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Trade and decent work: Indicator guide

Trade and decent work: Indicator guide

Globalization Team
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Foreword

The 2030 Agenda for Sustainable Development recognizes the role of both trade and decent work in achieving some of the Sustainable Development Goals. Specifically, Goal 17 emphasizes the need for an inclusive trading system, while Goal 8 calls, inter alia, for the promotion of decent work and economic growth. Indeed, international trade is widely considered to be an engine for economic growth and development that enhances labour markets by increasing labour productivity and creating employment opportunities. Trade has benefited workers of all skill levels in both developed and developing economies and helped to lift millions of people out of poverty. However, alongside these positive effects there are also challenges, since not all workers and firms are able to benefit from trade to the same extent. Trade creates losers as well as winners, and a sense of insecurity and inequity is often associated with the distributional nature of its effects, which is reflected in greater job polarization and income inequality in many advanced economies, and in higher rates of informality, exploitative work and regional inequality in developing and emerging economies.

That being said, many technical assessments of the impact of trade on labour markets do not fully take into account the characteristics of employment, which encompass workers' rights, working terms and conditions, and other aspects of decent work.

The above-mentioned research gaps are being addressed through the project entitled "Trade, enterprises and labour markets: Diagnostic and firm-level assessment (ASSESS)", which is jointly funded by the European Commission and the ILO. This project seeks to pave the way for a more comprehensive analysis of the effects of trade on employment by critically assessing the existing methodological approaches and proposing a broad set of labour market indicators, based on the ILO's Decent Work Agenda, that can be used for such analysis. Among the project's main outputs are two publications on trade and decent work: a Handbook and a Guide (the present publication), which deal, respectively, with those methodologies and indicators. The Guide is intended to expand the knowledge base on the effects of trade policy changes on labour markets by identifying and assessing key labour market indicators that are of relevance when looking at trade liberalization. The indicators cover 11 substantive areas linked to the four pillars of the ILO's Decent Work Agenda: rights at work, employment, social protection and social dialogue. This makes it possible for a wide range of variables to be considered across different, less well-studied areas of trade and labour.

The Guide was prepared by the Globalization, Competitiveness and Labour Standards Unit (led by Marva Corley-Coulibaly) within the ILO Research Department, under the support and guidance of its Director, Richard Samans. The authors of the Guide are Souleima El-Achkar Hilal (external consultant), Marva Corley-Coulibaly and Sajid Ghani (both from the ILO Research Department); supporting contributions were made by Bashar Marafie (also at the ILO Research Department). Ira Postolachi and Pelin Sekerler Richiardi, both from the ILO Research Department, provided valuable comments and structural suggestions throughout the drafting process.

The analysis is based on both desk and field research, and it was enriched by discussions with ILO constituents at two separate events. The first was an academic and tripartite seminar held in Mexico City in February 2020 that brought together officials from Mexico's Secretariat of Labour and Social Security and the Secretariat of Economic Affairs; representatives of the Mexican states and of workers' and employers' organizations, the National Institute of Statistics and Geography, the United Nations Economic Commission for Latin America and the Caribbean, and the Delegation of the European Union to Mexico; and civil society representatives. Without the active involvement of the ILO Country Office for Mexico and Cuba, the organization of the seminar would not have been possible. Special thanks in that respect are due to Gerardina González Marroquín (former Director), Helmut Schwarzer (former Senior Specialist for Social Protection and Economic Development), and the administrative and technical staff of the ILO

Country Office for Mexico and Cuba for their assistance with, and engagement in, the various seminar and consultation meetings.

The second event, a virtual peer review workshop, was organized jointly by the ILO Office for the European Union and the Benelux countries and by the European Commission in October 2020. The workshop brought together officials from the European Commission, representatives of workers' and employers' organizations, and officials from international trade organizations. In particular, valuable written comments were provided by Yorgos Altintzis, International Trade Union Confederation; Luis Rodrigo Morales, International Organisation of Employers; and Marc Bacchetta, World Trade Organization. We should like to thank our colleagues Lieve Verboven, Director of the ILO Office for the European Union and the Benelux countries, and Audrey Le Guével (from the same ILO Office) for their engagement in the project as a whole, and their support for and involvement in the workshop.

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Abbreviations

EPR	employment-to-population ratio
EU	European Union
FDI	foreign direct investment
GATT	General Agreement on Tariffs and Trade
GDP	gross domestic product
GSC	global supply chain
GVA	gross value added
ICLS	International Conference of Labour Statisticians
ICSE	International Classification of Status in Employment
ICT	information and communication technology
ISCED	International Standard Classification of Education
ISCO	International Standard Classification of Occupations
ISIC	International Standard Industrial Classification of All Economic Activities
LFPR	labour force participation rate
NAFTA	North American Free Trade Agreement
NEET	not in employment, education or training
OECD	Organisation for Economic Co-operation and Development
PPP	purchasing power parity
SDG	Sustainable Development Goal
WTO	World Trade Organization

Executive summary

Trade has historically been viewed as an engine of economic growth and prosperity since it creates jobs and increases productivity (Robertson 1940; WTO 2017). However, although it is true that the world as a whole has become more prosperous and interconnected thanks to rapidly advancing globalization and trade, this process has also been accompanied by certain challenges. Among the most significant are pervasive labour market trends associated with trade (and technology), such as job polarization and rising income inequality in many advanced economies, and informality, exploitative work and regional inequality in developing and emerging economies.

A considerable amount of existing studies have focused on the distributional effects of trade on the labour market, looking specifically at employment and wage outcomes (including inequalities between and within capital and labour; countries; regions; types of firms and workers). Far less research has been undertaken on the effects of trade on working arrangements, working conditions and other aspects of employment, all of which fall under the scope of "decent work". This is a multifaceted concept and refers to work that is productive and delivers a fair income, together with rights at work, social protection and the promotion of social dialogue.

The purpose of the present Guide is to provide analytical tools, which can support further research on trade and decent work. It offers a broad set of labour market indicators for trade policy assessment that can be used in studies on the nexus between trade and employment, labour relations, and working terms and conditions. To that end, the Guide singles out and contextualizes those of the ILO's decent work indicators that are suitable for analysing the impact of trade policy on the labour market. It also facilitates the use of these indicators in macro, sectoral and micro assessments of the impact of trade on the labour market at the country level by providing an overview of measurement approaches, relevant data sources, links to trade theory and empirical evidence. Such assessments will help to support a more human-centred approach to the future of work – as called for in the ILO Centenary Declaration for the Future of Work (ILO 2019a) – by making decent work a central objective of trade policy. Additionally, it resonates with the twin objectives of realizing free trade and decent work enshrined in the United Nations Sustainable Development Goals, under Goal 17 and Goal 8, respectively.

The expansion of international trade has coincided with major changes in the world of work

The burgeoning of international trade over the past 20 years has coincided with a number of significant developments in the world of work:

- Trade has created employment opportunities for large numbers of low-skilled workers in the manufacturing sector, including many entering the formal labour market for the first time, such as women, but also migrants, young people and members of other vulnerable groups. However, the fragmentation of production, which is a feature of high-volume trade in most regions of the world, has also led to increased competition for services and downward pressure on wages and working conditions (ILO 2020c).

- In advanced economies, where more than 80 per cent of the working poor are wage and salaried workers, poverty is associated with job precariousness, which reflects changing patterns of work, such as the "gig economy" and underemployment (ILO 2016a). Globally, "gig economy" or "platform economy" workers are often unable to engage in collective bargaining and many do not have social security coverage (ILO 2021b). The increase in non-traditional work arrangements in the service sector may to some extent be attributed to large intersectoral shifts in employment caused by trade liberalization (Ostry and Spiegel 2013).

- Short-term contracts and irregular working hours have become increasingly

widespread, notably as a result of globalization driven by global supply chains and technological advances (ILO 2015a; 2016b).

- The labour share of income has declined globally, from 54 per cent in 2004 to 51 per cent in 2017 (ILO 2020b). Despite this decline, global inequality (as measured by the distribution of labour income) has decreased over the past decade, notably because of falling inequality between countries – a consequence of the higher-than-average gross domestic product growth rates reported by countries such as China and India. At the same time, though, within-country inequality has increased in a large number of developed and developing economies.
- On average, collective bargaining coverage has decreased by 4.6 per cent in 48 countries between 2008 and 2013. There has also been a decline of 2.3 per cent in union density among the same group of countries over the same period (ILO 2017a).

This Guide presents a toolkit of trade and decent work indicators that capture such aspects as employment, rights at work, social protection and social dialogue

By not fully taking into account broader labour market changes that pertain to working conditions and labour rights, existing studies fail to provide an adequate assessment of the relationship between trade and the labour market. The analytical framework set out in this Guide addresses this deficiency by linking the labour market impacts of trade to the ILO's Decent Work Agenda. The labour market indicators underpinning the Decent Work Agenda are referred to as "decent work indicators". Covering eleven substantive areas of decent work, these indicators are intrinsically linked to the four pillars of the Decent Work Agenda: employment creation, social protection, rights at work and social dialogue. Drawing on trade theory and empirical evidence, the Guide establishes a subset of indicators that together comprise a "toolkit of trade and decent work indicators". For each such indicator, the Guide provides information on its definition, how it is computed, relevant data sources and empirical evidence showing how the indicator is related to trade. All of the indicators are appropriate for macro- and/or sectoral-level analysis; while most are suitable for firm-level analysis.

