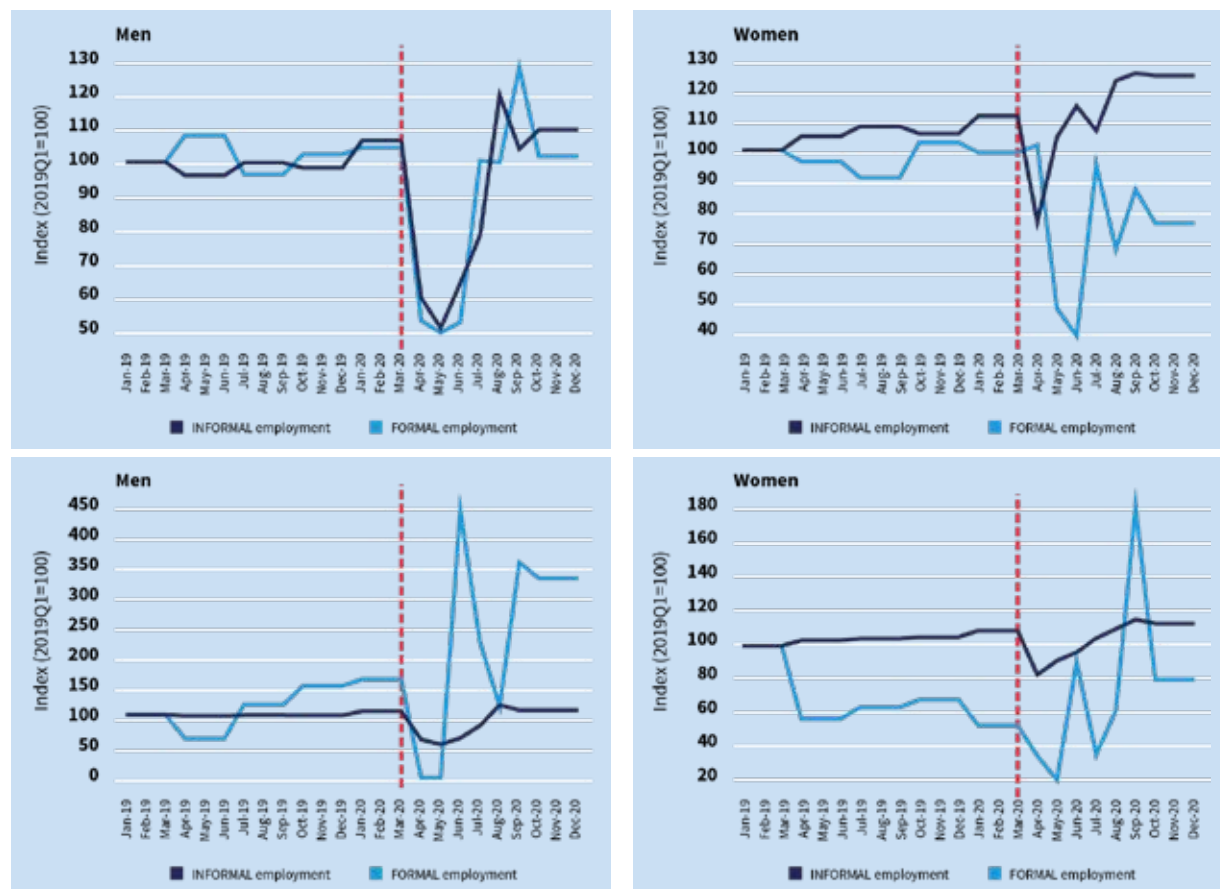
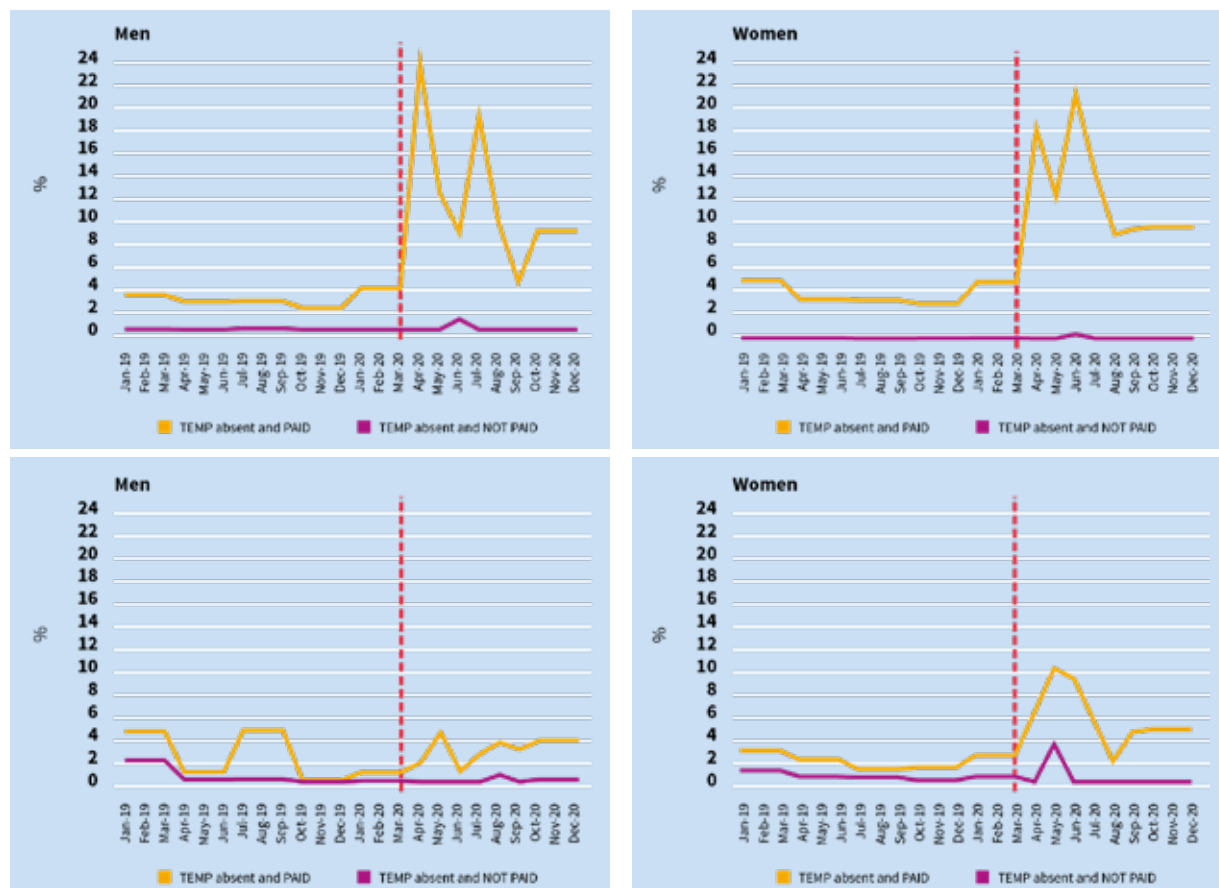


FIG. 7.8 CONT.

By types of temporary employment



Source: ILO, WHO estimates.

7.3 The effect of the COVID-19 pandemic on earnings among wage employees in the health and care sector: the cases of Canada, Mexico and the United States

Fig. 7.9 shows the evolution of earnings among wage employees in the health and care sector in Canada, the United States and Mexico. The figure displays three different series: hourly wages, monthly earnings and the total wage bill. All estimates reflect real values having deflated the corresponding series by the monthly consumer price index (and the quarterly series in the case of Mexico).⁵⁹

The first striking feature of Fig. 7.9 is the increase in average real hourly wages and real monthly earning in all three countries around the onset of the COVID-19 pandemic; this is evident for both men and women but is more noticeable among women (the

line is initially steeper among women in Canada and the United States, but then climbs similarly for both women and men in Mexico). At the same time, the real total wage bill falls for all three countries.

The three figures combined show the classic composition effect; i.e. **the effect of the COVID-19 crisis on employment has impacted more adversely those at the low end of the pay scale.**

As described for Figs 7.2 to 7.7, affected workers are lower skilled, younger, with less education, in part-time employment, and with jobs in the informal economy; these characteristics are jointly far more prevalent among women than among men in the health and care sector (see the description by deciles in Section 4). As women and men with this mix of characteristics, who are more vulnerable to the labour market crisis, lost their employment as result of COVID-19, those left with employment in the

⁵⁹ The earnings data for Canada and the United States come in a weekly format. However, the survey asks individuals if they had worked in the past month, and for how many weeks. In order to consider that those who claimed to be employed might have worked less than 4 weeks, something that may have been more acute during the hardest hit months at the onset of the pandemic, we constructed the monthly equivalent by considering weekly earnings times the number of weeks worked during the month of the survey. The United States data have an added complication, which is that only a fraction of individuals are eligible to respond to earnings questions in the survey. We allow for all wage employees to enter the analysis by carefully imputing the earning of those who were not eligible to respond to the wage and income questions, but who were part of the employed population at the time of the survey.

labour market are the better paid – namely, those with professional health functions, highly skilled, or with longer tenure in other occupational categories. It is this composition effect that artificially increases the average hourly wage or monthly income.

The hike around April/May 2020 is steeper among women (compared with men) in Canada and in the United States because more women (among women) with characteristics that make them more vulnerable to losing their jobs in the economy, including in the health and care sector, had lost their jobs, when compared with the fraction of men (among men) who lost their jobs and who have the mix of characteristics leading to lower wage employment in the health sector. The charts showing the evolution of the total wage bill (i.e. the addition of all monthly earnings weighted by their respective population weights) illustrate that these aggregates start to fall at the onset of the COVID-19 pandemic, with a fall that is far steeper among women compared with men. This is because more women lost their jobs, compared with men (because there are more women overall than men in the health and care sector) but also because there are more women compared with men with the mix of labour market characteristics that makes them more vulnerable to employment loss as result of the COVID-19 crisis.

The fall in the total wage bill, and the relative movements of wages with the consequential composition effects, can be better seen in Fig. 7.10 where the movements across time are indexed to January 2019. In the case of Mexico, the drop in the total wage bill at the onset of COVID-19 is sharper among men compared with the drop of the total wage bill among women, showing that the prevalence of low-skilled jobs among men is significant among men in the health and care sector in Mexico. Furthermore, these wage employees lost more volume of employment in the sector at the onset of the health crisis (see Figs 7.2 and 7.3).

The composition effect creates a difficulty when seeking to compare the relative movement of wages between women and men across time. For example, it would be possible to estimate the gender pay gap at any given point in time, but in the presence of composition effects it would not be valid to make statements on the evolution of the gender pay gap

because, as we have shown in this section, the composition of wage employees in the health and care sector has changed between periods among women and among men. Furthermore, the outcomes from each group can also be affected by these changes, including earnings. Thus we proceed to remove the composition effect from the series before assessing the movement of the gender pay gap over time.

This can be done by applying the following steps. First, the population of wage workers in the health and care sector in a month of 2020 is compared with the population in the same month in 2019, and the comparison is done separately for women and men. For each wage worker in each of the months of 2020 we look for identical wage employees in the health and care sector in the corresponding month of 2019. For example, for each woman wage employee in January of 2020, we look for an identical woman wage employee in January 2019, where identical implies in terms of age, education, occupational category, working modality, institutional sector and other characteristics relevant to the wage determination of employed women and men in the health sector.⁶⁰ The matching done for our analysis follows the one-to-one matching process by Nopo (2008). It provides each matched wage worker in 2020, in a given month, with a set of individuals who are identical in the same month in 2019.⁶¹ The second step in the matching process consists of eliminating those wage workers in 2019 who were not matched to wage employees in 2020. These are the wage workers who lost their jobs and were no longer observed in 2020 – more likely than not due to the disruptions caused by the COVID-19 pandemic. Since the remaining sample of wage employees in 2019 are similar in characteristics to those observed in 2020, their earnings in real terms can be compared to identify changes between women and men before and after the COVID-19 outbreak, clean from composition effects with respect to the sample in 2019. The final step consists of estimating and comparing the average earnings of women and men in the health and care sector across time, exclusively using the matched samples, on a month-to-month basis.

⁶⁰ These vary by country but, for example, in both Canada and Mexico we included, apart from the categories mentioned above, contractual arrangement. In the case of Mexico we also added the size of the enterprise and informality status. In the case of the United States, we added union membership, race and state. In the case of Canada, we added province. Finally, for all three cases we added rural versus urban area. The set of possible variables are described in Table 5.1.

⁶¹ We are very grateful to Hugo Nopo for providing the programming syntax to perform one-to-one matching as described in the paper by Nopo (2008). In that paper, the idea is at one point in time to separate out the component of the gender pay gap among those that share a common support (common characteristics) from the component of the gap that results from women and men that cannot be compared in the population (out of sample control and treated). In our application of the Nopo (2008) approach, we apply the method to identify men and women whose characteristics remain identical among the employed in the health and care sector after the COVID-19 crisis, men and women in 2019 whose characteristics are no longer present in the labour market after the onset of the COVID-19 pandemic (off the sample controls in 2019), and men and women whose mix of characteristics were not observed in 2019 but are newly observed in 2020 (off the sample treated in 2020).

Fig. 7.11 shows the evolution of average hourly wages and monthly earnings separately for women and men, comparing actual outcomes (solid lines, January 2019 to December 2020) with the outcome of the matched sample in 2019 (dashed line, January 2019 to December 2019). We note that estimates using the matched sample stop in December 2019 because this is the last month for which matching is possible in the series (the last month in the data being December 2020). The results are striking in the case of Mexico (men and women) and the case of men in the United States. The matched sample in 2019 clearly captures the (higher) earnings trend observed by the actual data in 2020. In contrast, for Canada (women and men) and for women in the United States, the matched sample shows that wage workers in the health and care sector in 2019 for whom there is a match in 2020 are, in fact, higher earners in real terms, compared with the mix of workers in 2020. We will revisit this issue.

Fig. 7.12 shows estimates of the gender pay gap in the period from January 2019 to December 2020, with such estimates clean from composition effects with respect to the characteristics of workers in 2019. In this case the gender pay gap is based on estimating the pay gap (in hourly wages as well as monthly earnings) at different quantiles of the hourly wage distribution and taking the weighted average across quantiles; this follows the same procedure used for Fig. 5.1.⁶² Fig. 7.12 shows that in the case of Mexico the gender pay gap varies widely across the 24 months of the series. Prior to the COVID-19 pandemic, the fluctuations are less severe and are likely to be the result of seasonality; in the during-COVID-19 period the fluctuations show a slight decline in the pay gap between women and men in hourly wages (the 12% pay gap by December 2020 is 4% less than in January 2019) but a similar pay gap in monthly earnings across the period.

In Canada there has been a decline in the hourly gender pay gap during the during-COVID-19 period (from about 8% to 6%), but the drop appears far greater when comparing hourly gender pay gaps between pre- and during-COVID-19 periods. Thus, in Canada, the hourly wages of men in the health and care sector prior to March 2019 were about 10–12% higher than those of women, on average, across deciles; with the arrival of COVID-19 the average hourly wages of women grow faster and the gap in average hourly wages between men and women declines to 6%. In terms of monthly earnings, the decline is from a 19% pay gap in January 2019 to a 14% pay gap in December 2020.