It is not feasible – nor is it the purpose of this Guide – to sum up all of the available empirical literature on trade and labour market impacts. Nevertheless, using this Guide in future research offers four key advantages:

First, the toolkit of indicators presented by the Guide can be used to track progress towards decent work

The toolkit of trade and decent work indicators includes 46 statistical indicators, most of which (70 per cent) have to do with rights at work and social protection. This amounts to 32 indicators that measure elements of adequate earnings and productive work, working time, the work–life balance, work that should be abolished, the stability and security of work, safe work environments and social protection. Among them are such indicators as wages (disaggregated by sex, skill level and other dimensions), the rate of precarious employment, the occupational injury frequency rate, employment by weekly hours, and the child labour rate. The remaining indicators in the toolkit refer to employment opportunities (six indicators), social dialogue (four indicators), and structural changes in the economic and social context (four indicators).

The diversity of the indicators in the toolkit reflects the framework of the ILO's decent work indicators itself, which is meant to provide a holistic perspective of national labour markets through the lens of decent work. Endorsed by a tripartite expert committee, the aforementioned framework comprises both statistical and legal framework indicators. Moreover, the indicators are based on standards of measurement that have been endorsed by the international statistical community, which ensures methodological and statistical rigour (ILO 2013). This confers

a high level of legitimacy on assessments of progress towards decent work that draw on these metrics. Significantly, the indicators for the Sustainable Development Goals overlap with 14 decent work indicators, all of which are represented in the toolkit. The interlinkages between the two sets of indicators mean that they should both be used when evaluating progress on the 2030 Agenda for Sustainable Development and the Decent Work Agenda.

Secondly, the toolkit can facilitate the harmonization of decent work benchmarks in trade assessments

By virtue of their credibility, the indicators in the toolkit can also support the harmonization of decent work benchmarks in trade assessments. The findings of studies on the labour market impacts of trade vary considerably. Indeed, very few of them offer compelling evidence of trade having positive or negative effects on specific decent work indicators. This is due to several factors, such as the different time periods considered, country- and industry-specific contexts, but also the wide variety of approaches used to define and measure indicators (both trade and labour).

Additionally, although there are many studies on trade's impact on employment creation, and to some extent also on rights at work, considerably fewer studies look at the effects of trade on social protection and social dialogue. Part of the reason for this paucity of research has to do with data limitations.

Values for most of the indicators in the toolkit are publicly available in ILOSTAT, which is the ILO's global database of labour market indicators. Taking its data from national surveys, ILOSTAT relies on internationally agreed definitions to ensure that the values of indicators are comparable across countries. This is an asset in terms of improving the harmonization of indicators used across regions and countries. Accordingly, the toolkit should be useful for researchers wishing to conduct studies based on linking trade and specific labour market indicators such as occupational safety and health, exploitative work, labour standards, social security and social dialogue.

Thirdly, the toolkit can encourage dialogue and create synergies between the policy areas of trade and labour

Like the ILO's decent work indicators, the indicators in this toolkit are not meant to be exhaustive. Nor is the entire set of indicators meant to be used in a single study. Rather, the indicators should be selected according to the specific industry (or even firm) and/or country being analysed. For this selection process, it is important to draw on the expertise of different stakeholders. For example, at the national level, this would include trade and labour officials, along with the social partners. Such inclusiveness facilitates dialogue between, and strengthens capacity within the various policy areas.

Finally, the toolkit supports the ILO's role in promoting decent work, also within the context of trade

The ILO is engaged in a number of activities to assist Member States in promoting decent work in the context of trade. These include providing upon request, advice and technical expertise on labour issues, especially in relation to bi- and pluri-lateral trade agreements and unilateral trade arrangements; supporting the monitoring and review of labour practices through the ILO's supervisory mechanisms; and helping countries to improve their capacity to comply with international labour standards (ILO 2019e).

The ILO is also involved in research work – both within the Organization and externally – on the distributional effects of trade on firms and workers, particularly within the context of global supply chains. This research covers such aspects as the impact of trade on skills, gender wage gaps, informality, forced and child labour, and firms and workers in export processing zones.

It is hoped that the present Guide and its companion publication – *Trade and Decent Work: Handbook of Assessment Methodologies* – will stimulate and facilitate further research that could help to advance both trade and decent work.

Introduction

Trade has historically been viewed as an engine for economic growth and prosperity, by creating jobs and increasing productivity (Robertson, 1940; WTO, 2017). However, while the world has become more prosperous and more interconnected with the rapid pace of globalization and trade, there have also been accompanying challenges. The recent backlash against globalization in general, and trade policy in particular, may be traced back more than two decades (Rodrik 2017).[1] There were rising concerns of the deleterious effects of trade on environmental and labour laws and whether the current generation of trade agreements could adequately deal with the social impacts of trade. These issues were brought into sharper perspective in the present decade due to widespread labour market trends associated with trade (and technology) such as job polarization and rising income inequality in many advanced economies; and informality, exploitive work and regional inequality in developing and emerging economies.

Indeed, trade creates losers, as well as winners. Additionally, as Rodrik (2017) points out, "the manner in which the gains and losses are generated matter [to most people]". If productivity gains from trade are the result of compromising or violating socially accepted norms and standards, including international labour standards, and if gains are shared inequitably between workers and employers, then public sentiment in many societies regarding globalization will remain negative. Thus, more research is needed on the way trade affects the labour market. Such research can help to inform policies needed to "maximize the gains from trade and its equitable distribution among countries and within economies" (IOE, 2020).

There are several existing studies that focus on the distributional effects of trade on the labour market in terms of employment and wage outcomes (including inequalities between capital and labour; countries; regions; types of firms and workers). However, more research is required on the effects of trade on working arrangements, working conditions and other aspects of employment, all of which fall under the scope of "decent work". The latter is a multifaceted concept and refers to work that is productive and delivers a fair income, together with rights at work, social protection and the promotion of social dialogue.

The purpose of this Guide is to advance a broader set of labour market indicators for trade policy assessment. It does this by first defining and contextualizing the decent work indicators that are suitable for analysing the impact of trade policy on the labour market. Relevant data sources and measurement approaches are provided for each indicator. The theoretical and empirical evidence from the literature on the association between trade and each indicator is then reviewed. Although the literature may also provide evidence on the type of association between trade and specific labour market indicators, the Guide does not make broad assumptions about correlation or causation. Indeed, a companion publication, *Trade and Decent Work: Handbook of Assessment Methodologies* (ILO 2021a), is intended to support this Guide by reviewing various empirical methodologies and assessment tools at the macro, sectoral and firm level that are relevant to the indicators presented here. These two publications together make up a diagnostic toolkit for decent work-oriented assessments of trade.

To inform policy discussions, the ILO is also undertaking country case studies using the decent work indicators and methodologies from this toolkit to assess the decent work impacts of trade at the sectoral and firm level. Case study assessments of Malawi, Mexico and Viet Nam will be published in an edited volume (forthcoming). Such assessments help to support a more human-centred approach – as called for in the ILO Centenary Declaration for the Future of Work (ILO 2019a) – by making decent work a central objective of trade policy.

1 In particular, the series of protests at the Third Ministerial Conference of the World Trade Organization (WTO), held in Seattle in 1999 – popularly referred to as the "Battle of Seattle".

This Guide is written at a time of great uncertainty. Given the economic ramifications of the COVID-19 pandemic as well as the loss of life it has caused worldwide, many institutions are advocating for inclusive trade more assertively. Inclusive trade allows all workers (irrespective of their employment relationship or contractual arrangements) and enterprises – particularly small enterprises and also women-led and innovative businesses – to take an active role in, and benefit from, the global trading system (WTO 2016). The ILO supports inclusive trade through several initiatives, including its framework for crisis recovery and sustainability based on international labour standards (ILO 2020a). Significantly, the twin objectives of free trade and decent work are enshrined in the United Nations Sustainable Development Goals, which affirm the role of trade as an engine of growth, calling for "a universal, rules-based, open, non-discriminatory and equitable multilateral trading system" (under Goal 17) and at the same time, for the promotion of "sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all" (Goal 8).

This Guide is intended both for analysts working in the field of trade and labour market policy and for policymakers and other practitioners. The Guide's instructive format is suitable for government officials, workers' and employers' representatives, and civil society representatives, and also for students, technical experts and academics. It is arranged as follows: the Guide's conceptual approach and that of the diagnostic toolkit as a whole are presented in Chapter 1. An overview of trade and labour market trends and dynamics over the past few decades is given in Chapter 2, which focuses on key developments leading to changes in the way that labour market impacts are conceptualized. Chapter 3 presents decent work indicators of relevance to trade. Finally, some concluding remarks are offered in Chapter 4.

1 Conceptual framework: A decent work approach

Chapter 1. Conceptual framework: A decent work approach

1.1. Motivation for the approach

International trade is often described as an engine of economic growth. Accordingly, the discourse on interlinkages between trade and the labour market has tended to focus on the two-way relationship between labour and economic growth. Many assessments have looked at how the impact of trade on the labour market affects growth, largely through the productivity channel (Dalton 2016); others have treated labour market impacts as "dividends" or by-products of economic growth (Frey and MacNaughton 2016). Moreover, most of the literature on trade and labour markets deals with job creation and wages, with far less attention given to the types of jobs created or the spillover effects of trade on other areas of the labour market.

The expansion of international trade over the past 20 years has coincided with a number of significant developments in the world of work:

- Trade has created employment opportunities for many low-skilled workers in the manufacturing sector, including many entering the formal labour market for the first time, such as women, but also migrants, young people and members of vulnerable groups. However, the fragmentation of production, which is a feature of high-volume trade in most regions of the world, is also associated with increased competition for services and downward pressure on wages and working conditions (ILO 2020c).
- In advanced economies, where more than 80 per cent of the working poor are wage and salaried workers, poverty is associated with job precariousness – linked to changing patterns of work, such as the "gig economy" and underemployment (ILO 2016a). Globally, "gig economy" or "platform economy" workers are often unable to engage in collective bargaining and many do not have social security coverage (ILO 2021b). The increase in non-traditional work arrangements in the service sector may to some extent be attributed to large intersectoral shifts in employment caused by trade liberalization (Ostry and Spiegel 2013).
- Short-term contracts and irregular working hours have become increasingly widespread, notably because of globalization driven by global supply chains and technological advances (ILO 2015a; 2016b).
- The labour share of income has declined globally, from 54 per cent in 2004 to 51 per cent in 2017 (ILO 2020b). Despite this decline, global inequality (as measured by the distribution of labour income) has decreased over the past decade, with most of this decrease attributable to higher-than-average gross domestic product (GDP) growth rates in countries such as China and India. However, this must be viewed against rising inequality in a large number of developed and developing economies.
- On average there has been a fall in collective bargaining coverage of 4.6 per cent in 48 countries between 2008 and 2013, and a decline of 2.3 per cent in union density among the same group of countries over the same period (ILO 2017a).

By not fully taking into account broader changes in the labour market that pertain to working conditions and labour rights, the current literature is failing to provide an adequate assessment of the relationship between trade and the labour market. The methodological framework adopted in this Guide addresses this problem by striving to reconcile a traditional market-oriented approach with a more human-centred one, as called for in the ILO Centenary Declaration for the Future of Work (2019). The Guide does this by linking the labour market impacts of trade to the core components of the ILO's Decent Work Agenda. This framework is consistent with the recommendation by

Frey and MacNaughton (2016) with regard to the employment targets and indicators of the Sustainable Development Goals (SDGs). Specifically, they argue that failure to align the targets and indicators of SDG 8 ("Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all") with the Decent Work Agenda, and to move away from an exclusive focus on economic growth, will undermine efforts to achieve that Goal in its entirety. Although the relative importance of different aspects of decent work may vary from country to country, or from person to person, the concept and its basic elements are universal (ILO 2002).

The concept of decent work has been elaborated on by the ILO since 1999 and was institutionalized in the ILO Declaration on Social Justice for a Fair Globalization, adopted by the International Labour Conference at its 97th Session in June 2008. It re-emerged on the global policy agenda with the adoption of the 2030 Agenda for Sustainable Development by all United Nations Member States in December 2015, specifically in connection with SDG 8. That Goal, along with the associated targets and indicators, represents a big step forward from the narrower employment targets of the Millennium Development Goals of 2000, in which only two out of 48 indicators were related to employment and those measured solely the presence or absence of work (Anker et al. 2002). Under the current SDG framework, the ILO is the custodian of nine of the 17 indicators for Goal 8, including indicator 8.8.2, "level of national compliance with labour rights (freedom of association and collective bargaining) [...]". Moreover, the ILO is the sole custodian of 11 global SDG indicators and is, directly and indirectly, involved with other United Nations system agencies on six further indicators (see box 1.1). The progress achieved since 2000 is partly due to improvements in methodologies and indicators that have made it possible to take into account the many facets of decent work.

▶ Box 1.1. The Decent Work Agenda and the Sustainable Development Goals

In September 2015, the Sustainable Development Goals (SDGs) were officially adopted by all 193 Member States of the United Nations, the aim being to end poverty, protect the planet and ensure peace and prosperity by 2030. There are a total of 17 Goals, accompanied by 169 targets and 232 indicators, covering various topics under five dimensions: people, planet, prosperity, peace and partnership. The 2030 Agenda for Sustainable Development identifies trade as a mechanism for reducing poverty and promoting sustainable economic growth.

The ILO is the custodian of nine of the 17 indicators for SDG 8 ("Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all"). Moreover, it is the sole custodian of 11 global SDG indicators and is, directly and indirectly, involved with other United Nations system agencies on six further indicators. These SDG indicators overlap with numerous decent work indicators, as can be seen in table A1 in Appendix I. The interlinkages between the two sets highlight the importance of reporting on these indicators as part of evaluating progress on both the 2030 Agenda and the Decent Work Agenda. For example, the working poverty rate, which is a decent work indicator, is closely related to SDG indicator 1.1.1 (proportion of the population living below the international poverty line). Additionally, SDG indicator 8.5.1 (average hourly earnings of female and male employees) is derived from the decent work indicator "average hourly earnings". The decent work indicators are intended to support the monitoring of decent work outcomes, and they should be looked at in combination to give a holistic picture of the progress made and of any deficits. This enables governments to make necessary adjustments to their policies and programmes.

Reporting on progress on the SDGs is a challenge for many countries, as data collection methods are not in place or data are not regularly collected for many of the indicators. The SDG indicators are classified into three tiers on the basis of their level of methodological development and data availability. The first tier consists of indicators that are conceptually clear and have an established methodology and available standards, and for which data are regularly produced by countries. Second-tier indicators are conceptually clear and have an established methodology with available standards, but relevant data are not regularly produced by countries. Indicators in the third tier are the most challenging: they have no internationally established methodology (UNSD, n.d.).

Of the 17 SDG indicators , there is an over lap with 14 decent work indicators. Six of these indicators are tier I, ten are tier II and one is tier III (see table A1 in Appendix I). In the case of such crosscutting indicators, governments do not have to duplicate their efforts when reporting on SDG and decent work indicators, which means that they can channel more resources towards the development of methodologies and standards for the tier III indicators.

The ILO's role as a custodian of these indicators depends on the capacities of its Member States. The Organization must therefore be able to provide countries with regular support to help them strengthen their capacity for producing high-quality data, notably through the development of international standards and methods for tier III indicators. The ILO has been working closely with governments, employers and workers to refine many of the proposed methodologies. A number of indicators have been reclassified into different tiers – for example, indicator 8.b.1 (existence of a national strategy for youth employment) was moved from tier III to tier II in December 2018.

The ILO's work on measuring decent work began with Anker et al. (2002) and was further developed in ILO (2013). Several international initiatives in recent years have also been aimed at measuring employment quality, including studies carried out by the Organisation for Economic Cooperation and Development (OECD); sets of indicators developed for use within the European Union (EU) by the European Commission and Eurofound; and an expert group established by the Bureau of the Conference of European Statisticians

(UNECE 2015). While drawing primarily on the ILO's guidelines on decent work indicators (ILO 2013), the framework presented here is indebted to all the above-mentioned efforts.[2]

1.2. Analytical framework

1.2.1. A toolkit for trade and labour market diagnostics

The ILO guidelines on decent work indicators (2013) offer a comprehensive approach for measuring decent work that relies on both statistical indicators and legal framework indicators. The two sets of indicators are mutually reinforcing and are both considered essential for monitoring progress towards decent work in a given national economy (ILO 2013, 12).

A key element of a human-centred approach to trade is to study the effects of the latter on decent work. To that end, the ILO is following a three-pronged strategy that consists of (a) developing and applying a broader set of labour market indicators, such as those presented in this Guide; (b) linking those indicators to appropriate assessment methodologies; and (c) conducting empirical analyses at the country level. These three aspects are described in more detail below:

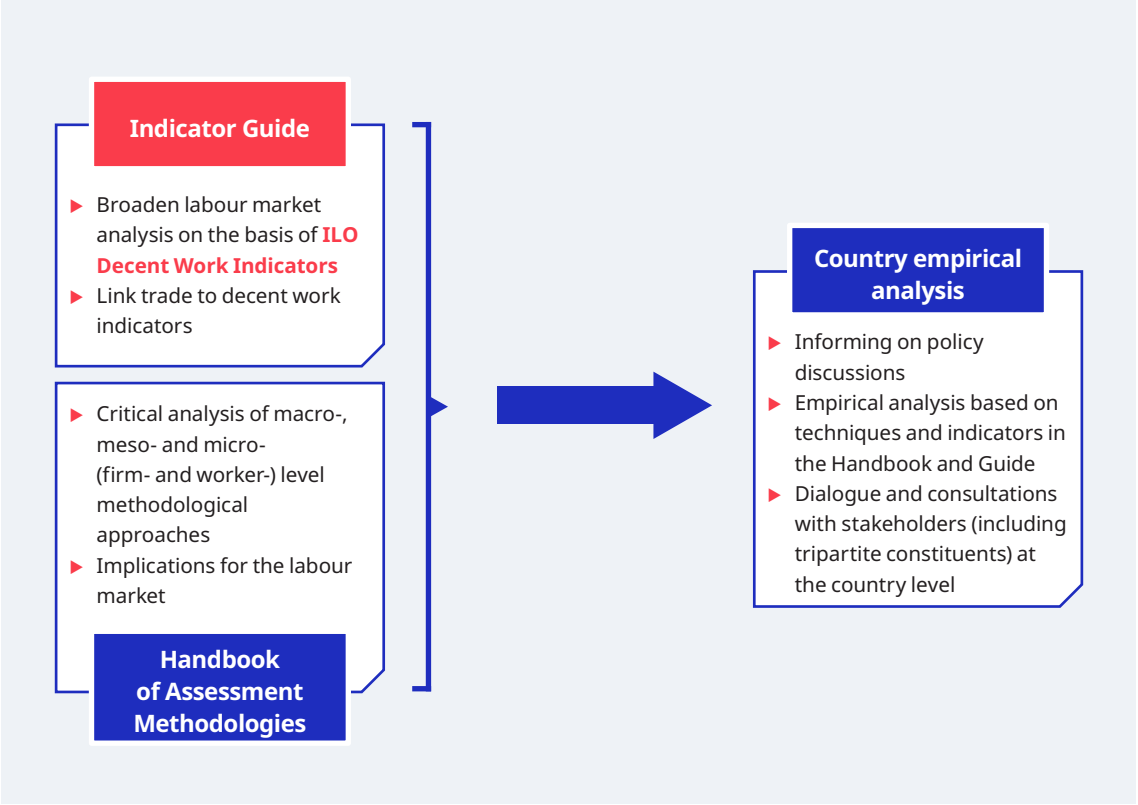
- **Linking indicators based on the ILO's Decent Work Agenda to trade (as in the present Guide):** this involves outlining how the ILO's decent work indicators are measured using both statistical and legal information; identifying data sources and gauging the availability of data; establishing how these indicators have been linked to trade in the theoretical literature; and obtaining relevant empirical evidence.
- **Critically evaluating the methodologies used to assess the impact of trade on labour markets (as in this Guide's companion publication, *Trade and Decent Work: Handbook of Assessment Methodologies*).** The Handbook evaluates macro-, meso- and micro- (firm- and worker-) level approaches. It considers those approaches' underlying assumptions about the labour market and also their scope for assessing the broader labour market impact of trade on the basis of decent work indicators.
- **Undertaking empirical analyses** based on the proposed methodologies and decent work indicators at the macro-/meso- and firm- and worker-level in Malawi, Mexico and Viet Nam (forthcoming) to inform on policy development (forthcoming). This involves, among other things, working with the ILO's tripartite constituents at the country level to gain a deeper understanding of the specific decent work indicators that are relevant to trade, encourage dialogue and create synergies between different policy areas.

The analytical framework used in this Guide links insights from relevant trade theories to assessment methodologies to facilitate analysis of the labour market impacts of trade from a decent work perspective. Together, the Guide and the Handbook make up a "toolkit" for trade and labour market diagnostics (figure 1.1) that provides researchers with indicators, assessment techniques and empirical evidence which they can draw on in their work, keeping in mind their specific research questions and any limitations in terms of data and other resources.

Although the toolkit frequently relies on sophisticated techniques, they are discussed in this Guide in an accessible manner that is suitable for a wider audience. Accordingly, the Guide is aimed at government officials, workers' and employers' representatives, and civil society representatives who wish to improve their understanding of the above-mentioned indicators and the implications of these for policy design and implementation. It will also be of benefit to students, technical experts and academics who are interested in conducting trade assessments based on a wider range of labour market indicators.

2 The decent work framework has also been proposed to assess the impact of multinational enterprises on labour markets in accordance with the ILO Tripartite Declaration of Principles concerning Multinational Enterprises and Social Policy (Galhardi 2018).

▶ **Figure 1.1. International trade and labour market impacts: A decent work approach**



1.2.2. Selection criteria for indicators

One of the benefits of relying on the ILO's Decent Work Indicators is that they contain 60 statistical indicators based on a framework that encompasses 11 substantive areas linked to the four pillars of ILO's Decent Work Agenda: 1) rights at work, 2) employment, 3) social protection, and 4) social dialogue. Importantly, all 11 substantive elements have indicators linked to the first pillar of decent work, rights at work; while most of the substantive elements have indicators linked to the third pillar, social protection. This distribution allows a wide range of variables to be used across different, less studied areas of trade and labour, from the toolkit. Additionally, many indicators are calculated using data that have been disaggregated, where possible, by age, sex, educational attainment and other dimensions deemed relevant. This disaggregation allows distributional aspects, including gender disparities, to be a cross–cutting dimension in the toolkit.

Figure 1.2 below links trade policy changes to the 11 substantive elements of the Decent Work Agenda. For the purpose of this Guide, trade policy changes are defined broadly as changes in both tariff and non-tariff measures. In practice, however, analyses based on trade policy changes are often based on proxy measures such as impacts of trade flows and openness, trade costs, trade composition and global supply chain participation (UNCTAD and WTO, 2012).[3]

3 An obvious tension between the conceptualization of trade is also highlighted by Goldberg and Pavcnik (2016) who show the shift in the focus of research going from trade policy to trade frictions (transport, information and communication costs) due to the measurement challenges inherent in the former. This has had a corresponding influence on the way the literature on trade and labour markets has missed some important changes in the labour market (and broader economic) outcomes due to trade policy.

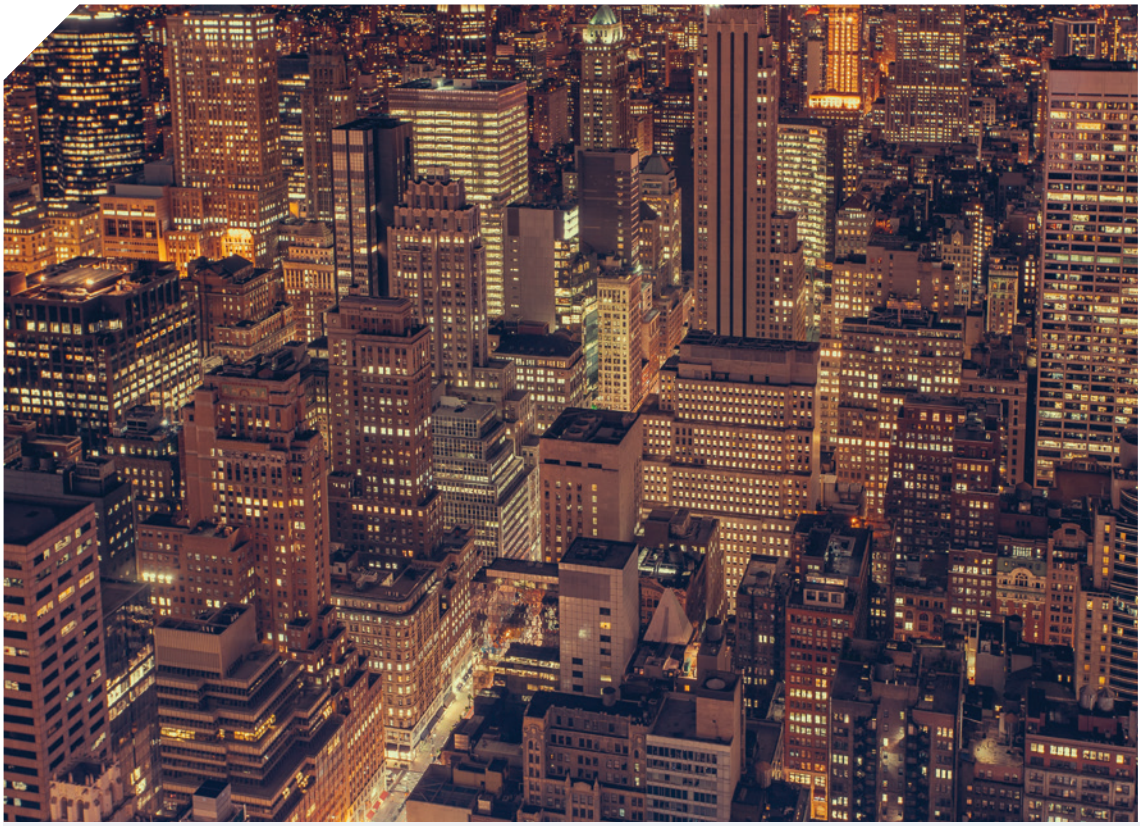
▶ **Figure 1.2. Linking trade policy and substantive elements of decent work**

DECENT WORK AGENDA (ILO 1999)

FOUR PILLARS:

Trade policy change	Substantive elements of decent work
	Employment opportunities (1 + 2)
	Adequate earnings and productive work (1+3)
Tariff reductions	Decent working time (1 +3)
+	Combining work, family and personal life (1+3)
Non-tariff measures	Work that should be abolished (1 + 3)
(Such as quotas and sanitary and phytosanitary measures)	Stability and security of work (1, 2 + 3)
	Equal opportunity and treatment in employment (1, 2 + 3)
	Safe work environment (1 + 3)
	Social security (1 + 3)
	Social dialogue, workers' and employers' representation (1 + 4)
	Economic and social context for decent work

Note: The numbers inside parentheses after each substantive element refer to the pillars of the Decent Work Agenda.
Source: The pillars and substantive elements of the Decent Work Agenda are taken from ILO (2013).