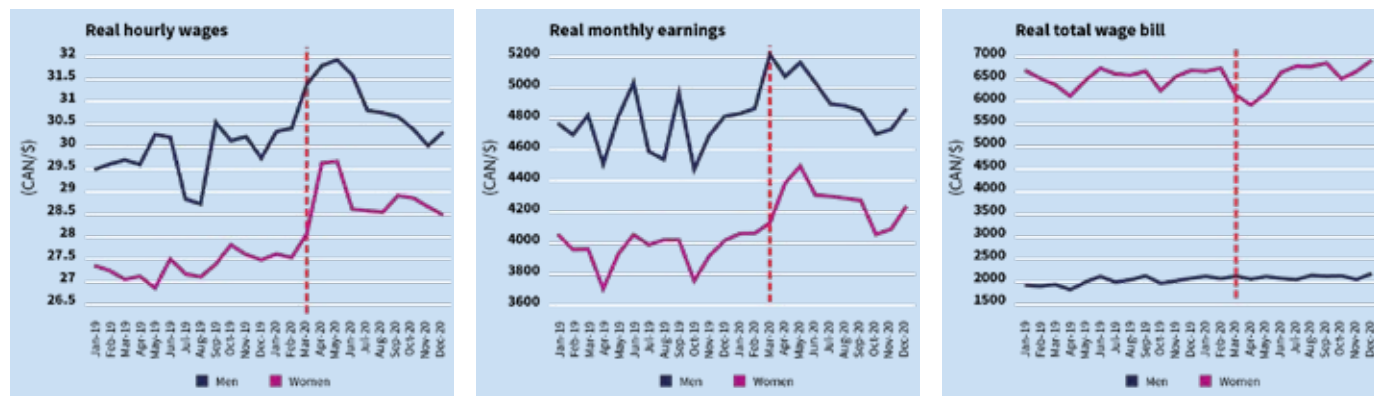
In the United States, there was already a declining gap prior to the onset of the COVID-19 pandemic, with the average hourly wages and monthly earnings of men declining steadily through 2019 when using the match sample (see Fig. 7.11). In fact, much of the change in gender pay gaps in the health and care sector between January 2019 and December 2020 had already occurred in the year 2019, which ended with hourly pay gaps of 28% and monthly earnings pay gaps of 36%. During 2020 the hourly and monthly gender pay gap in the health and care sector in the United States fluctuates steadily, but with a further downwards trend, between 22% and 26% and 28% and 32%, respectively.

⁶² Section 3 explored different ways to improve the raw estimate of the gender pay gap. The use of factor-weighted gender pay gaps is effective at controlling for irregularities across the wage distribution (composition effects with periods) when estimates reflect the full population, as opposed to a single sector, which is the case when analysing pay gaps in the health and care sector. In Section 4, we showed that an equally effective way to estimate pay gaps while comparing women and men that are relatively similar in the population is to estimate pay gaps at each decile of the hourly wage distribution. We selected this method for use in Fig. 5.1 and to estimate the overall gender pay gap at each of the periods here in Section 7.

FIG. 7.9

Earnings trends among wage employees in the health and care sector, January 2019 to December 2020, selected countries

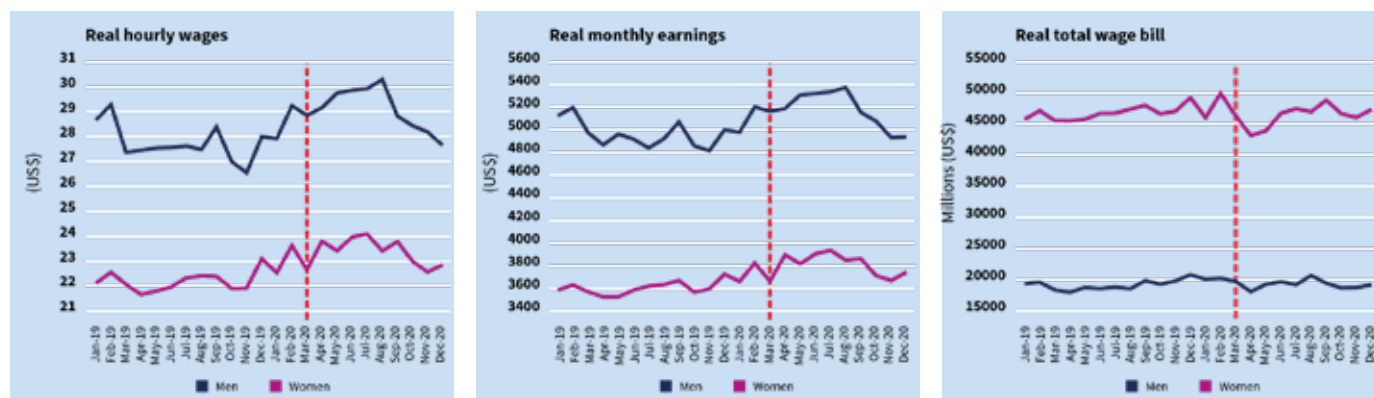
Canada



Mexico



United States



Source: ILO, WHO estimates.

FIG. 7.10

Index for earnings trends among wage employees in the health and care sector, January 2019 to December 2020, selected countries

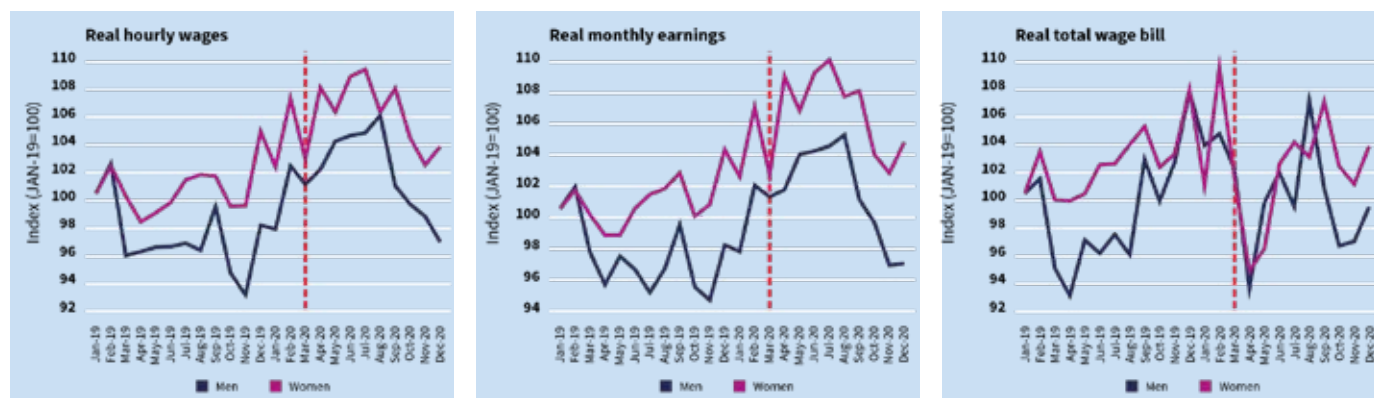
Canada



Mexico



United States

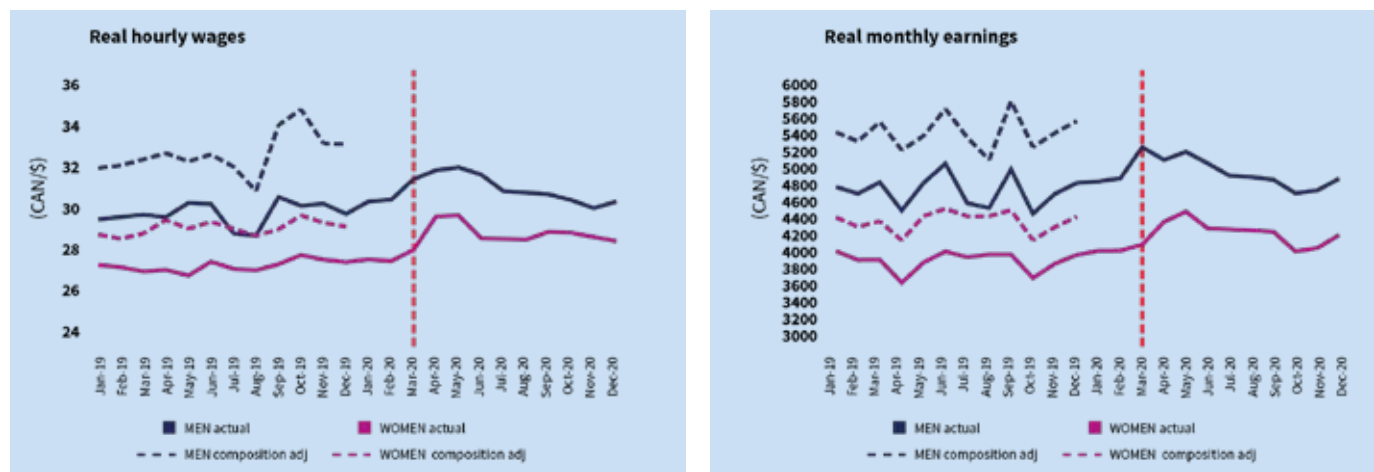


Source: ILO, WHO estimates.

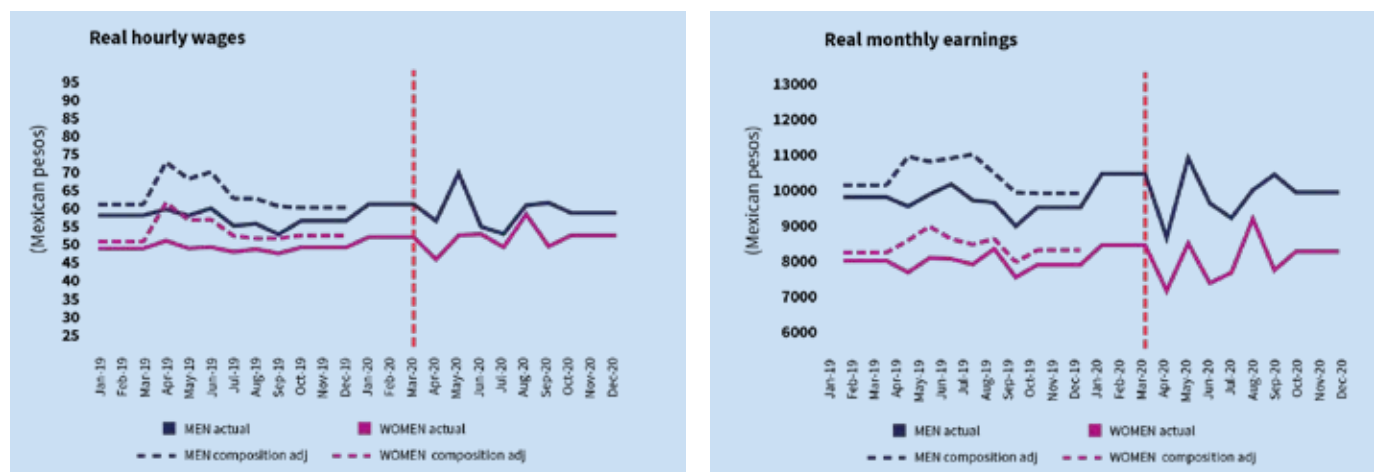
FIG. 7.11

Earnings trends compared with trends adjusted for composition effects due to COVID-19 among wage employees in the health and care sector, January 2019 to December 2020, selected countries

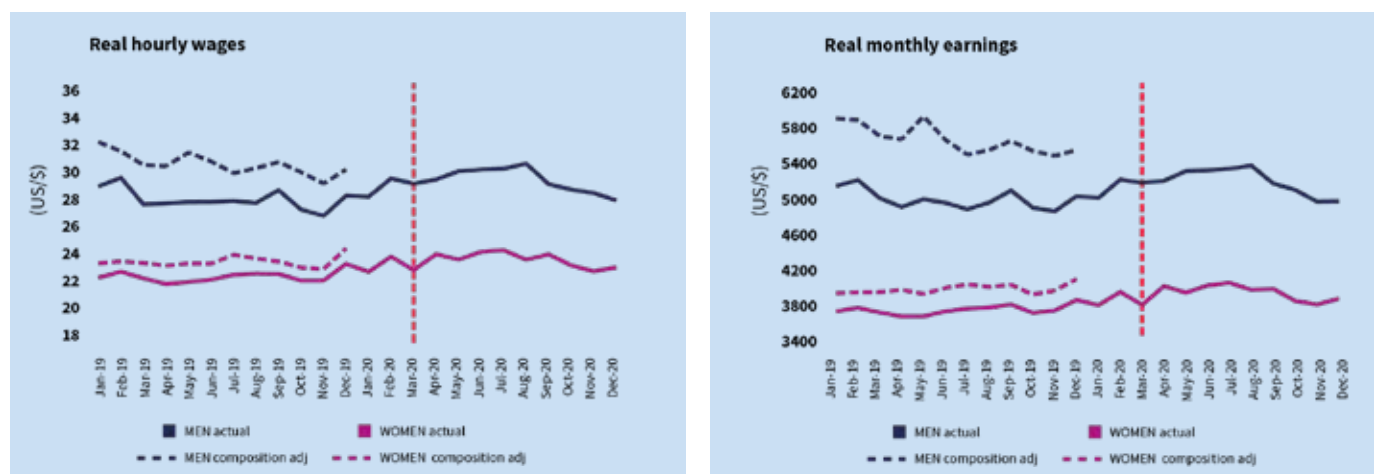
Canada



Mexico



United States

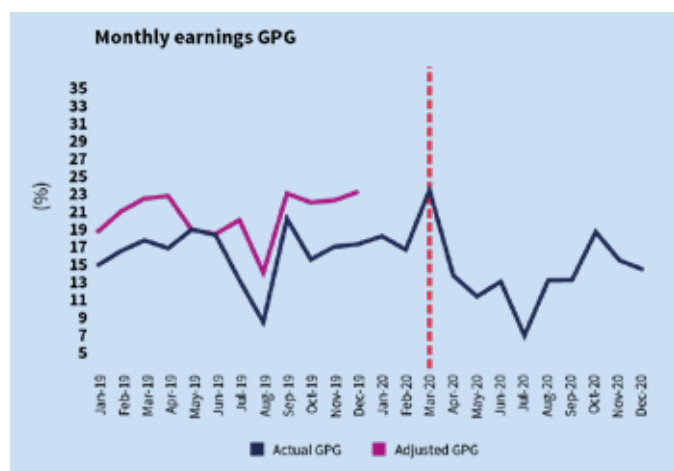
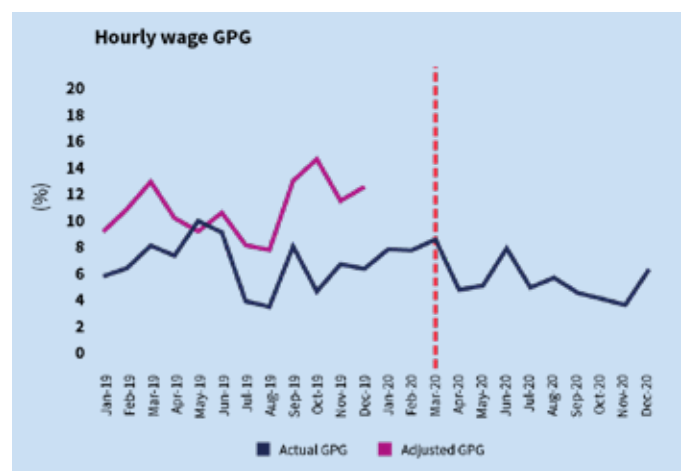


Source: ILO, WHO estimates.

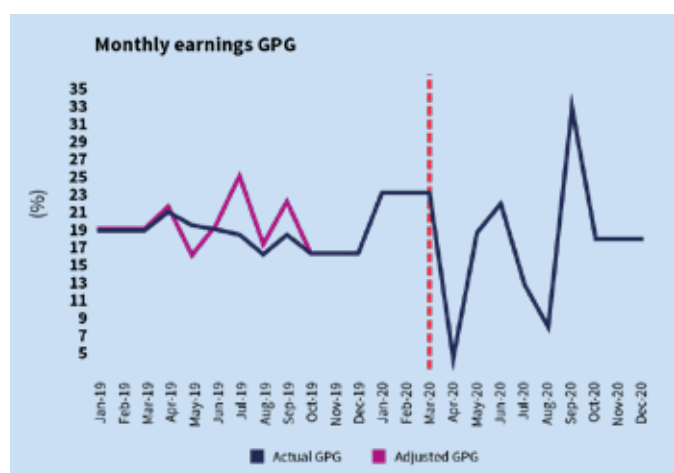
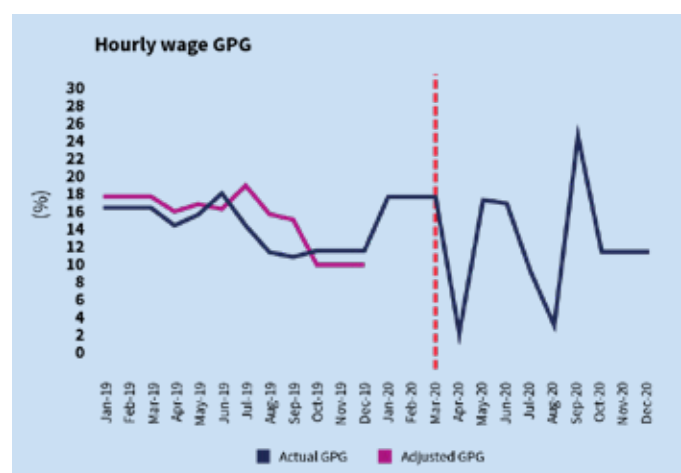
FIG. 7.12

Trends in gender pay gaps, actual and adjusted for composition effects due to COVID-19, among wage employees in the health and care sector, January 2019 to December 2020, selected countries

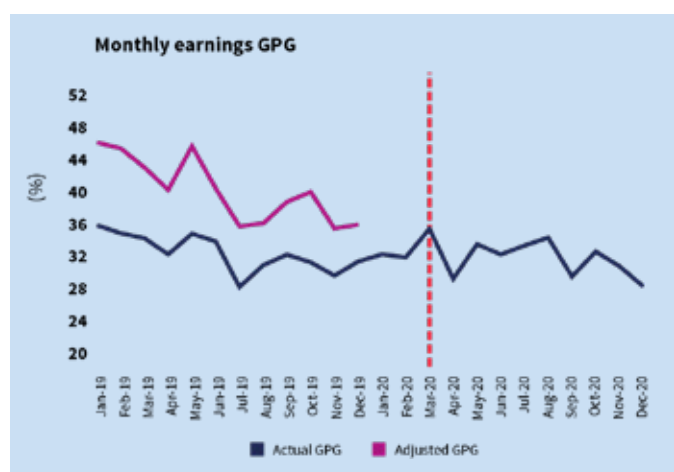
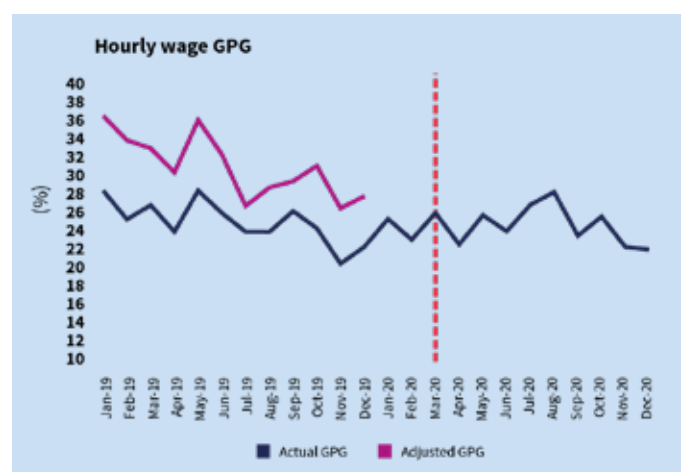
Canada



Mexico



United States



Source: ILO, WHO estimates.

We now examine the observed differences in Fig. 7.11 between the match sample in 2019 (dashed line) and the actual outcome in 2020 (solid line). Although in each of the three countries hourly wages and monthly earnings as of March 2020 reflect a hike compared with actual outcomes in similar months in 2019 (Figs 7.9 and 7.10), wage workers in the health and care sector in 2019 for which there is a match in 2020 are, in fact, higher earners in real terms compared with the workers in 2020. There are two possible reasons. One is that in 2020 workers in the health and care sector are paid less in real terms compared with similar type of workers in 2019. The second possible reason is that a fraction of workers in 2020 have a mix of characteristics not found in 2019, and the characteristics of these newcomers to the health and care sector make them lower paid wage employees when compared with workers in 2020 with a match in 2019. For example, although the proportion of low-skilled part-time workers declined in 2020 compared with 2019, in 2020 we may find a greater prevalence of technical health workers who are younger (compared with 2019) and working in rural areas. Looking back at Figs 7.1 to 7.6, there seems to be some evidence of this. For example, in December 2020, compared with January 2019, there has been an increase in the number of professional health workers in all three countries; however, there is also a greater volume of wage workers with semi-/low-skilled non-health jobs in Canada, Mexico (women) and the United States. There seems to be also a growing number of younger workers, while the older cohorts are leaving the market – this could be related to the greater threat of infection among older cohorts early on in the pandemic. In general, the evidence points out that wage workers in the health and care sector in 2020 includes two categories: better paid workers, whose presence leads to increased earnings when compared with all workers in 2019, and a set of newcomers with a mix of characteristics that garners them lower pay compared with those workers that remained in paid employment (with a match in 2019) after the onset of the COVID-19 pandemic.

The technique developed by Nopo (2008) usefully disentangles the difference in earnings between 2019 and 2020 that may have resulted from the flow of newcomers without a match in 2019 to the labour market in 2020. So far, Figs 7.10 and 7.11 used one-to-one matching to eliminate observations in 2019 that have no match in 2020; now, the same technique can be extended to eliminate individuals in the 2020 sample that have no match in 2019. The double matching process leaves a sample that is purely made up of those that can be matched both forward and backwards across periods. Fig. 7.13 shows the average hourly wage and average monthly earnings comparing the double match samples across January 2019

through December 2020. It is important to highlight that the estimates presented in Fig. 7.13 only serve to compare movements of wages between women and men (or in general, between two mutually exclusive samples) to identify pay gaps that are clean from composition effects. The true pay gaps, however, remain those that are based on actual data and which include both the pay difference between women and men and the pay difference due to composition effects.

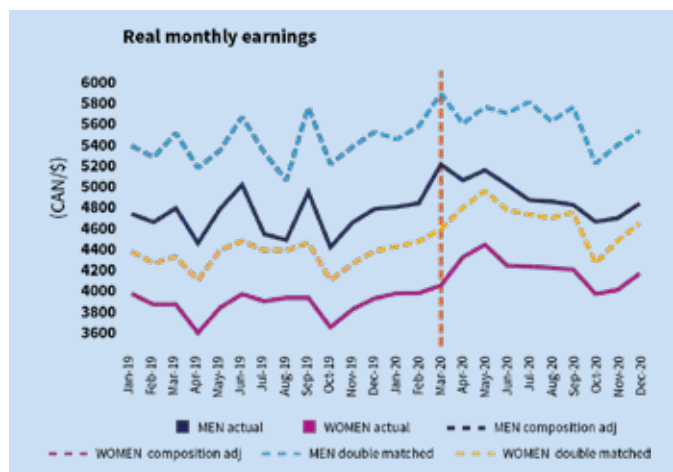
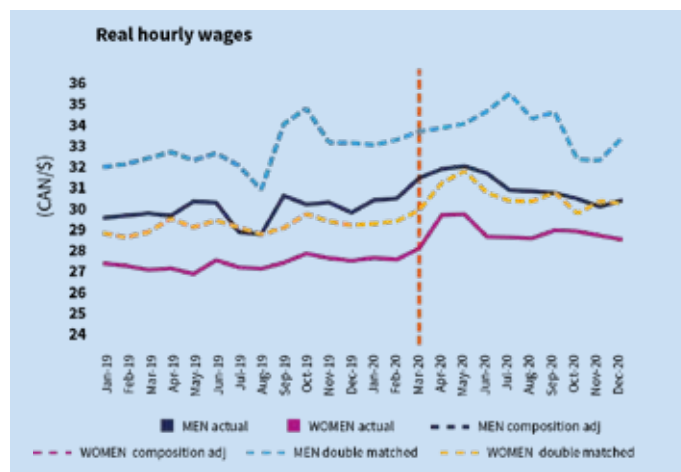
Fig. 7.13 shows trends after having removed composition effects throughout the periods. Fig. 7.14 shows the mean hourly wage and mean monthly earnings gender pay gaps that result from Fig. 7.13. As with Fig. 7.12, the pay gaps are based on estimating corresponding gaps at each quantile and taking the weighted average across these quantiles. Fig. 7.13 shows that only in the case of Canada was there an actual increase in hourly wages and monthly earnings across the period. In Mexico, after controlling for composition effects, the trends show that in real terms there were almost no changes either for men or for women; most of the variation is likely to be the result of seasonal effects. In the case of the United States, real hourly wages and monthly earnings remained stable for women between 2019 and 2020, and actually declined slightly for men (from about US\$ 32 gross per hour in July 2019 to about US\$ 29 gross per hour in December 2020; in monthly earnings the decline was from approximately US\$ 6000 gross to US\$ 5400 gross).

Using wages based on the double adjustment, Fig. 7.14 shows that in Canada the gender pay gap remains fairly stable across comparable men and women before COVID-19, at the onset of the pandemic, and after; fluctuations are mostly due to seasonality changes in earnings. In Mexico the gender pay gap also remained steady over time, with an initial effect at the onset of COVID-19 that lasted for a very short period and was fully driven by a drop in earnings among men in the health and care sector in April/May 2020. This effect may easily be the outcome of the small sample size among men, while the trends show that the gender pay gap remained stable through 2019 and 2020, at around 15% in the case of hourly wages and 20% in the case of monthly earnings. In the United States, the estimates show that, after controlling for composition effects, the gender pay gap has declined over the period 2019–2020, with a decline that is fully driven by a drop in real average gross earnings among men in the health and care sector. However, we note that, not correcting for composition effects (Fig. 7.12), the drop in mean hourly gender pay gap in the United States was estimated to go from 36% in 2019 to 21% in 2020. When corrected for composition effects (Fig. 7.14), the drop in mean hourly wage gender pay gap is more moderate, from 36% in 2019 to 26% in 2020.

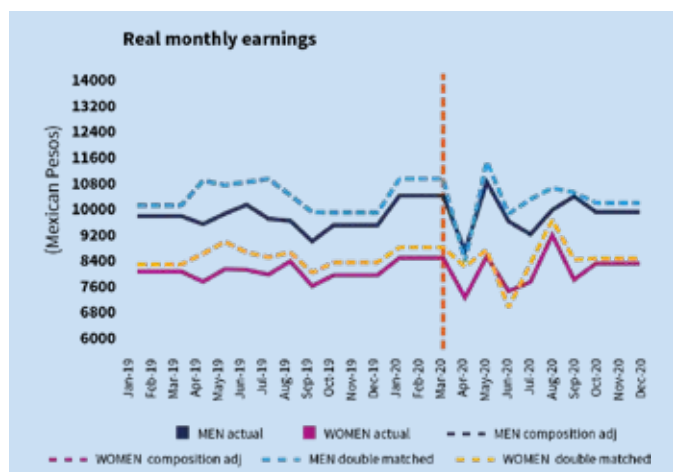
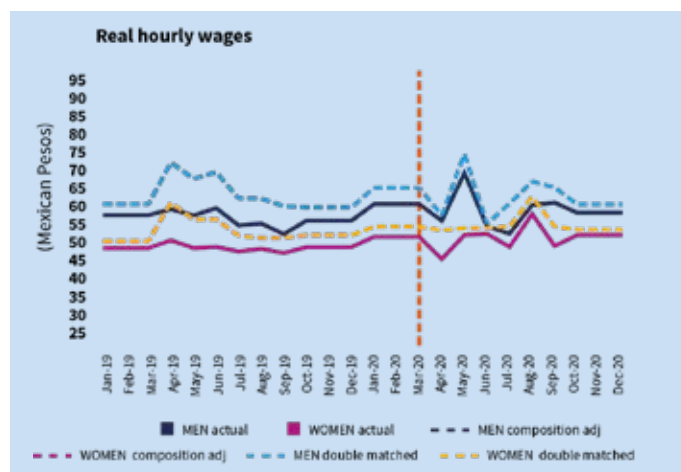
FIG. 7.13

Earnings trends compared with trends adjusted for composition throughout 2019 and 2020 among wage employees in the health and care sector, January 2019 to December 2020, selected countries

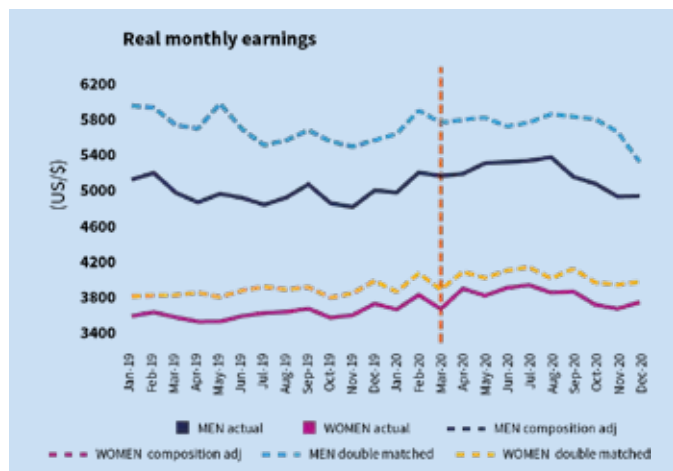
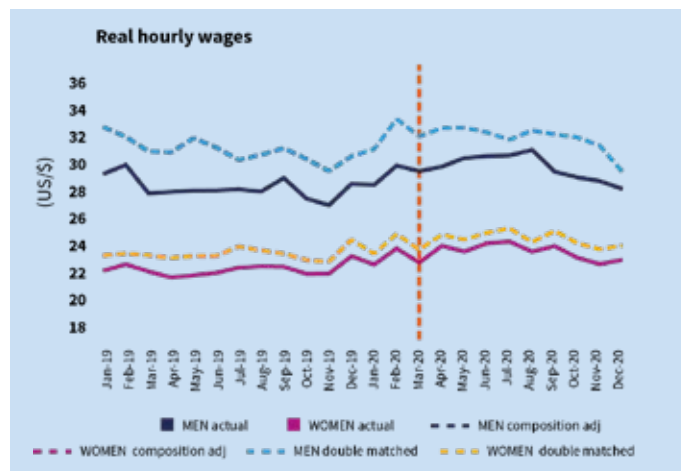
Canada



Mexico



United States

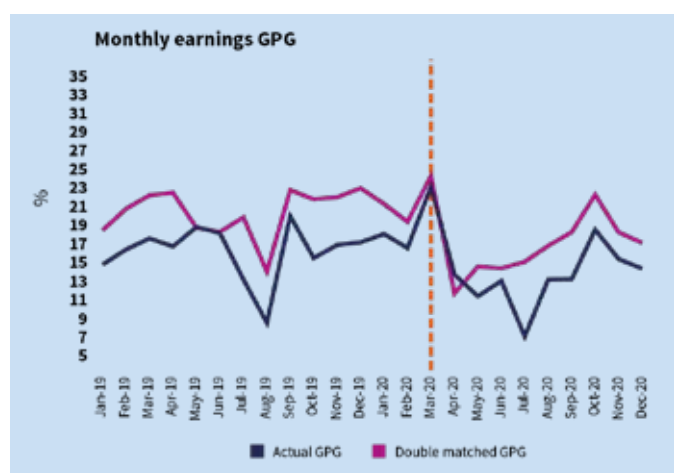
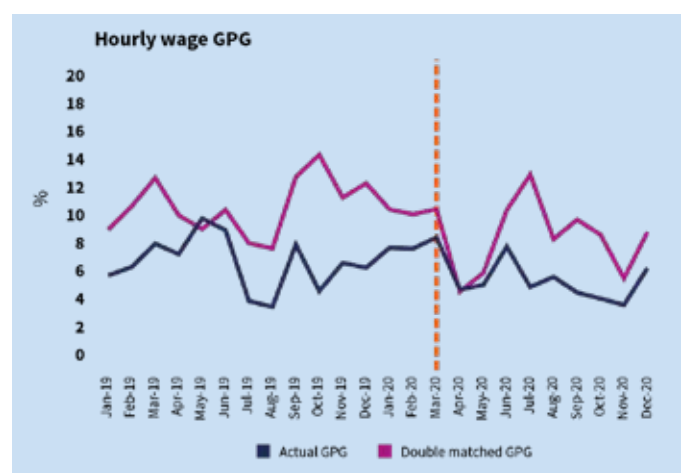


Source: ILO, WHO estimates.