Out of the ILO's 60 statistical decent work indicators, 41 indicators were selected for the toolkit and an additional 5 were added from the literature (figure 1.3).[4] The selection criteria was based on the indicator's link to trade based on theoretical and empirical evidence. The 46 selected indicators make up the Toolkit of Trade and Decent Work indicators.

Similar to the distribution of ILO's decent work indicators, most of the indicators in the toolkit have to do with rights at work and social protection. Thus, 32 of these indicators measure the following aspects of decent work: social security (nine indicators), working time, work–life balance and security of work (eight indicators), adequate earnings and productive work (eight indicators), and safe work environments and work that should be abolished (six indicators). Among them are such indicators as wages (disaggregated by sex, skill level and other dimensions), the rate of precarious employment, the occupational injury frequency rate, employment by weekly hours, and the child labour rate. In other areas, six indicators in the toolkit refer to employment opportunities, four are concerned with social dialogue, and four are linked to structural change and the economic and social context.

Thus, the diversity of the indicators in the toolkit reflects the framework of the ILO's decent work indicators itself, which is meant to provide a holistic perspective of national labour markets through the lens of decent work. Endorsed by a tripartite expert committee, the indicators are based on standards of measurement that have been endorsed by the international statistical community, which ensures methodological and statistical rigour (ILO 2013). This confers

4 The five additional indicators are employment by occupational group, the Gini coefficient, skill and industry wage premium and national compliance with labour rights.

▶ **Figure 1.3. Toolkit of trade and decent work indicators by substantive element of decent work**

Note: WFPL = work, family and personal life.

a high level of legitimacy on assessments of progress towards decent work that draw on these metrics.

Significantly, the indicators for the Sustainable Development Goals overlap with 14 decent work indicators, all of which are represented in the toolkit. The interlinkages between the two sets of indicators mean that they should both be used when evaluating progress on the 2030 Agenda for Sustainable Development and the Decent Work Agenda.

Additionally, the toolkit can be used to improve comparative analysis of labour market assessments of trade through harmonization of decent work benchmarks. Values for most of the indicators in the toolkit are publicly available in ILOSTAT, which is the ILO's global database of labour market indicators. Taking its data from national surveys, ILOSTAT relies on internationally agreed definitions to ensure that the values of indicators are comparable across countries.

Accordingly, the toolkit should be useful for researchers wishing to conduct studies based on linking trade and specific labour market indicators such as occupational safety and health, exploitative work, labour standards, social security and social dialogue at the macro, sectoral and firm level.

Finally, these indicators are not meant to be exhaustive. Nor is the entire set of indicators meant to be used in a single study. Rather there should be a selection process based on dialogue with different national stakeholders, with different expertise to support an inclusive process for measuring progress towards trade and decent work.

The rest of the Guide is organized as follows: the definitions and methods of computation for the decent work indicators, the preferred data sources, the rationale for selecting a given indicator (namely, the way it is linked to trade), and examples of empirical studies highlighting the linkages between specific indicators and trade are presented in Chapter 3. Prior to that, Chapter 2 provides an overview of trends relating to trade and labour markets since the beginning of modern globalization. This overview is helpful for understanding how key labour market challenges have evolved and changed during the various phases of globalization.

2 Globalization, international trade and labour market dynamics: Key trends and challenges

Chapter 2. Globalization, international trade and labour market dynamics: Key trends and challenges

There is a considerable body of literature on the dynamics of globalization and the extent of its impact on firms and workers. Academic papers, major reports by international organizations (such as the United Nations), financial institutions, non-governmental organizations, popular journals, blogs, podcasts, and business consultancy firms have all contributed to the debate on this subject, which also encompasses major trends in international trade and inflows and outflows of foreign and domestic capital. Moreover, there is a growing number of studies on how these trends may or may not be affecting the labour market. Although most studies focus on major developed economies (because of trade patterns and data constraints), increasing attention has been paid to developing and emerging economies in the past few decades.

Many commentators argue that there is nothing new about globalization as such. Countries have after all traded with one another for many millennia, with some historical highlights being the East–West trade along the interlinking routes of the Silk Road from the second century BC (Chong and Ling 2018) and mercantilism in Europe starting in the sixteenth century. The main differences between these historical trading patterns and modern international trade have to do with what is being traded and by whom, and also with the existence of integrated trade networks. Indeed, contemporary globalization only really began in the nineteenth century (O'Rourke and Williamson 2002) as trade became more integrated following what is often referred to as the "globalization bang", which was triggered by a sharp decrease in transport and communication costs. Since then, there have been various further transformations driven by economic, technological, cultural and social forces (Michie 2017; Martin et al. 2018) which have had implications for the labour market.

In order to facilitate understanding the key shifts in trade and their implications for the labour market, this chapter discusses three major phases of globalization. The phases are defined in accordance with the literature (for example, as in Baldwin 2016; Rodrik 2011), and the discussion covers trade and labour dynamics, along with the primary drivers of globalization in each phase. It is worth noting that these three phases are overlapping and coincide with important stages in the development of trade theory (see box 2.1).

As will be shown in this chapter, the evolution of trade is the result of interlinkages between five major driving forces: (a) declining transport costs; (b) advances in information and communication technologies, and subsequent changes in production and distribution; (c) institutional and political changes, including changes in global trade policy; (d) market liberalization; and (e) financialization.

2.1. First phase of globalization, 1870–1914

The paradigm shift from localization to globalization in developed economies …

The first phase of globalization was ushered in by advances in transport and communication technologies that reduced transport costs and shipping times[5] and improved distributional networks. This phase was driven by the widespread adoption of the steam engine and railways (Jacks, Meissner and Novy 2011) and by

5 The time taken by an ocean liner to complete a transatlantic crossing decreased from roughly eight to four days between 1870 and 1940 (Hugill 1993).

▶ Box 2.1. International trade theory: An introduction

International trade theory can be traced back to Adam Smith (1723–1790) and David Ricardo (1772–1823), who developed the first macro approaches to trade. Classical trade theory used the concepts of absolute and comparative advantage in order to explain the rationale for trade. Absolute advantage refers to a direct cost advantage arising for a country from the production of a good, which induces the country to specialize in that product line. Ricardo (1817) expanded on this idea by introducing the concept of comparative advantage, whereby the relative cost of production also determines the potential gains from trade. These theories relied on a fairly simple macro framework and on such assumptions as homogenous products and constant returns to scale. The underlying rationale for trade was ascribed to differences in technological ability between countries. International trade was postulated to lead to increased production and welfare.

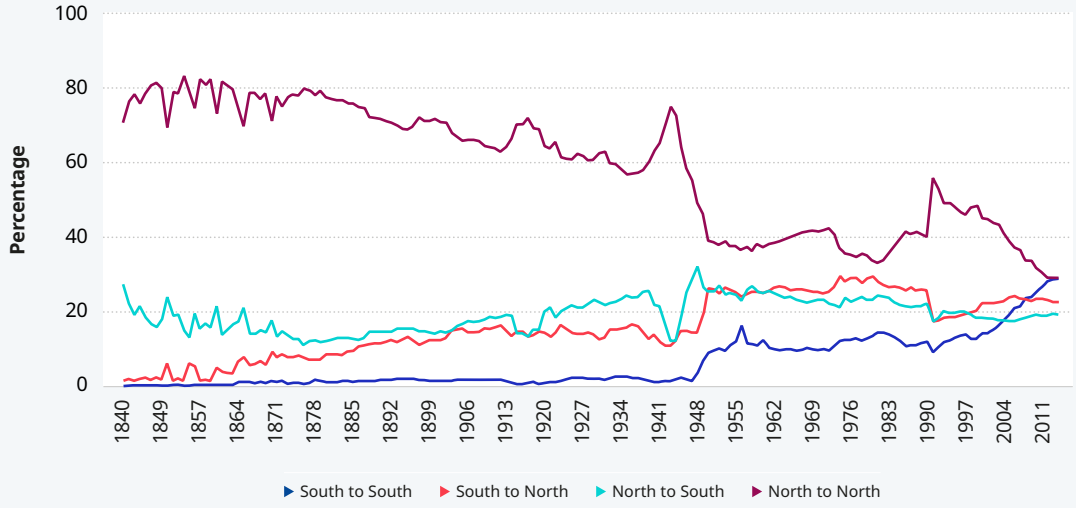
Neoclassical trade theories allowed for multiple factors of production, such as labour, land and capital, and regarded differences in countries' initial factor endowments as the rationale for trade. The models developed on the basis of such theories include the specific-factors model and the Heckscher–Ohlin model from the early to mid-twentieth century. These models offered a more satisfactory explanation of a world with many countries and multiple commodities. They also introduced the idea of labour mobility into the framework of Smith and Ricardo. They provided the initial theoretical basis for understanding the direct effects of trade on labour markets and predicted a number of precise outcomes, such as factor price equalization and wage convergence, which could be rigorously tested thanks to the availability of richer data at the sectoral level. But, similar to classical theories, neoclassical theories also relied on macro frameworks with homogenous products and constant returns to scale.