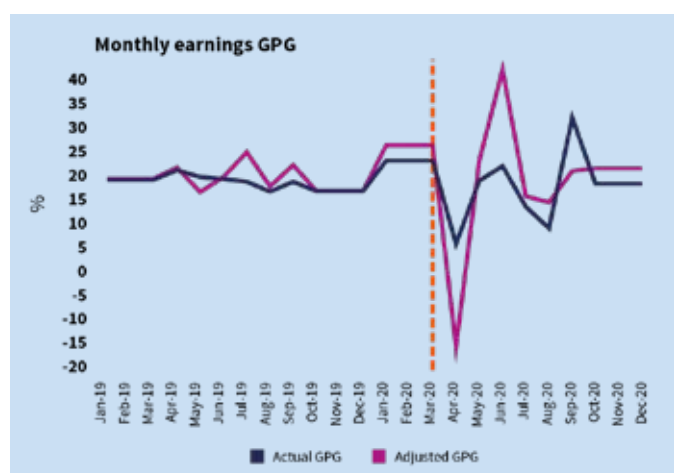
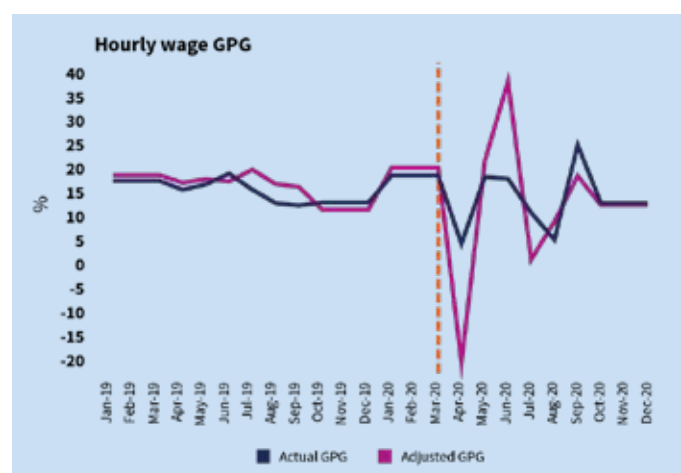
FIG. 7.14

Trends in gender pay gaps, actual and adjusted for composition effects throughout 2019 and 2020, among wage employees in the health and care sector, January 2019 to December 2020, selected countries

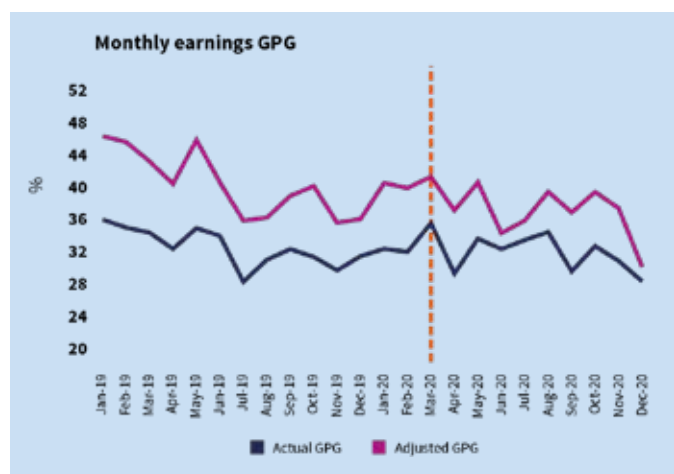
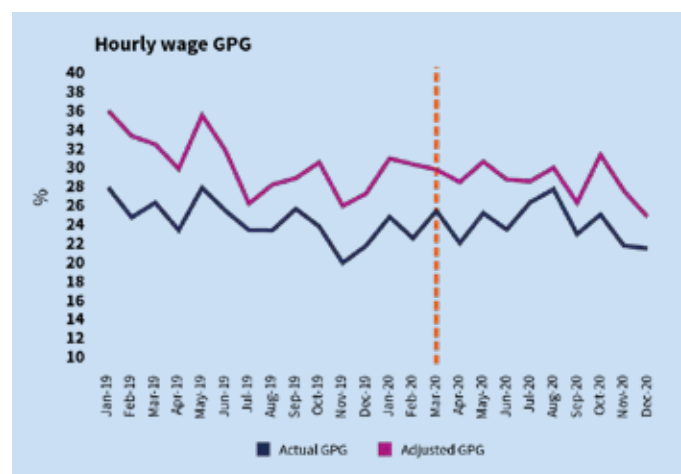
Canada



Mexico



United States



Source: ILO, WHO estimates.

7.4 The COVID-19 pandemic and earnings among workers in formal and informal employment in the health and care sector: the case of Mexico

Fig. 7.8 showed that in Mexico, the employment effect of the COVID-19 pandemic has been different between women and men in formal and informal employment, and was particularly adverse for women in informal employment in the health and care sector. The study of employment and earnings in the labour market in LMIC cannot avoid the fact that a significant fraction of these workers operate in the informal economy. Whereas the health and care sector may not seem to be a sector where informality would play a significant role, the data contradict this. In LMIC informal employment is a feature in the health and care sector: as highlighted in Section 5, in the case of Mexico, about 20% of wage employees in the health and care sector hold informal jobs (22% among women and 17% among men).

The ILO estimates that across the world almost 1.6 million informal economy workers have been significantly impacted by lockdown measures and/or are working in the hardest hit sectors. In the first month of crisis, globally, informal workers are estimated to have suffered a 60% income loss, with Africa and Latin America the two regions where the losses would have been highest. The loss in earnings among workers in the informal economy, a population that relies on generating day-to-day earnings to make ends meet, would have increased relative poverty (defined as the proportion of workers with monthly earnings that fall below 50% of the median earning) by almost 34 percentage points (globally) among workers with informal employment and their households (ILO Monitor, 2020c).

Although Mexico is the only country in the studied sample for which we have pre- and during-COVID-19 data where informality can be identified, its estimates can provide insightful and policy-relevant evidence to understand the impact of COVID-19 on the earnings of wage employees in the health and care in countries with a significant degree of informality. Fig. 7.15 shows the evolution of real hourly wages and real monthly earnings, comparing women with formal and informal employment separately from men with formal and informal employment. The figures use comparable scales to show that women in informal employment are the group with the lowest hourly wage and lowest monthly earnings. All four groups (women, men, formal, informal) display a clear impact of the disruptions caused by COVID-19 at the onset of the pandemic. In terms of hourly wages, all four groups display composition effects – thus although it seems that hourly wages jump suddenly at the onset of the

health crisis (April/May 2020), Fig. 7.16 shows that all four groups, and particularly health and care wage workers in the informal economy, suffered significant losses in the total wage bill by April/May 2020. Men in formal employment experienced a 48% drop in the real total wage bill; women in formal employment had a drop of 29%; men in informal employment experienced a drop equal to 58% by June 2020; and women in informal employment had a drop of 62% by May 2020. And whereas men and women in formal employment seem to have recovered the full volume of the (real) total wage bill by December 2020, this was not the case for women and men with informal employment in the health and care sector. Their real total wage bills in December 2020 were 10% less than in January 2019 in the case of men with informal employment in the sector, and 15% less in the case of women. These estimates are, therefore, consistent with the projections on total loss of earning among workers in the informal economy published by ILO in May 2020. It therefore points to a possible increase in relative poverty among households with wage workers who were part of the health and care workforce in Mexico at the outbreak and during the onset of the COVID-19 pandemic. Comparing Fig. 7.15 with Fig. 7.16 shows possible composition effects when considering the pre-COVID-19 population to that after the onset of the pandemic and throughout 2020.

Fig. 7.17 shows the trends for each of the eight series with composition effects removed using the double matched approach (as described for Fig. 7.13). Thus, Fig. 7.17 shows that there are no major composition effects in either formal or informal employment, and the variations observed over time are most likely due to seasonal adjustments in the labour market. Fig. 7.18 shows that at the onset of the COVID-19 pandemic the formal-informal pay gap varies for the first 2 or 3 months (with pay gaps estimated using the same quantile aggregation technique as employed in Fig. 7.13). Overall, the trends show that pay gaps declined between wage workers with formal and informal employment in the health and care sector – although this may not be immediately visible from the figures due to the scale effect of the gap around the time of the COVID-19 outbreak. However, a closer look at these estimates shows that the hourly wage pay gap between men in formal and men in informal employment declined from 29% in January 2019 to 21% in December 2020; similar findings are seen for women and hourly wages (the formal-informal pay gap in hourly wages declined between women from 46% to 33%) and for monthly earnings in the case of women (the formal-informal pay gap in monthly earnings in the health and care sector declined from 64% to 60% between January 2019 and December 2020). Meanwhile, the monthly

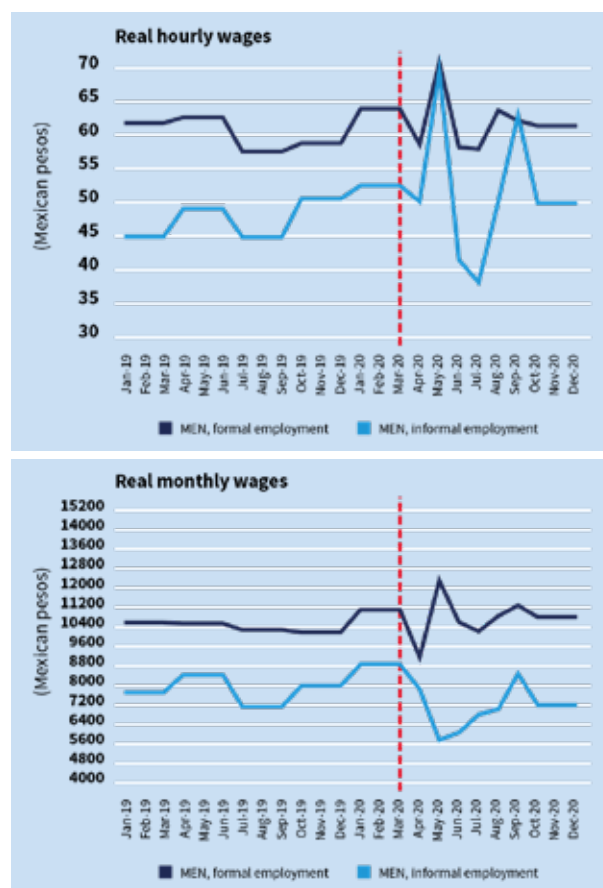
earnings gap between men with formal and men with informal employment increased from 39% to 53%. This analysis highlights the double penalty faced by women in informal employment with respect to other wage workers in the economy: in fact, a more

detailed look at the data shows that in December 2020, women with informal wage employment in the health and care sector were earning 53% less in hourly wages compared with all men, irrespective of formality status, in the health and care sector.

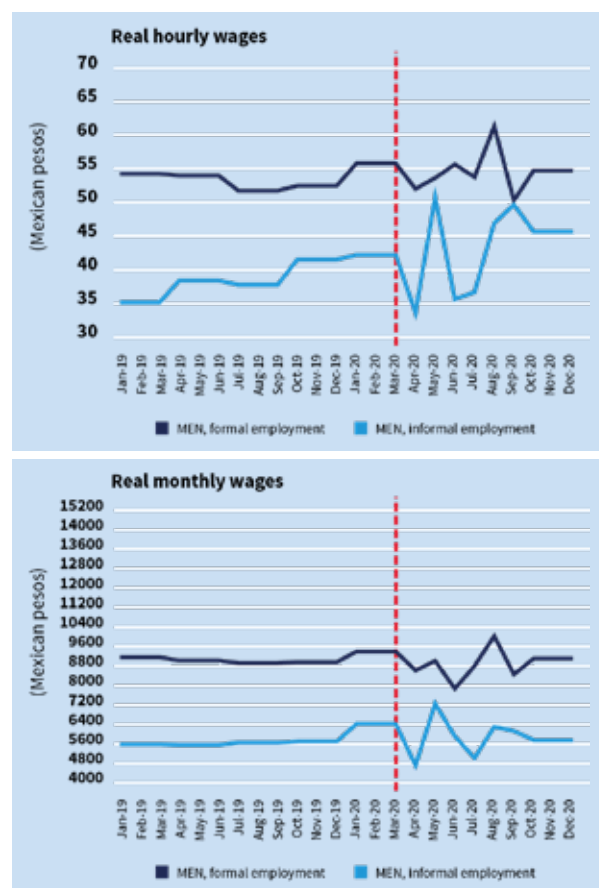
FIG. 7.15

Earnings trends in the health and care sector in Mexico, comparing workers with formal and informal employment, by gender, January 2019 to December 2020

MEN



WOMEN

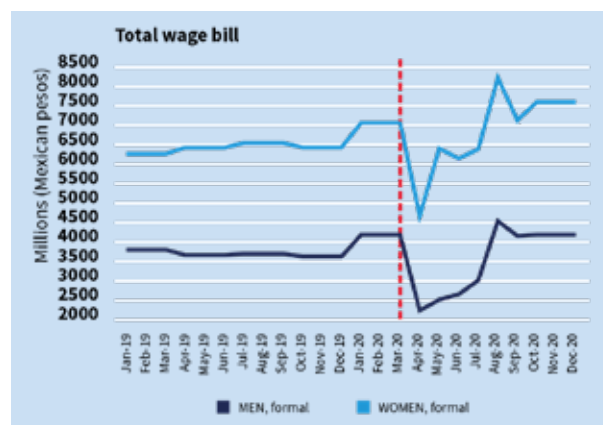


Source: ILO, WHO estimates.