The neoclassical theories were developed further through the incorporation of structural features of a market, such as monopolistic competition and increasing returns to scale. The resulting newer set of theories, often referred to as "new trade theory", are traced back to Krugman (1979), who focused on analysis at the industry level and addressed changing patterns of production, such as agglomeration in cities, network effects, increasing trade in intermediate goods and the spatial reorganization of production. This helped to provide a theoretical basis for the proliferation of global supply chains and the increasing proportion of intra-industry trade during the 1980s–90s. New trade theory was also able to explain the agglomeration of enterprises around urban areas and the way in which the size of particular markets may confer a trading advantage (that is, the "home market effect").

Finally, in "new-new trade theory" the focus of analysis has shifted further downwards to the firm-level. The theories belonging to this category, of which Melitz (2003) is representative, provide a convincing explanation for the firm-level changes (for example, in terms of productivity) that can determine the micro and macro effects of trade at the sectoral and country level. They were also able to account for the emergence of multinational enterprises. The modular nature of these theories has been extremely useful in addressing several new structural features of the labour market, such as the heterogeneity of workers, search and matching frictions and equilibrium unemployment. They have given rise to a range of novel applications, such as the study of firm and worker bargaining and assortative matching within trade and labour markets. However, the applicability of such theories is often constrained by the inherent limitations of the assumptions underlying these theoretical frameworks and the lack of data.

the spread of the telegraph and telephone (Lampe and Ploeckl 2014). Financialization – that is, the establishment of a common commodity money regime, for example through the rise of the gold standard – also stimulated trade (López-Córdova and Meissner 2003). Unprecedented capital mobility – exemplified by the fact that, by 1914, the foreign capital stock of developing countries had risen to 32 per cent of their

▶ **Figure 2.1. Share of global merchandise exports by region of trade partners, 1840–2011 (percentage)**



Note: Retrieved from https://ourworldindata.org/trade-and-globalization#note-22. Rich re-coded as North and Poor re-coded as South.

Source: Fouquin and Hugot (2016).

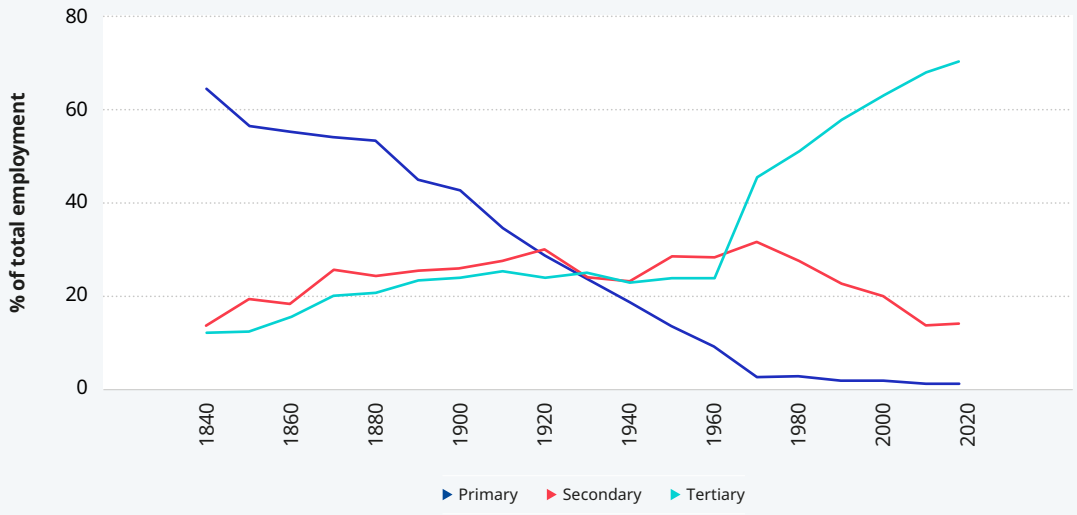
income – accompanied this regulatory and institutional harmonization (World Bank 2002). These innovations reduced the spatial constraints on production and consumption, both of which had originally taken place near end-users (localization), leading to a new paradigm in which the two processes could occur over longer distances (Baldwin 2016).

The extensive mechanization of production in certain industries during and before this phase, along with an increase in the scale and efficiency of the machinery used (for example, in the textile industry), led to a reorganization from small-scale, skill-intensive processes into large-scale mass production, with supply chains often stretching across vast distances. Furthermore, the integration of capital markets and the loosening of trade restrictions led to new markets for producers. All these factors combined to create a global trading paradigm whereby advanced economies produced and exported higher value-added manufactured goods and received as imports lower value-added raw materials and commodities from developing countries – an arrangement that was institutionalized through colonialism. Figure 2.1 above shows the trading patterns that characterized the different phases of globalization.

… was accompanied by extensive mechanization of production and rapid urbanization.

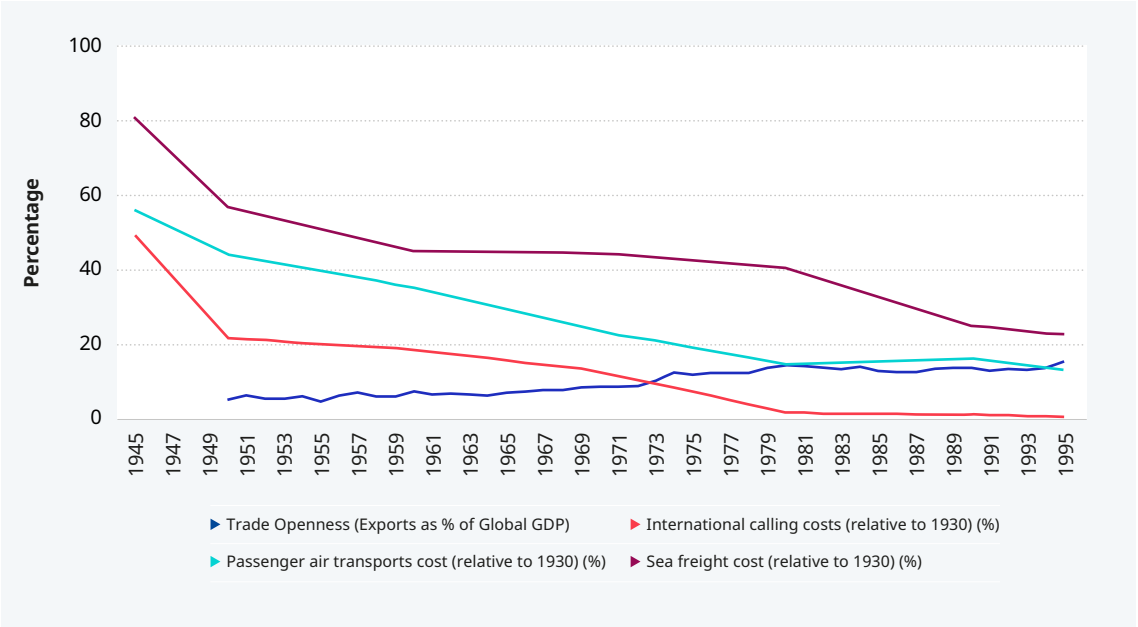
The globalized production process in key manufacturing industries, such as textiles and iron, had major implications for the labour market in developed, developing and emerging economies. In developed economies, the shift from agriculture to industry led to rapid urbanization, greater productivity and an increase in wages for workers who until then had been engaged mainly in subsistence agriculture. By way of illustration, figure 2.2 shows the sectoral changes in employment that have taken place

▶ Figure 2.2. Sectoral shifts in employment in the United States, 1840–2020 (percentage)



Source: ILO, based on multiple data sources. For data up to 1960: Brady (1966); for data from 1970 to 2018, see United States Bureau of Economic Analysis, "National Income and Production Accounts", available at https://apps.bea.gov/iTable/iTable.cfm?reqid=19&step=2&isuri=1&1921=survey.

▶ **Figure 2.3. Trade openness and trade costs, 1945–95**



Source: ILO, based on the Federico–Tena World Trade Historical Database (available at: https://www.uc3m.es/trade-hist_db) for trade openness; and on Jean-Yves and Loïc (2013) for international calling costs, passenger air transport costs and sea freight costs relative to 1930.

in the United States of America since the late modern period. It is important to emphasize, though, that with the onset of the Industrial Revolution, many workers have experienced unsatisfactory working conditions (including excessive hours, poor safety standards and precarious employment arrangements), especially in the industrial sector (Stearn, 2013). Industrialization meant that the owners of capital in unskilled-labour-intensive industries benefited disproportionately from the opening up of new markets and the relatively abundant source of cheap labour. The first phase of globalization was also marked by the expansion of non-tradable industries as a result of rising levels of education (Becker, Hornung and Woessmann 2011).

Meanwhile, many developing countries (and present-day emerging economies) experienced a process of deindustrialization. This was partly due to import competition with large-scale capital intensive industrial producers from developed economies, and partly due to a "retooling" of their economies to facilitate the extraction of resources. The concentration of production processes in the East was accompanied by rampant exploitation of labour (for example, see Beckert, 2014 for the case of cotton).

2.2 Second phase of globalization, 1945–95

Decreasing transport costs and greater trade openness

The second phase of globalization may be considered as lasting from the end of the Second World War in 1945 to the creation of the WTO in 1995. This period is characterized by a further sharp drop in the costs of trade owing to containerization (which led to a dramatic fall in ocean freight costs), a decline in the cost of airfreight and advances in information and communication technologies (ICTs). Figure 2.3 above shows the increase in trade openness (measured by the ratio of exports to global GDP) and the decline in trade costs (as reflected in the costs of air transport,

sea freight and telephone calls) that occurred during this period.

The end of the Second World War led to a renewed desire for the integration of the global economy; the General Agreement on Tariffs and Trade (GATT) was launched in 1947 in order to reinvigorate that process. Seven rounds of trade negotiations under the auspices of the GATT led to a dramatic reduction of tariffs between industrialized economies from an average of 21 per cent in 1947 to 5 per cent in 1987 (Bown and Irwin 2016). However, the barriers in place between developing countries remained high. The eighth round of the GATT negotiation process culminated in the establishment of the WTO in 1995, enshrining the principle of non-discrimination in international trade and providing a global set of rules for the negotiation of future multilateral trade agreements and a mechanism for the settlement of trade disputes. The WTO's creation coincided with a shift from North–North regional trade agreements to an increasing number of North–South agreements, such as the North American Free Trade Agreement (NAFTA) (UNCTAD 2007).[6]

The integrated intra-North system enabled developed economies to make significant income and prosperity gains and achieve greater equality between and within countries by trading higher-value-added products. The North–South system, with the exception of a few countries in the South, was characterized by the North exporting manufactured and higher value-added goods to the South, while the South specialized in lower value-added primary goods.[7] As can be seen in figure 2.1 above, most exports originated in the North. Income inequality between developing countries remained more or less the same, but there was greater inequality between developed and developing countries. As a result, there was relatively little aggregate change in global inequality during this period (World Bank 2002).

Agglomeration and economies of scale

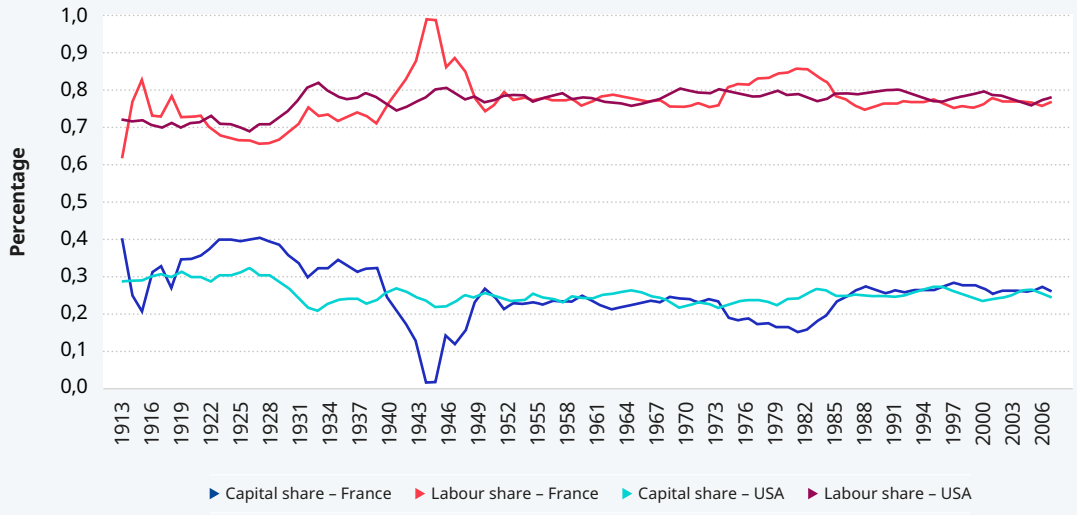
The second phase of globalization also witnessed a further transformation of the production process with the emergence of local production clusters that were dispersed quite widely across the globe (Porter 1998; Elms and Low 2013). This was mainly because of agglomeration, that is, the process whereby similar and related firms are able to benefit from being located close to one another. This clustering of firms, such as those operating in the automobile industry in Detroit, led to significant benefits that replaced factor endowments as the main driver of a country's comparative advantage in trade. The establishment of global supply chains and the integration of developing and emerging economies into the production process occurred towards the end of this period. All these trends coincided with new approaches in trade theory that sought to account for imperfect competition and economies of scale to provide a robust theoretical framework for understanding agglomeration – notably, the "new trade theory" inspired by Krugman (1980).

The shift from agriculture to industry that started in the first phase of globalization continued during the second phase. On the whole, the prosperity of workers in the developed economies increased, as the gains from production were relatively evenly distributed between workers and owners of capital, compared with the previous phase. Figure 2.4 shows the division of national income between labour and capital during the first two phases of globalization both for the United Kingdom of Great Britain and Northern Ireland and for France. Annual productivity per hour worked increased in a wide range of countries, including both advanced and developing economies. This period also witnessed a resurgence of collective bargaining and national social welfare systems in advanced economies to the great benefit of

6 NAFTA was accompanied by the North American Agreement on Labor Cooperation, which contained the first enforceable labour provisions (ILO 2017b).

7 The liberalization of manufacturing and services trade facilitated closer integration between developed economies. However, at first relatively few developing countries had the opportunity to participate in this trade. Additionally, the barriers to agricultural trade (in which most developing countries specialized) remained relatively high during this period.

▶ Figure 2.4. Labour and capital shares in national income, United States and France, 1913–2008 (percentage)



Source: ILO. Data for France are taken from Piketty 2011. Data for the United States from Piketty, Saez and Zucman 2018.

workers in those countries. For example, in the United States, social welfare expenditure grew from 35 per cent of total government spending in 1950 to 67.5 per cent in 1995 (Plotnick 1979; United States 1999), while unionization rates rose to a peak of 28.3 per cent of employed workers in 1954 before commencing a slow decline (Mayer 2004).

Another notable feature of the second phase of globalization is the dramatic increase in access to and availability of jobs for women, who joined the labour market in large numbers. This is reflected as an increase in the labour force participation rate in a range of advanced economies. For example, in the United States, it rose from 32.7 per cent in 1948 to 59 per cent in 1995.[8]

Some developing economies – for instance, the Republic of Korea, Singapore, and Taiwan Province of China – industrialized rapidly during this period. However, among the vast majority of developing countries, there was little change in inequality or in GDP per capita growth, and employment remained largely concentrated in the agricultural sector or in resource extraction, that is, in the primary sector.

2.3. Third phase of globalization (hyper-globalization), 1980s to the present

The current phase of globalization, which may be said to have begun in the 1980s and is sometimes referred to as "hyperglobalization" (Rodrik 2011; Subramanian and Kessler 2013), is associated with a rapid acceleration in the volume of international trade (particularly the manufacturing trade of developing and emerging economies) and capital flows. It is driven by the increased rate of technological progress (notably in the ICT field) and by trade liberalization and integration policies adopted worldwide. In addition, financialization and market liberalization policies have strengthened the role of multinational enterprises in trade (Milberg and Winkler 2010; Serfati 2008; UNCTAD 2018).

Growth of trade in intermediate goods

The confluence of the above-mentioned factors, along with the creation of the WTO in 1995, brought greater certainty to global trade and stimulated the proliferation of regional trade and investment agreements. This led not only to greater spatial fragmentation of production (that is, where goods are produced) but also to functional fragmentation (affecting all levels of the production process), together with the emergence of complex networks of offshore production facilities in developing and emerging economies (Baldwin 2006, Baldwin and Lopez-Gonzalez 2015; Shepherd and Stone 2013; UNCTAD 2018).[9] Consequently, there was a rapid increase in the volume of South–North flows (see figure 2.1 above), marked by a shift towards the production of intermediate and final manufactured goods. China, which joined the WTO in 2001, having 700 million low-skilled workers at the time, quickly became a primary hub for production.

The increase in North–North intra-industry trade (as reflected in exports and imports of similar goods, such as automobiles) continued, but it was accompanied by intra-firm vertical and horizontal trade between parent firms and their foreign affiliates in the case of multinational enterprises (Krugman 1995; OECD 2002). Indeed, by 2010, multinational enterprises accounted for 80 per cent of total trade within international production networks (UNCTAD 2013).

This period has also seen a shift in trade theory from a focus on industries and agglomeration (in new trade theory) to one on firms' different characteristics (in new-new trade theory). Attention has in particular been paid (for instance by Melitz 2003) to how it is the largest and most productive firms that engage primarily in trade (particularly in exporting), driving the least productive firms out of the market.

8 U.S. Bureau of Labor Statistics, Labor Force Participation Rate - Women [LNS11300002], retrieved from FRED, Federal Reserve Bank of St. Louis; https://fred.stlouisfed.org/series/LNS11300002, September 2, 2020.

9 Baldwin (2006) argues that while lower transport costs have made possible intra-industry trade in similar products ("horizontal" trade, as in the automobile industry), it is lower ICT costs that lead to "vertical" trade in intermediates and to slicing up of the supply chain.