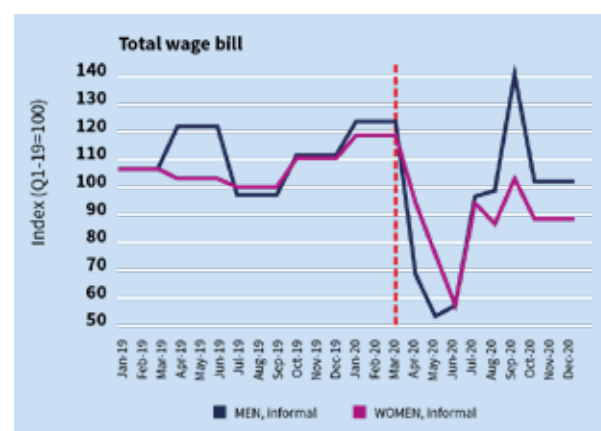
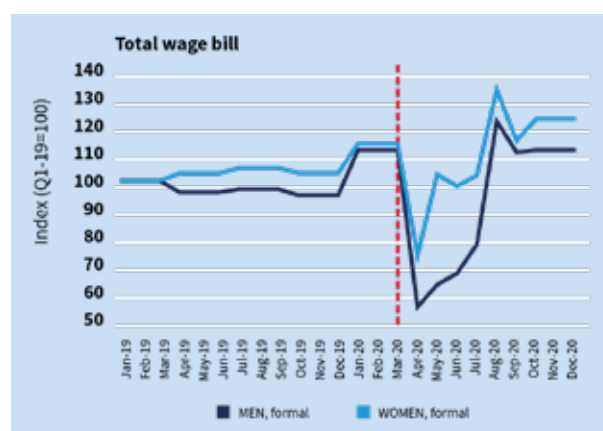
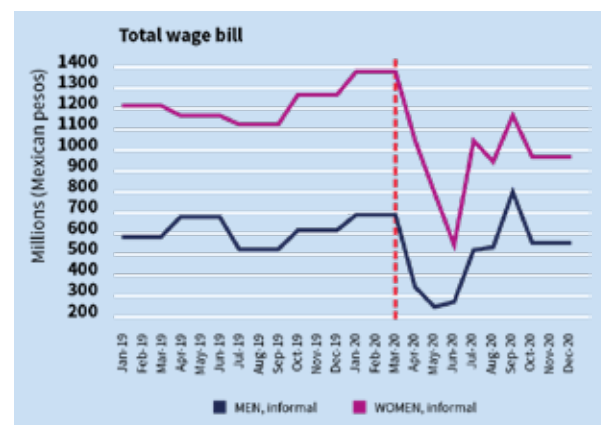
FIG. 7.16

Total wage bill in Mexico, comparing formal and informal employment, and women to men, in the health and care sector, January 2019 to December 2020

FORMAL EMPLOYMENT



INFORMAL EMPLOYMENT

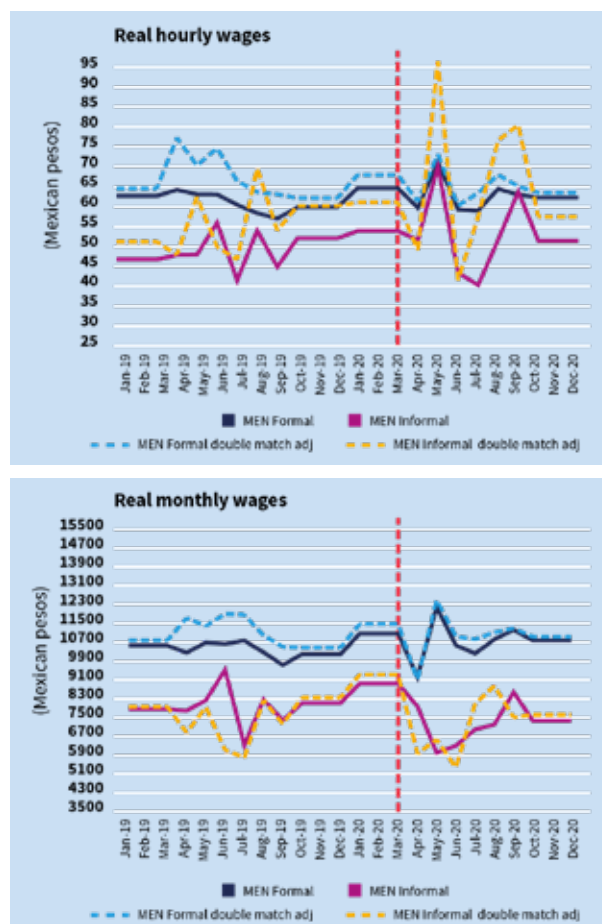


Source: ILO, WHO estimates.

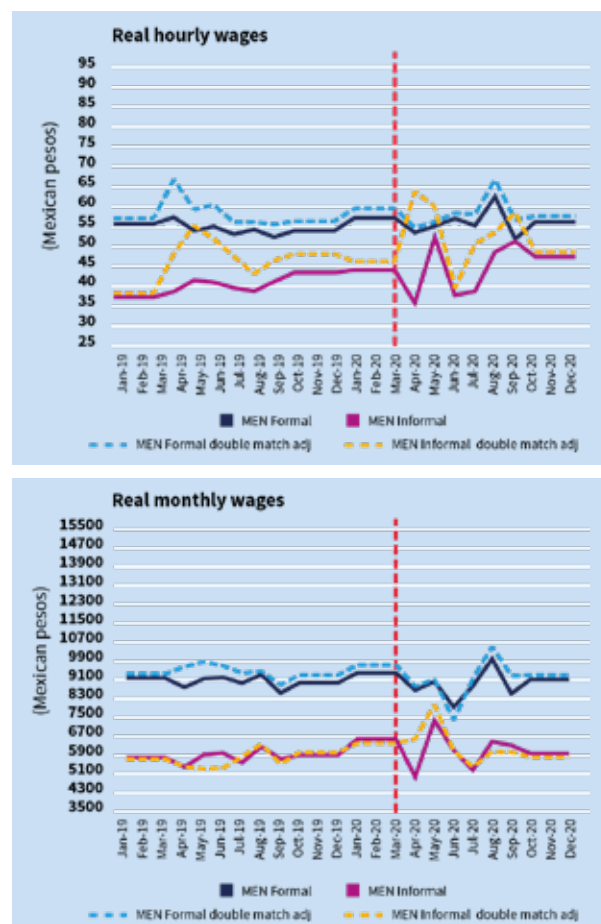
FIG. 7.17

Earnings trends in the health and care sector in Mexico, comparing workers with formal and informal employment, by gender, controlling for composition effects, January 2019 to December 2020

MEN



WOMEN

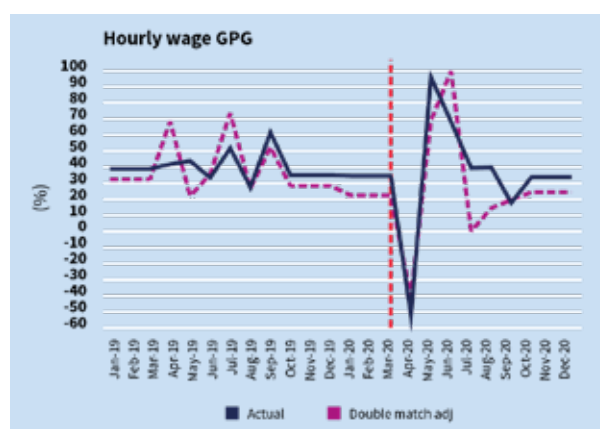


Source: ILO, WHO estimates.

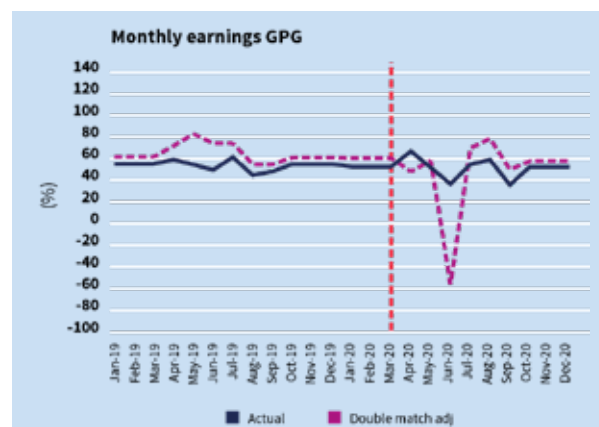
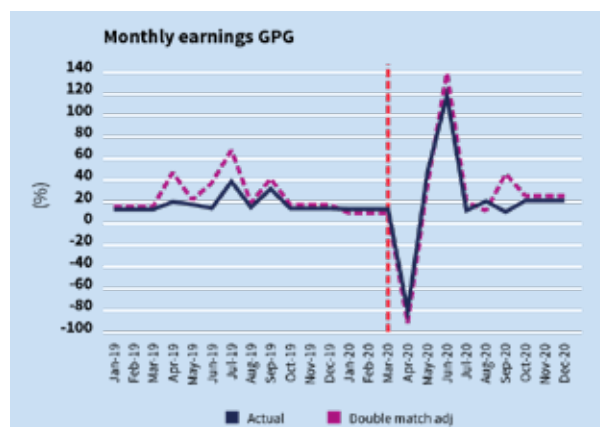
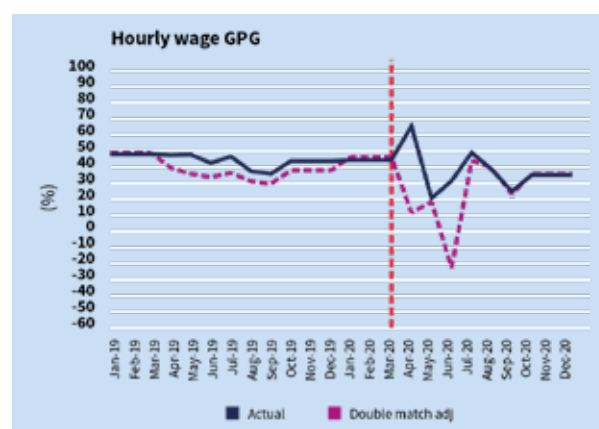
FIG. 7.18

Pay gaps between formal and informal wage employees in the health and care sector in Mexico, controlling for composition effects (double match), January 2019 to December 2020

MEN FORMAL - INFORMAL



WOMEN FORMAL - INFORMAL



Source: ILO, WHO estimates.

The way forward towards reducing gender pay inequalities in the health and care sector

What are the key policy considerations brought to the fore by this report? The report has made clear that closing the gender pay gap in the health and care sector would benefit the health workforce, but it has also shown that it would reduce the overall gender pay gap in the global economy. This final section addresses key policy considerations emerging from this report.

- First, the global community needs to collect and analyse sector-specific wage data with sufficient frequency to allow for timely assessments of working conditions in the health and care workforce, including monitoring the gender pay gap within the sector.
- Second, investing in ensuring the decency of labour conditions in health and care jobs, including the formalization of informal jobs within the sector, would help make the sector more resilient and, in particular, able to accommodate the ever-growing global demand for health and care services fuelled by the ageing of populations.
- Third, in order to tackle the explained part of the gender pay gap, we need to reduce gender segregation (both horizontal and vertical segregation) in employment in the health and care sector. This can be achieved by instituting policies to: attract more men into middle occupational categories in the health and care sector; promote training and equal opportunity for upward mobility for women health and care workers; raise awareness of STEM careers for young girls and women by organizing related job fairs; and invest in STEM programmes that target women and girls, particularly through the promotion of internships and career counselling. Other policy interventions that can also help reduce the explained part of the pay gap in the sector include: standardizing working conditions between women and men with respect to working contracts (e.g. making contracts permanent); formalizing informal jobs; and promoting collective pay agreements.
- Finally, we need to promote pay transparency, establish legal instruments against pay discrimination, and change cultural gender norms and stereotypes – all of these measures can be effective tools to reduce the unexplained part of the gender pay gap in the health and care sector.

The outbreak of COVID-19 in the first quarter of 2020 put a spotlight on the importance of having resilient national health and care systems that are capable of responding both to the current COVID-19 pandemic and to possible future crises. Health and care workers, the majority of whom are women, form the backbone of the health and care sector; therefore, achieving strong and resilient health and care systems necessitates securing decent working conditions for them, including decent wages in line with the risks they take and the unparalleled value their jobs bring to our societies. The risks health and care workers take on a daily basis are starkly exposed by noting their COVID-19 outcomes: with estimates suggesting around 12.5% of all SARS-CoV-2 infections, in the period between March and July 2020 were among health and care workers, and estimates of global health worker deaths ranging from 80 000–180 000 (WHO, 2021). Whether directly infected or not, the unprecedented pressures and

risks that the ongoing pandemic has placed on health workers are likely to have long-term effects on their physical and mental health (ILO, 2020e).

Given the invaluable contributions that health and care workers make to our societies, why do workers in this sector generally earn wages below national averages? According to a study by the European Foundation for the Improvement of Living and Working Conditions (Eurofound, 2011), in Europe, workers in the health and care sector earn wages below the average of other workers in the economy as result of two combined facts: first, unqualified or low-qualified workers in the health and care sector often earn the minimum wage or basic collectively agreed level, while highly qualified workers in the sector earn below the average for their country for an equivalent qualification level. This latter fact has been corroborated with empirical evidence in Section 5, not just for Europe but in all regions and countries for which data are available. In addition, the report by

Eurofound highlights the high incidence of precarious contracts, irregular working hours, limited career opportunities, and several gender disparities within the health and care sector. These various factors combined contribute to difficulties in the recruitment, particularly of men, and retention, particularly of qualified women who find it difficult to reconcile the demands of the sector with family life, of workers in the sector (Pillinger, 2010). This, together with the significant degree of occupational segregation by gender in the sector, contribute to the persistence of the gender pay gap among health and care workers; furthermore, the high degree of feminization of the sector, with average earnings below that of other sectors, also adds to the persistence of the gender pay gap at country level.

The complex interaction of factors that lies behind the gender pay gap, and the fact that countries differ in their gender mixes and labour market characteristics, imply policies and measures to reduce the gender pay gap will vary according to each country's context. Nevertheless, the empirical findings of this report begin to shed light on what could reduce the gender pay gap in the health and care sector.

8.1 Policy considerations

1: Targeted and gender-disaggregated wage data for the health and care sector

This report provides empirical evidence on wages of women and men in the health and care sector for 54 countries. Although these estimates cannot represent with full certainty the totality of health workers globally, they provide solid evidence that gender pay gaps are a structural problem in the health and care sector – one that requires attention and intervention. Regardless of whether a country is, or is not, in the group of 54, **the usefulness of the evidence reviewed in the report should demonstrate to policy-makers at country level that they need to collect and analyse wage data specific for the sector.** Depending on the country context, it may not be necessary to collect data with as high a frequency as the annual LFS; however, relevant data should be gathered with sufficient frequency to allow for timely assessments of the working conditions of women and men in the health and care sector, including the monitoring of gender pay gaps.

There are two main reasons why it is necessary to elicit sector-specific data, such as that in the National Health Workforce Accounts, on the working conditions of health and care workers. First, survey data that cover all sectors in the economy – such as the surveys used in this report – cannot cover the specificities of the working

conditions and gender dynamics in the health and care sector, including factors that may be crucial in the determination of pay differences between women and men. For example, a survey conducted in Austria among 1000 health care workers found that high levels of intrinsic satisfaction and altruistic motivations kept them working in the sector. This was true despite the fact that one-fifth of the respondents reported emotional and physical exhaustion and feeling at risk of burnout, which explained the significant degree of staff turnover rates in the sector (Krenn, 2010). Such attitudinal and behavioural outcomes could explain the different representations of women and men in the health sector, and might also provide insights into the unexplained part of the gender pay gap discussed in Sections 4 and 5. The second reason why sector-specific surveys are important to the health and care sector is because generalized nationwide surveys, while representative, are often small in size. Once the health and care sector is selected, the remaining sample size (particularly the sample size of men) may not be sufficiently large to draw statistically valid estimates. Indeed, this was the case with some of the estimates presented in this report, particularly when estimates break the survey population into deciles.

Another reason why the periodic collection of data on the health and care sector would be beneficial to the sector and society is that the health and care sector is one of the fastest growing sectors across the world. With ageing populations, particularly in the northern hemisphere, the demand for workers across all occupational categories in the sector will increase significantly in the near future (Buchan et al., 2017). Addressing working conditions and deficits in the workforce by means of targeted empirical evidence – particularly to assess gender inequalities, including gender pay gaps – could help increase the attractiveness of the sector and reduce turnover, thus increasing the returns on the investments the sector makes in its workers. This would certainly foster strengthening of the health and care sectors across countries.

2: Decent jobs in the health and care sector

As noted, the growing demand for health and care services is partially fuelled by the ageing populations in HIC. In addition, there is significant potential to increase the supply of health and care services in countries where the existing needs are highest. The sector represents an important area of opportunity, with the potential for creating more formal employment, particularly in LMIC where investment in the health and care sector is currently relatively low (Stenberg et al., 2019).

Indeed, there is currently an estimated shortfall of 15 million health workers and a projected global shortage of 10 million in 2030 based on current trends (Boniol et al., 2022). The empirical evidence in this report has shown that the health and care sector is a highly feminized sector, where the gender pay gap is clearly marked by occupational segregation. And while women seem to disproportionately bear the outcome of worse working conditions – thus the significance of the explained part of the gender pay gap discussed in Section 5 – the lower-than-average remuneration in the sector and poor and stressful working conditions reduce the attractiveness of the sector to men as well. The report also shows that women health and care workers are potentially subject to the motherhood gap, exacerbating the problem of work-life balance for a significant fraction of workers in the sector.

These shortfalls, which are acutely evident in the health and care sector, highlight the important contributions that various types of investments in the sector and in the economy overall could make. These include: fostering and protecting collective bargaining rights and mechanisms; subsidizing education and training, as well as wages, in the sector; addressing poor working conditions; and generating social dialogue on both gender and labour rights. These investments could help address some of the challenges facing the sector, thus making it more appealing to current and future generations of workers.

3: Social dialogue

During the COVID-19 pandemic, there have been many reported labour protests/strikes as well as the emergence of other social movements. Some examples show that collective bargaining can improve working conditions and make the health and care sector far more attractive to its workforce. Take, for example, the case of Belgium, where the Federal Minister of Social Affairs and Health engaged in consultations with civil society and other partners between 2008 and 2011, culminating in a plan with four areas of action to make the nursing sector more attractive to women and men. These included: easing the workload; offering more opportunities for improving career qualifications and participating in lifelong learning initiatives; increases in remuneration, such as increasing payments for non-standard working hours; and, a public campaign to enhance the profile of nursing as a career.

In Europe, social partners in the health and care sector, including the European Public Sector Union (EPSU) and the European Hospital and Healthcare Employers' Association (HOSPEEM), have prioritized some of the issues mentioned above, establishing work programmes that commit them to: promote the application of equality principles and legislation; improve recruitment and retention practices, particularly to reduce gender inequalities in the hospital sector; address skills mismatches and promote the regular update of skills; further address how the organization of health systems influences work conditions in the hospital sector; explore the improvement of work-life balance measures; and integrate migrant workers into the workforce.⁶³

Generally speaking, social dialogue, unionization and coverage of collective agreements have been somewhat stronger in the health and care sector compared with other sectors. This has been mainly driven by the high incidence of public employment in the sector. More recently, as the private sector has begun playing an increasingly important role in providing health and care services, including an increased prevalence of outsourcing practices in the sector, social dialogue to tackle deficits in the sector, including gender inequalities, has become ever more important (Dube & Kaplan, 2010).

Moreover, just as the COVID-19 pandemic has highlighted the risks inherent in working in the health and care sector, it has also shown the danger to workers of being part of a so-called “strategic sector”. As the health and care sector pivoted to respond to the pandemic, gains previously achieved through social dialogue and collective agreements have been superseded by the seeming urgency of the situation. This was the case, for example, in Ontario, Canada, in March 2020. The provincial government announced the suspension of limitations on the redeployment of staff established in collective agreements in order to fill COVID-19-essential positions to secure the full availability of health care resources and services working to prevent the spread of COVID-19.⁶⁴

4: Tackle the explained part of the gender pay gap by expanding education, fostering experience and reducing occupational segregation

Our decomposition of the gender pay gap in the health and care sector showed that part of the

⁶³ See, for example, programmes and initiatives designed to strengthen social dialogue in the hospital sector taking place in east, south and central Europe during 2019–2021 ([HOSPEEM-EPSU Project 2019-2021 on Strengthening social dialogue in the hospital sector - HOSPEEM](#)).

⁶⁴ [Ontario Takes Extraordinary Steps to Ensure Health Care Resources are Available to Contain COVID-19 | Ontario Newsroom; New Developments in Ontario Health Care due to COVID-19 \(torkinmanes.com\)](#).

gender pay gap can be explained by differences in labour market attributes between men and women, with particular emphasis on occupational segregation, seniority, and the fact that women are more likely to have jobs with unfavourable working conditions – i.e. they are more likely to be part-time workers, or work in the private sector at the low end of the wage distribution. In particular, age seems to be a significant factor; Section 5 showed how, using the countries for which we have data, we can attribute 7% of the gender pay gap to the higher seniority of men (i.e. age) vis-à-vis women. Older workers of any gender are paid more than younger workers in the health and care sector, and within quantiles there seems to be a tendency for men to be older than women in almost all countries.

Furthermore, in the health and care sector, better paid jobs are directly linked to STEM careers, where women are less likely to be represented (OECD, 2019; Stoet & Geary, 2018). The evidence in Section 5 does point to a shrinking generational gap in STEM careers between women and men in the health and care sector; i.e. at lower deciles of the wage distribution, women and men are younger, but there also seems to be a higher fraction of women, compared with men, in higher occupational categories. That is, younger medical doctors, who are in lower deciles than more senior medical doctors, are more likely to be women than men; this finding seems to hold across countries and regions, except in a few countries where women are underrepresented overall in wage employment.

Over time, those young women now in the labour market should accumulate seniority and reach higher pay levels in equality with men. This evolution can be fostered by implementing policies that promote equality between women and men in terms of work-life balance. As in all sectors, but particularly in the health and care sector, it is also important to continue raising awareness of STEM careers among young girls and women by organizing related job fairs and investing in programmes that target women and girls particularly through the promotion of STEM internships and career guidance (G20, 2018).

Besides occupation and seniority, Section 5 showed that in several countries men have more of those endowments that are better rewarded by the labour market in the health and care sector, within quantiles, when compared with women. This includes factors such as: working full time rather than part time; holding a permanent contract rather than a temporary one; being a national rather than migrant (for Latin America, Switzerland

and the United States); being white rather than non-white (United States); working in an enterprise with some form of collective pay agreement, rather than without any type of collective pay agreement (countries in Europe except for Switzerland and Turkey, where the variable is not observed); and, holding formal employment compared with wage employment in the informal economy (for countries in Africa, Latin America, South-East Asia, and Western Pacific except Australia where the indicator “formal” is not identified).

Except for the “migrant” and “race” factors, all other factors reflect working conditions in the labour market. The fact that these “other factors” act as a wage premium for men’s earning shows that women are more likely than men to occupy jobs with greater deficits in terms of working conditions, and these are jobs associated with lower pay on average and per hour. For example, in the case of Europe, the estimates in Section 5 show that putting all these factors together explains a staggering 13% of the gender pay gap in the health and care sector. To a large extent, unfavourable working conditions that are associated with lower pay for women when compared with men are also associated with occupational segregation. For example, as shown in Section 4, technical health occupations (which include nursing and midwifery, where women dominate) are far more subject to part-time employment in the private sector.

There is, clearly, a need to reduce occupational segregation. One strategy to do this is to attract more men into middle occupational categories in the health and care sector; generating this attraction clearly starts by improving the (overall) working conditions of all health and care workers, including the earnings that women and men get in jobs classified as technical and semi-skilled in the sector. However, while some evidence points at the increasing number of men in nursing occupations, several articles published in the past 5 years show that as men increase their incidence in nursing, the gender pay gap between women and men nurses is starting to grow (Punshon et al., 2019).

5: Tackle the unexplained part of the gender pay gap by counteracting the undervaluation of highly feminized sectors and improving work-life balance to achieve gender parity in the workplace

Despite the fact that some of the gender pay gap can be attributed to differences in age, occupational segregation and working conditions of women vis-à-vis men, the estimates in Sections 4 and 5 showed that in the health and care sector, as in the rest of the economy (see ILO, 2018a), much of the gender pay gap remains

unexplained. This means that women get lower returns compared with men who have a similar mix of endowments. By aggregating the 54 countries for which we have data to generate our best approximation of a global figure, we find that the gender pay gap would vanish almost completely if the unexplained portion were addressed. Globally, the gender pay gap would then decline from about 25% to less than 5%; the unexplained part varies between regions from about 13% in the case of Europe, to about 43% in the case of the Americas.

The unexplained part of the gender pay gap identified at country level can, in part, be explained by the fact that highly feminized sectors tend to receive lower average wages, so that the concentration of women in low-paid sectors increases the average pay between women and in the population. This comprises the contribution of highly feminized sectors to the overall (unexplained) gender pay gap (Grimshaw & Rubery, 2015:vi). This argument weakens slightly when comparing the earnings of women and men “within” a sector; then it becomes clear that women hold lower occupational categories and jobs that are less rewarded in the sector due to their characteristics. But what could account for the unexplained part?

On the one hand, the literature attributes part of the unexplained component to “discrimination” against women in relation to men. Such discrimination occurs when women are paid less than men for the same work or for work of equal value. Direct wage discrimination can result when two jobs have the same function but receive different titles, such as “chef” for men versus “cook” for women. In contrast, indirect wage discrimination occurs when women are paid less than men for work of equal value – namely, the work may differ with respect to the tasks and responsibilities involved, the knowledge and skills required, the effort it entails, and/or the conditions under which it is carried out, and is yet of equal worth. The principles of equal pay, and equal pay for work of equal value, are embodied in the Equal Remuneration Convention, 1951 (Convention 100). And nominally they are widely accepted: Convention 100 is one of the most ratified labour conventions, with 173 countries of 189 ILO Member States signatory to the convention as of 2021.

Pay discrimination, whether direct or indirect, can be effectively tackled with policy instruments that foster pay transparency, in joint application with a legal framework that establishes binding sanctions against those who discriminate in pay in the workplace. Many countries are implementing national legislation which prohibits lower pay for

equal work or for work of equal value. But while most countries have enacted legislation to address gender discrimination in remuneration, only 40% of all countries have embodied the full principle of “equal pay for work of equal value” as stated in Convention 100. Many focus instead on the narrower principle of “equal pay for equal work” (World Bank Group, 2018; Oelz et al., 2013).

In either case – whether applying the full principle of equal pay for work of equal value, or only equal pay for equal work – the effective implementation of the legal framework requires pay transparency among women and men in the workplace. For example, since early 2018, Germany requires enterprises with 200 or more wage employees to disclose the earnings of their employees if requested by at least one of their employees. Such instruments, which have recently been implemented France, Iceland, Germany, Canada, Spain and the United Kingdom, to mention a few, allow for symmetry of information between workers and employers. This provides the necessary information to allow each country’s legal framework to be effectively implemented.

Equal pay audits of enterprises are another important instrument to help reduce the unexplained part of the gender pay gap, including in the health and care sector. For example, in Switzerland, employers with 50 or more employees that wish to participate in public tenders are obliged to implement gender pay audits and to show that the gender pay gap is lower than 5%. To encourage employers to comply with the law, the Swiss Federal Office for Gender Equality developed and made available for free an online self-assessment tool (Logib) (ILO, 2018a:78). This office has also designed an alternative tool for workplaces of less than 50 wage employees to carry out similar internal (non-compulsory) gender pay audits. Ultimately, these proactive laws, and tools that help in their implementation, allow employers and employees alike to elicit information that may not have been immediately evident.

In sum, transparency and legal instruments against pay discrimination can be effective tools for reducing the unexplained part of the gender pay gap. This is particularly true for the health and care sector, which usually operates as medium- and large-size enterprises; in most countries where transparency tools apply or gender pay audits are requested, the size of the enterprise is a requirement for the application of the law. On the other hand, and as has been highlighted in the report, one of the major features in recent years in the health and care

sector is the growing incidence of outsourcing in the sector, particularly for semi- and low-skilled occupations, where women are more likely to dominate. When outsourcing occurs, the actual workplace might no longer be responsible for pay discrimination between women and men who are part of the enterprise and women and men who are outsourced from a third party. Thus, outsourcing can undermine efforts to utilize transparency laws and related legal frameworks to reduce pay gaps in the health and care sector (or any other sector where outsourcing accounts for a significant number of wage employees). Having said this, it is also true that, in a significant number of countries, the public sector remains the biggest employer of workers in the health and care sector, as was shown in Section 4. Public sector, and public-private partnerships, which are becoming increasingly significant in health and care services, should be leading exemplars in the application of transparency laws and gender pay audits at country level.

While transparency laws and legal instruments can contribute to reducing the unexplained part of the gender pay gap, the reality is that the unexplained component is often the direct result of cultural norms and stereotypes that are deeply rooted in societies. In addition, balancing paid work and family life often puts women at a disadvantage when compared with men. Section 5 showed that for all countries for which we have data, the gender pay gap increases around the age of child-rearing (30–35), while the proportion of full-time work declines for women but not for men at around the same age. It would not be surprising to find that more women workers compared with men workers (both with family responsibilities) find it difficult to cope with the demands imposed by the sector. For example, a recent study among nurses in India found that those with children and family responsibilities found it significantly more difficult to cope with regular morning, evening and night shifts, resulting in significant deterioration of their own health (Ghousinnisa & Subba Reddy, 2016).

Clearly, the greater propensity of women, compared with men, to take a career break in sectors that are highly vocational, as is the health sector, is likely to have a significant setback effect in terms of career advancement for women. So what can be done to eliminate the unexplained part of the gap associated with work-life balance circumstances, including the possible effect of the motherhood gap in the unexplained gender pay gap in the health and care sector? To start with, we need to implement policies that help equilibrate the value of women and men in the labour market, such as compulsory paternity leave. Other possible

policies include operating childcare facilities in workplaces and increasing public sector resources for dependent care in general. Finally, because the health and care sector requires constant skills enhancement, it is necessary to provide specific training that allows women to renew their competencies that lapsed or became obsolete during absences (e.g. after maternity leave or other absences for caring for children and other dependents). This represents a clear policy and investment strategy.

6: Expansion of formal employment in countries where informality is a significant feature of the workforce

Another finding of this report was that, in Latin America and South-East Asia, a significant proportion of workers in the health and care sector are informally employed (although the fraction is less than the average among wage workers in their overall economies). For example, the report shows that in the cases of Colombia, Mexico and Peru the proportion of wage workers in informal employment in the economy as a whole is estimated at 36%, 45% and 44%, respectively, whereas in the health and care sector of each of these countries the fraction of workers in the informal economy are 9%, 20% and 18%, respectively. Nevertheless, it is also inevitable that the expected global expansion in employment in the health and care sector will occur equally in LMIC; thus, in the coming years the health and care sector is likely to expand in countries where informal employment is currently high and formal wage employment remains relatively low.

With this in mind, policy-makers and institutions, including the public sector, in these countries should take advantage of the expected expansion of the sector to put in place measures that promote the formalization of the informal economy. Doing so would provide both women and men, and particularly young people, with an avenue for sustainable long-lasting formal wage employment. In June 2015, the International Labour Conference adopted a new Recommendation (R204) on the “Transition from the informal to the formal economy” (ILO, 2015). Adopted in the same year as the UN 2030 Agenda for Sustainable Development, Recommendation 204 is a core tool to realizing Sustainable Development Goal (SDG) 8, which aims to promote sustained, inclusive, and sustainable economic growth, and full and productive employment and decent work for all (UN, 2015: Goal 8.1). Recommendation 204 calls for coherence and coordination across a broad range of policy areas and for a balanced approach combining incentives with compliance. One of the

policy areas focused on facilitating the transition of workers from the informal to the formal economy concerns technological skills, which are an essential part of the growth of the health and care sector. We recommend starting to address these issues by conducting detailed assessments on the technological and other skill needs of the sector in the near future. This will provide an evidence base on which to develop national plans to expand the formalization of the informal economy.

8.2 Towards more gender-responsive employment in the health and care sector

The COVID-19 pandemic has put the world on alert: every country needs to have a sound and solid health and care system. As the world emerges from the pandemic in the months and years to come, health and care work will have gained prominence in the policy agenda of most countries. In fact, WHO designated 2021 the International Year of Health and Care Workers precisely in appreciation and gratitude for their unwavering dedication in the fight against the COVID-19 pandemic.⁶⁵ This WHO campaign highlights the urgent need for the world to invest in health and care workers for “shared dividends in health, jobs, economic opportunity and equity”. One of the pillars of the campaign is to “engage Member States and all relevant stakeholders in dialogue on a care compact to protect health and care workers’ rights, decent work and practice environments”.

This effort is more crucial than ever, since it is also well understood that investing in health is one of the key pillars in efforts to reduce global poverty (OECD, 2003). It is estimated that COVID-19 will push an additional 88 to 115 million people back into extreme poverty (World Bank Group, 2020), undermining the prospect of achieving the UN 2030 Agenda on Sustainable Development Goals.

As dialogue on the care compact at country level and on global poverty alleviation and sustainable development initiatives continues, we recommend that policy-makers make gender equity considerations central to their interventions in the health and care sector. As this report has shown, promoting gender pay equity can play a central role in improving the overall outcomes achieved by health and care sector.

⁶⁵ See [Year of Health and Care Workers 2021 \(who.int\)](https://www.who.int/campaigns/year-of-health-and-care-workers-2021)

National data sources

Country	ILO Region	WHO Region	Latest year	Data type	Data source
Albania	Europe and Central Asia	Europe	2013	Labour force survey	Instituti i Statistikave Albania (INSTAT)
Argentina	Americas	Americas	2018	Encuesta Permanente de Hogares	NSO – latest data from ILO repository or SIALC
Australia	Asia and the Pacific	Western Pacific	2017	Household, Income and Labour Dynamics in Australia (HILDA)	Melbourne Institute of Statistics, University of Melbourne
Bangladesh	Asia and the Pacific	South-East Asia	2017	Labour force survey	Bangladesh Bureau of Statistics
Belgium	Europe and Central Asia	Europe	2018	Structure of Earnings Survey	Eurostat
Bolivia (Plurinational State of)	Americas	Americas	2018	Encuesta de Hogares	NSO – latest data from ILO repository or SIALC
Brazil	Americas	Americas	2018	Pesquisa Nacional por Amostra de Domicílios (PNAD)	NSO – latest data from ILO repository or SIALC
Bulgaria	Europe and Central Asia	Europe	2018	Structure of Earning Survey	Eurostat
Canada	Americas	Americas	2020	National labour force survey	NSO – data from ILO repository
Chile	Americas	Americas	2017	Encuesta Nacional de Empleo	NSO – latest data from ILO repository or SIALC
Colombia	Americas	Americas	2018	Gran Encuesta Integrada Hogares (GEIH)	
Costa Rica	Americas	Americas	2018	Encuesta Continua de Empleo	NSO – latest data from ILO repository or SIALC
Cyprus	Europe and Central Asia	Europe	2018	Structure of Earnings Survey	Eurostat
Czechia	Europe and Central Asia	Europe	2018	Structure of Earnings Survey	Eurostat
Dominican Republic	Americas	Americas	2018	Encuesta Continua de Fuerza de Trabajo (ENCFT)	NSO – latest data from ILO repository or SIALC
Ecuador	Americas	Americas	2018	Encuesta Nacional de Empleo, Desempleo y Subempleo	NSO – latest data from ILO repository or SIALC
Egypt	Africa	Eastern Mediterranean	2018	Egypt Labour Market Panel Survey	Economic Research Forum; Central Agency for Public Mobilization and Statistics, Egypt

Country	ILO Region	WHO Region	Latest year	Data type	Data source
Estonia	Europe and Central Asia	Europe	2018	Structure of Earning Survey	Eurostat
Finland	Europe and Central Asia	Europe	2018	Structure of Earnings Survey	Eurostat
France	Europe and Central Asia	Europe	2018	Structure of Earnings Survey	Eurostat
Hungary	Europe and Central Asia	Europe	2018	Structure of Earnings Survey	Eurostat
Italy	Europe and Central Asia	Europe	2018	Structure of Earnings Survey	Eurostat
Jordan	Arab States	Eastern Mediterranean	2014	Labour force survey	NSO – latest available in the ILO repository
Latvia	Europe and Central Asia	Europe	2018	Structure of Earnings Survey	Eurostat
Lithuania	Europe and Central Asia	Europe	2018	Structure of Earnings Survey	Eurostat
Luxembourg	Europe and Central Asia	Europe	2018	Structure of Earnings Survey	Eurostat
Malawi	Africa	Africa	2017	Labour force survey	National Statistical Office of Malawi; Ministry of Labour
Malta	Europe and Central Asia	Europe	2018	Structure of Earnings Survey	Eurostat
Mexico	Americas	Americas	2020	Encuesta Nacional de Ocupación y Empleo	Instituto Nacional de Estadísticas y Geografía de México (INEGI)
Mongolia	Asia and the Pacific	Western Pacific	2016	Labour force survey	National Statistics Office of Mongolia
Nepal	Asia and the Pacific	South-East Asia	2017	Labour force survey	Central Bureau of Statistics
Netherlands	Europe and Central Asia	Europe	2018	Structure of Earnings Survey	Eurostat
Niger	Africa	Africa	2019	Enquête Nationale sur les Conditions de Vie des Ménages et l'Agriculture	NSO – latest data from the ILO repository
Norway	Europe and Central Asia	Europe	2018	Structure of Earnings Survey	Eurostat
Pakistan	Asia and the Pacific	Eastern Mediterranean	2018	Labour force survey	Pakistan Bureau of Statistics
Peru	Americas	Americas	2018	Encuesta Permanente de Empleo	NSO – latest data from the ILO repository or SIALC
Philippines	Asia and the Pacific	Western Pacific	2018	Labour force survey	Philippine Statistics Authority

Country	ILO Region	WHO Region	Latest year	Data type	Data source
Poland	Europe and Central Asia	Europe	2018	Structure of Earnings Survey	Eurostat
Portugal	Europe and Central Asia	Europe	2018	Structure of Earnings Survey	Eurostat
Romania	Europe and Central Asia	Europe	2018	Structure of Earnings Survey	Eurostat
Slovakia	Europe and Central Asia	Europe	2018	Structure of Earnings Survey	Eurostat
Slovenia	Europe and Central Asia	Europe	2018	Structure of Earnings Survey	Eurostat
South Africa	Africa	Africa	2015	Labour force survey	NSO – Statistics South Africa
Spain	Europe and Central Asia	Europe	2018	Structure of Earnings Survey	Eurostat
Sri Lanka	Asia and the Pacific	South-East Asia	2016	Labour force survey	Department of Census and Statistics, Sri Lanka
Sweden	Europe and Central Asia	Europe	2018	Structure of Earnings Survey	Eurostat
Switzerland	Europe and Central Asia	Europe	2018	Swiss Household Panel Survey	Swiss Federal Statistics Office
Tanzania (United Republic of)	Africa	Africa	2014	Integrated labour force survey	National Bureau of Statistics
Thailand	Asia and the Pacific	South-East Asia	2018	Labour force survey	National Statistical Office of Thailand (NSO) – Government of Thailand
Turkey	Europe and Central Asia	Europe	2017	Turkish Labour force survey	Turkish Statistical Institute
United Kingdom	Europe and Central Asia	Europe	2018	Structure of Earnings Survey	Eurostat
United States	Americas	Americas	2020	Current Population Survey	Bureau of Labour Statistics
Uruguay	Americas	Americas	2019	Encuesta Continua de Hogares	NSO – latest data from ILO repository or SIALC
Viet Nam	Asia and the Pacific	Western Pacific	2018	Labour and employment survey	General Statistics Office of Viet Nam; Ministry of Planning and Investment of Viet Nam

Notes: NSO – national statistics office; SIALC – Sistema de Información y Análisis Laboral de América Latina y el Caribe.

Methodology for decomposing the gender pay gap in the health and care sector

In this report we apply propensity score matching methods together with the method of unconditional quantile regression (Fortin et al., 2011) to identify, measure and decompose the explained and unexplained parts of the gender pay gap. On a country-by-country basis, the decomposition consists of three steps:

- The first step serves to estimate a counterfactual wage distribution for women, i.e. the wage distribution that would characterize women if they had been paid the same return for their labour market characteristics as men.
- The second step consists of using the counterfactual wage distribution to separate the explained and unexplained parts of the gender pay gap at each quantile of the pay distribution (in our case, the hourly wage distribution for each country for which we have data).
- The third step consists of applying unconditional quantile regression to estimate the contribution that each variable has in the determination of the gender pay gap across deciles.

What follows aims at providing a heuristic understanding of our procedure, in a step-by-step way, and with reference to the gender pay gap. It may be read as information of particular use to practitioners who come across unconditional quantile regression for the first time. This, however, should not be seen as a substitute for those who aim at a more detailed understanding of the properties and relative usefulness of the procedure. For this reason we recommend that the reader refers to Fortin et al. (2011) and the references listed. For those requiring further information on propensity scores and matching procedures, please refer to the evaluation literature, e.g. Rosenbaum & Rubin (1983) or Hirano et al. (2003).

Step 1: Identifying the counterfactual distribution

The counterfactual wage distribution for women is the wage structure that would have been realized among women if they had received the same returns as men in relation to their (the women's) labour market endowments and attributes. There are

several methods that can be applied to obtain the counterfactual; in this report we select the method of matching through propensity scores (in particular, the nearest neighbour) to identify a counterfactual outcome among men for each woman observed in the sample. Propensity score matching consists of the following steps:

- For each wage worker i in the sample, we observe a set (X) that describes the characteristics of men ($T_i = 1$) and women ($T_i = 0$) among wage employees in the health and care sector; for example, X can include age, education, contractual arrangements, occupational categories, etc.
- The information can be used to estimate the probability of being a man, conditional on the set of attributes, i.e. $P(T_i = 1 | X)$. Estimating the latter provides a set of coefficients to weight each of the variables in the set (X) and construct the propensity score. Men and women with similar (X) will end up with a similar estimate for the propensity score. For each woman in the sample, the man that is closest to her in terms of weighted factors (i.e. in terms of the estimated propensity score) is considered her counterfactual in the population, and the earnings observed for this man, the counterfactual earnings for that woman; in this report earnings are measured in terms of hourly wages. An alternative to the consideration of one man as counterfactual for each of the women in the sample is to consider the n -closest men to each woman (in terms of propensity score) and take the average of these n -observed earnings to represent the counterfactual wage that a given woman would have received had she been a man with those attributes in the population.
- Once the matching process is completed and each woman has been associated with a counterfactual hourly wage, the outcome is a vector of counterfactuals identical in size to the number of women wage employees observed in the sample. At this point it is possible to draw quantiles from each of the three empirical wage distributions, namely, from that of men (i.e. q_v^m), of women (i.e. q_v^f), and of the counterfactual wage

distribution of women (i.e. q_v^c). The suffix “v” indicates each one of the nine quantiles (decile threshold values) of a wage distribution, i.e. $v = \{1, 2, 3, \dots, 8, 9\}$. For example, $v = 5$ the quantile values q_5^m , q_5^f and q_5^c indicate the median at the men’s, women’s and counterfactual to women’s wage distribution, respectively.

Step 2: Using the counterfactual wage distribution to identify the explained and unexplained parts of the gender pay gap

Let y_g^g be the natural logarithm of wages observed for group g in the population (hourly wages, say), where $g = m, f, c$ following the above notation. Drawing quantiles from each of the three distributions of the natural logarithmic transformation, the gender pay gap at the v -th quantile (Δ^v) can be expressed as follows:

$$\Delta^v = q_v^m - q_v^f \quad (1)$$

Basically, expression (1) shows the distance between two quantiles that have been drawn from two wage distributions of the (natural logarithms of) wages; that of men (q_v^m) and that of women (q_v^f). We can also draw the v -th quantile from the counterfactual distribution, that is, q_v^c : this would represent the hourly wage at that quantile that women would have earned if they had been paid the same as men for similar endowments and attributes. Using this counterfactual quantile, the following can be constructed:

$$\Delta^v = \underbrace{q_v^m - q_v^c}_{\substack{\text{Explained part} \\ = \text{composition} \\ \text{effect}}} + \underbrace{q_v^c - q_v^f}_{\substack{\text{Unexplained} \\ \text{part} = \text{structural} \\ \text{effect}}} = \Delta_x^v = \Delta_u^v \quad (2)$$

Since the counterfactual emulates what women should get for sharing the same endowments and attributes as men, the distance between what men get and what women should have received if they have the same endowments and attributes as men is, therefore, explained by the difference in labour market characteristics. This is why Δ_x^v is called the explained part of the gender pay gap, also known as the gender pay gap due to “composition effects”. On the other hand, the distance between what women should get (for their endowments and attributes and as emulated by the counterfactual) and what they actually get (for these endowments and attributes) cannot be explained: this is the part Δ_u^v that remains “unexplained”, i.e. the part that is due to a

difference in men’s and women’s wage structures once we control for the difference in labour market characteristics. Since the unexplained part is due to difference in wage structures Δ_u^v is also referred to as the “structural effect”.

In practical terms, the decomposition of the gender pay gap as expressed in (2) requires:

- First, the transformation of wages in the sample into logarithmic scales.
- Second, the construction of the counterfactual wage distribution as described in step 1.
- Third, drawing the quantiles of interest from each of the three distributions.
- Finally, applying the simple distance as expressed in (1) and (2) to estimate the gender pay gap, and its decomposition, at each selected quantile of the wage distribution.

Step 3: Using unconditional quantile regression to decompose the gender pay gap

Estimating the gender pay gap is an important step because it provides a measure of pay differentials between women and men. But the estimate can be further analysed to identify how individuals’ endowments, their job characteristics and workplace attributes – in sum, labour market characteristics – contribute to the formation of the gender pay gap. We start with the assumption that all these labour market attributes, embodied in the set of indicators X , underline the wage determination process in the labour market. That is, indicators such as age, education, but also working time, contractual conditions, occupational categories, geographic region of the workplace and industrial sector, all contribute to explaining the wages that individuals get in a given country. In essence, the proposed decomposition method (unconditional quantile regression) estimates coefficients for each of the covariates in the set X . Each of these coefficients act as weighting factors to estimate the share of the gender pay gap attributable to each covariate in X . Whatever remains of the gender pay gap that cannot be attributable to the covariates is called the unexplained part of the gender pay gap.

The method of “unconditional quantile regression” estimates the coefficients for each X across the wage distribution, i.e. at each quantile, while preserving the property of measuring the unconditional effects

of the covariates (e.g. a change in education) across the population (Koenker & Bassett, 1978).⁶⁶ The method of unconditional quantile regression estimates the partial effects that covariates in X have not on the quantile, but on a transformation of the quantile; the transformation inflicts a small change on the quantile, where such a small change reflects the influence that each individual (wage) has on the location of the quantile. Adding this small change (or “influence function”) to the quantile leads to a random variable – individual’s dependent – that can be understood as a linear approximation of the quantile. The transformation of the quantile receives the name “recentered influence function” or RIF for short. It can be shown that the transformed quantile has the following structure:

$$RIF_i = q_v^g + IF_i, \quad i \in n(g) \quad (3)$$

where

$$IF_i = \frac{v - I\{Y_i \leq q_v^g\}}{f_y(q_v^g)}$$

In expression (3), $v - I\{Y_i \leq q_v^g\}$ is an identity function that equals 1 for wage values smaller than or at the quantile, and zero otherwise. The term $f_y(q_v^g)$ is the value of the probability density function at that quantile. Once the RIF variable is constructed, this is a quantile-specific random variable that reflects changes to the quantile (any quantile) as result of changes in the underlying distribution, which, ultimately, depends on the covariates X .

Thus, applying regression analysis to the expression in (3) – RIF regression – provides a tool to estimate the partial effects of each covariate in X on the (transformation of the) quantile. Firpo et al. (2011) show that the partial effects each of the k variables in X , namely, $\hat{\beta}_k$, can be obtained using ordinary least squares of RIF_i on X , i.e. $RIF_{ieg} = \sum_k X_k \beta_k^g + e_{ieg}$, for $g = m, f, c$. Once these partial effects are estimated they can be used to project the quantiles for men, women and the counterfactual as expressed in (2), so that the following applies:

$$\begin{aligned} \Delta^v &= \Delta_x^v = \Delta_u^v \\ &= \bar{X}_m \hat{\beta}^{m,v} - \bar{X}_f \hat{\beta}^{c,v} + \bar{X}_f \hat{\beta}^{c,v} - \bar{X}_f \hat{\beta}^{f,v} \\ &= \underbrace{(\bar{X}_m \hat{\beta}^{m,v} - \bar{X}_f \hat{\beta}^{c,v})}_{\Delta_x^v} + \underbrace{\bar{X}_f (\hat{\beta}^{c,v} - \bar{X}_f \hat{\beta}^{f,v})}_{\Delta_u^v} \end{aligned} \quad (4)$$

In expression (4) the term \bar{X}_g explains the average value of the covariates for each of the populations (women and men, where $g = c$ implies the average value of the covariates for women). Expression (4) shows the decomposition of the gender pay gap in relation to the covariates at each quantile of the wage distribution. The composition effect (Δ_x^v) shows clearly as the difference in covariates – considering that the coefficients $\hat{\beta}^{m,v}$ and $\hat{\beta}^{c,v}$ will be very close in value (by construction). Therefore, this is the contribution to the gender pay gap due to the difference in covariates between individuals. On the other hand, the structural effect (Δ_u^v) is the contribution to the gender pay gap due to the difference in returns (i.e. the difference between $\hat{\beta}^{f,v}$ and $\hat{\beta}^{c,v}$) at that quantile and for a given quantity (average value) of the covariates among women in the population. This difference in returns describes a difference in the structure of wages between women and men that cannot be explained by their covariates and, therefore, it is the unexplained part of the gender pay gap.

⁶⁶ The report shows that the gender pay gap varies significantly across quantiles, so mean regression would not be an appropriate tool to identify the weight that each covariates has on the gender pay gap. An alternative would be to use classic conditional quantile regression (Koenker & Bassett, 1978) but this method estimates weights that measure conditional effects (i.e. conditional on a subgroup of covariates) and, therefore, the coefficients do not measure unconditional partial effects. Instead, conditional quantile regression produces coefficients that are conditional and vary in relation to specific subsets of the covariates in the conditional set: this can be seen if one takes partial effects of the functional form of a conditional quantile specification. In contrast, unconditional quantile regression returns weights that are in fact partial effects, i.e. it returns weights that measure how a covariate impacts on the wage structure in the population and not with respect to (conditional on) a subgroup given by other covariates in the conditional set. For a more detailed account see Firpo et al. (2011).

Global financial crisis and the evolution of employment in the health and care sector in selected countries

Fig. A3 shows the evolution in the number of wage employees in the health and care sector, comparing the number of women and men, between (approximately) 2000 to 2019. For each country or group of countries (in the case of Europe) the chart on the lefthand side shows the total number of women and men employed in the health and care sector for each of the available years. The chart on the righthand side shows the gender-specific growth rate in employment, indexed to each country's respective first year, comparing the growth in the health and care sector with that in all other economic sectors. The surveys for Canada and the United States are collected on a monthly basis, whereas in Mexico the data are collected every quarter. In Canada and the United States, the month of October in each of the available years is selected to estimate changes over time, with each of the months in the data representative of the overall population in each country. In the case of Mexico, we selected the third quarter of each year. Data for Europe is annual and collected for all countries in the month of October. The month of October (the third quarter of a year) is usually selected as a time period less affected by seasonality. For all countries and across time, the share of men has remained relatively small compared with that of women; in all countries employment growth in the health and care sector has also been substantial for both women and men.

What is striking in Fig. A3 is how employment trends in the health and care sector reacted differently to the global financial crisis in comparison with all other economic sectors (in aggregate). Fig. A3 shows that in the three countries and Europe, as result of the global financial crisis, employment growth in sectors other than the health and care sector sank in 2009–2010, with a similar dip among both women and men (except in Mexico, where the decline in employment in the rest of the economy affected mostly men). In Europe the impact of the global financial crisis was noticeable between 2008–2009, with a similar shape to that of Canada or the United States. The data for Europe, which are provided every 4 years, cannot capture such details. However,

from 2000 to 2008 employment in Europe had grown at about 6% for men and 16% for women. Between 2008 and 2009, employment declined by about 3% for men and 1% for women, thus sinking to the level of 2005–2006. Thereafter, employment in Europe started to recover steadily, but with a much slower annual growth, as shown by the flatter gradient from 2010 onwards (ECB, 2012; 2014). In contrast, the global financial crisis does not seem to have affected the employment of wage workers in the health and care sector in either Canada, Mexico or the United States. This is also the case in Europe, but with certain nuances that makes its case slightly different.

In the United States, the trends shows that the employment of men in the sector continued to boom even during the most troubled years of the global financial crisis (2009–2010); for women, employment growth stagnated between 2007 and 2011. After that, the growth in employment for women employed in the health and care sector seems to catch up with that of men until about 2017, when men's employment growth again jumps well above that observed among women in the United States. Likewise, in Canada, the global financial crisis shrank employment in all other sectors of the economy (by 5% for men and 3.5% for women) but did not affect growth in the health and care sector where wage employment continued to grow between 2000–2019 at a similar pace, on average, for women and men. In the case of men, there is greater variation in the data, but this is because men represent a smaller share among workers in the sector and therefore greater variation in the trend of the data is observed over time. In Canada, men account for about 18% of all wage workers in the health and care sector. With a survey that randomly samples women and men from the population, the probability of drawing a men in the health and care sector is smaller than that of selecting a women. This means that although the sample remains representative for both genders (weights are applied to make sure this is the case) the variance between periods is larger for the smaller sample (for men) as is clearly visible in the trends in Fig. A3. Canada suffered another economic crisis in 2015, when wildfires in the region of Alberta

reduced GDP by 1.6% (with a cost of US\$ 4.5 billion in damage). The economy recovered fully from this shock by the second quarter of 2016. In that case, growth in employment among men in other economic sectors declined by about 2.7%, and there seems to be a sudden decline in employment growth for men in the health and care sector. However, it is not totally clear from the data whether this sudden decline is directly related to the Alberta economic crisis.

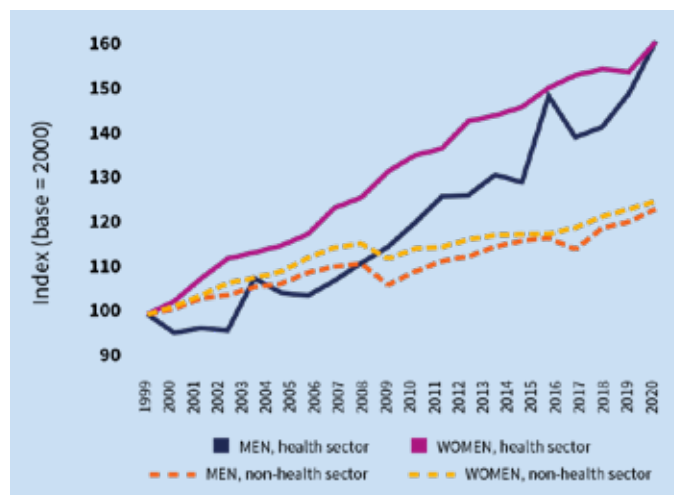
In any event, it is clear that if we consider women only (80% of wage workers in the sector), Canada again provides a case where the health and care sector shows a significant amount of resilience in face of the global financial crisis. Among European countries, the story is slightly different: employment in the health and care sector grew faster than in the rest of the economy – as in most HIC – up to the year 2009. While other sectors lost employment as result of the global financial crisis, the health and care sector continued to grow after 2010, thus showing that in Europe the sector was resilient to the crisis.

However, in Europe, the flattening of the curve for health and care wage workers as of 2010 implies a slowdown in employment growth in the sector as of 2010, compared with the pre-crisis years, for both women and men. This could be related to austerity measures put in place in countries with a significant population weight in Europe – these countries also happen to have health and care institutions mostly in the public sector, where austerity measures were targeted (e.g. Spain, Portugal and Italy). It is also interesting to notice that in Europe, the “kink” in 2014, which appears only for the rest of the economy, implies greater employment growth between 2014 and 2018 for all other economic sectors compared with the post-crisis period of 2010–2014 for both women and men. This “kink” is completely missing in the case of the health and care sector. In fact, compared with the growth rate observed during 2010–2014 in the health and care sector – about 2% annually for both women and men – the growth rate during 2014–2018 was about 1.5% for both women and men.

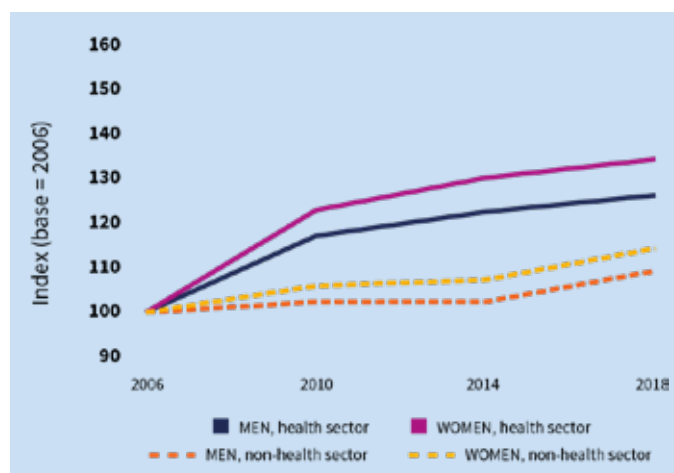
FIG. A3

Detailed analysis of the evolution of workers by gender in the health and care sector, selected countries, 2000s–2018/19

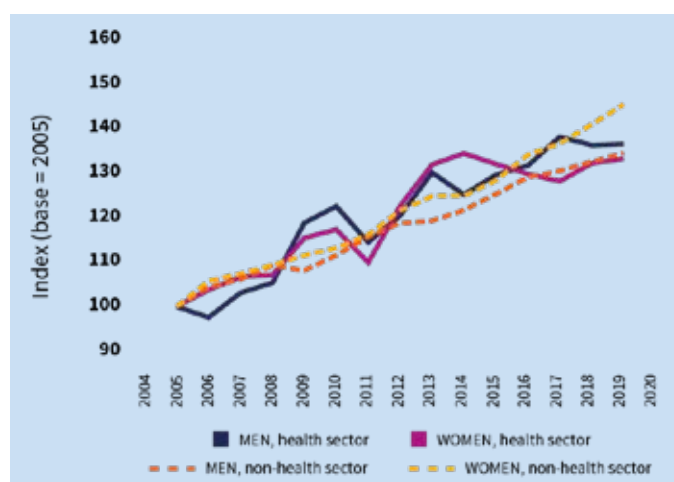
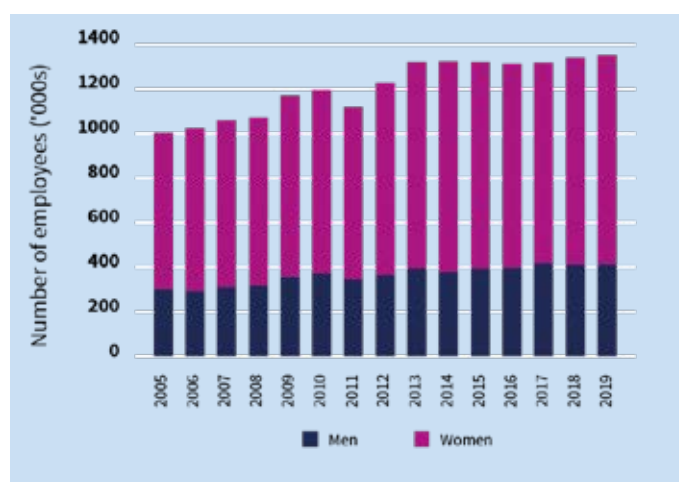
Canada



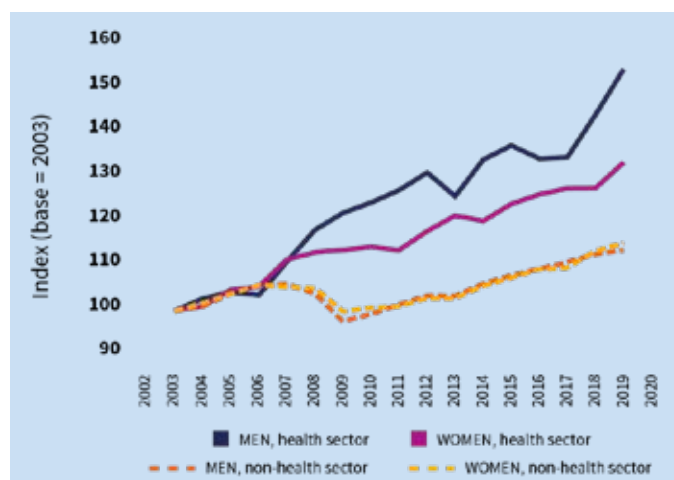
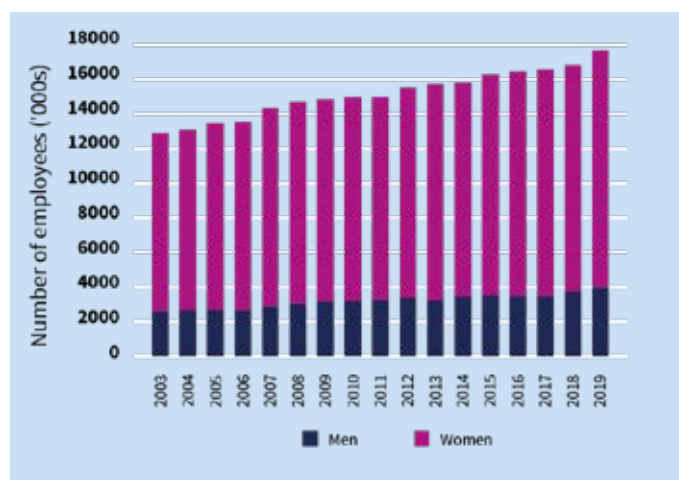
Europe



Mexico



United States



Source: ILO, WHO estimates based on survey data provided by national surveys (see Annex 1).

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