Rise of South–South trade

By the mid-1990s, the increased participation of developing and emerging economies in international trade was being accompanied by rapid growth in South–South trade, which was offset by a decline in trade between developed economies (see figure 2.1). The share of South–South trade in global exports more than doubled between the mid-1990s and 2017, namely from 13 to 28 per cent, while the share of North–North trade declined from 50 to 36 per cent (UNCTAD 2018). Indeed, after the global financial crisis of 2008 one could observe a trend towards inward orientation in global supply chains, which began to rely on a greater share of intra-regional inputs for production (Lund et al. 2019). This trend has been exacerbated by the adoption of protectionist policies, including tariffs, subsidies and other restrictive measures (see box 2.2).

The emergence of Asian regional supply chains has contributed to the expansion of South–South trade in intermediates. At the same time, increasing consumer demand in developing and emerging economies, due to rising income levels and a growing middle class, has increased the demand for final goods (UNCTAD 2018). It is worth noting that South–South trade is dominated by a select group of economies – led by China in East and South-East Asia – trading in manufactured goods (UNCTAD 2015). The share of Asia in the total volume of South–South manufacturing trade was 93 per cent in 2016 (UNCTAD 2018). The region's contribution increasingly includes both components and final (assembled) goods as countries in East Asia, notably China, begin to participate in global supply chains for goods with higher added-value (Athukorala and Nasir 2012; UNCTAD 2015).

Outside of Asia, there are fewer examples of developing and emerging economies engaging in South–South manufacturing trade to a sufficient degree to achieve substantial gains in value-added (UNCTAD 2015). There are various challenges when it comes to

▶ Box 2.2. Protectionism and anti-globalization

The current trade tensions between some of the world's largest economies and the general anti-trade climate are often described as unprecedented. However, it is not unusual for periods of globalization and trade integration to be followed, or preceded, by the converse. The best example is the period from 1914 to 1945 between the first and second phases of globalization. Those years saw a rapid reversal of the integration of the trade, capital and monetary systems of sovereign countries as a significant number of them waged war on one another. This was accompanied by the introduction of severe trade barriers and the reversal of institutional integration between countries. Tariffs were raised (for example, the Smoot–Hawley Tariff Act of 1930 increased tariffs by an average of 40 to 48 per cent), quotas imposed and imports from non-allied countries greatly restricted. Moreover, between the two World Wars there was a global depression, with the stock market crash of 1929 in the United States having a ripple effect on most other developed countries because of the gold standard and those countries' close ties to the US economy. Many countries in the world suffered impoverishment and struggled to regain macroeconomic stability. Significantly, the 1914–45 period witnessed the greatest rise in trade costs in 130 years (Jacks, Meissner and Novy 2011).

The shift towards protectionism from around 2017 onwards has been less severe in quantitative terms because of the lower intensity of protectionist policies and also because a smaller proportion of the global economy is affected. The average US tariff on Chinese goods increased from 3.1 per cent in January 2018 to 21 per cent in January 2020, while the average Chinese tariff on US goods increased from 8 per cent in January 2018 to 20.9 per cent in January 2020 (Bown 2020). Moreover, the ongoing protectionist trend is taking place in the context of a more interconnected world – one in which a multilateral body, namely the World Trade Organization (WTO), has the legal competence to settle trade disputes even if the WTO's role and authority are being called into question by those advocating reforms. However, there is evidence to suggest that the current period of protectionism is having negative effects on the labour market (Ernst, Merola and Samaan, 2019). If the "tariff wars" continue for a long time or are escalated, with more countries becoming involved, the negative effects could be aggravated.

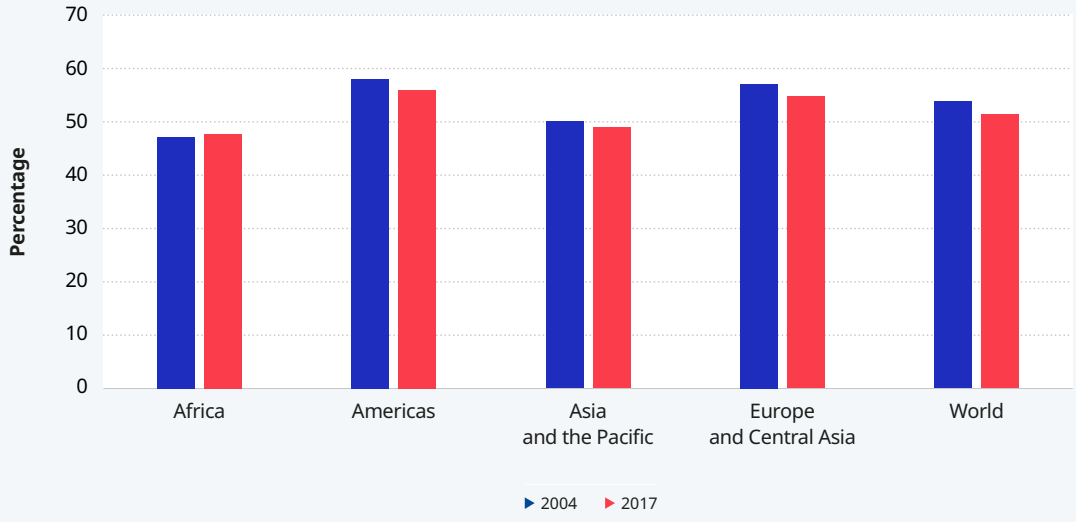
developing stronger regional supply chains in Africa and Latin America, including moving beyond primary goods and assembly activities and creating deeper domestic linkages (Moreno-Brid, Santamaría and Rivas Valdivia 2005; Gallagher and Zarsky 2007; Delautre 2019; Songwe 2019). The obstacles to stimulating stronger growth and decent work in those two regions are related both to employment generation and to wages and other working conditions.

Fall in labour income share, rising inequality

There seems to be a general consensus in the literature that hyperglobalization has brought economic gains by increasing productivity, lowering the price of goods and contributing to aggregate employment gains – in developing, emerging and developed economies (WTO 2017). On the other hand, there is almost universal recognition of the persistent distributional effects of trade on firms and workers, which have contributed to wage stagnation and rising inequality for certain groups, both within and between countries.[10] In developed economies, the problem has to do mainly with the effects of trade on low-skilled workers in the manufacturing sector, many of whom have been disproportionately impacted by both import competition from and the offshoring of jobs to developing and emerging economies. Labour market frictions (such as skills mismatch and geographical

10 A comprehensive literature review of the studies exploring the distributional effects of trade is provided by WTO 2017.

▶ **Figure 2.5. Labour income share as a percentage of GDP, by region, 2004 and 2017**



Source: ILOSTAT.

distance) and wage stagnation have limited the compensatory impact of job creation in manufacturing and other sectors.

In developing and emerging economies, trade has created employment opportunities for many low-skilled workers in the manufacturing sector, including many entering the formal labour market for the first time, such as women, but also migrants and young people. However, the fragmentation of production, which is a feature of high-volume trade in many of these economies, is also associated with increased competition for services and downward pressure on wages and working conditions (ILO 2020c). Additionally, the typically weak institutional environment limits the accountability of governments and enterprises in those countries.

One key labour market feature of the third phase of globalization is the rise in wage and income inequality, which can be measured by the labour income share, that is, the share of national income going to workers and the self-employed as opposed to holders of capital. Globally, the labour income share declined from 54 per cent in 2004 to 51 per cent in 2017 (ILO 2019b).[11] As can be seen in figure 2.5 above, the largest decreases were in Europe, Central Asia and the Americas, above all in countries such as the United States and Mexico, for which studies suggest that this phenomenon is partly due to the highly integrated nature of their manufacturing sectors (Ibarra and Ros 2019). Although starting from a lower level, the labour income share was more stable in Africa and in Asia and the Pacific.

Does the future of trade lie in services?

The share of services in the world's trade in goods and services increased from 9 per cent in the 1970s to 20 per cent in 2017 (WTO 2019). This includes not only traditionally traded services, such as in the retail and banking sectors, but also a growing proportion of traditionally "domestic" services, such as

11 The labour income share measures the amount of national income going to workers through their earnings as opposed to other factors of production, such as capital. It indicates the extent to which workers are sharing in the benefits from a country's growth. ILO (2019b) presents a new harmonized measure of the labour income share with novel estimation techniques for the labour income of the self-employed.

educational, healthcare and accounting services. Advances in digital technology have allowed more and more services to be performed by workers in cross-border locations. This trend comes on top of that of the "servicification" of manufacturing, whereby service tasks associated with manufacturing are offshored or, alternatively, are retained onsite, while the manufacturing tasks are offshored. This process, associated with the rapid expansion of global supply chains, has been driven by technological advances that enable the fragmentation of production processes and by consumers' preferences for increasingly sophisticated products, which force enterprises to invest more in service tasks (for example, research and development, marketing and so on) in order to differentiate their products. The even more recent trend of transnational telecommuting not only increases services trade, but also has the potential to integrate services more closely into global service supply chains (Baldwin 2019). It is worth reflecting on the different ways in which countries participate in global supply chains depending on whether trade is mainly service-based or goods-based.

One labour market implication of these changing trade patterns is likely to be an increase in the demand for higher-skilled workers in emerging economies, since services tend to be more skill-intensive than agriculture and manufacturing. There is evidence to that effect from the Central and Eastern European economies (Lewandowski 2017). Studies also suggest that, unless carefully designed adjustment policies are adopted, the increase in services trade could lead to unemployment and greater wage inequality, as many workers are unable to transition smoothly between sectors and/or occupations (Manyika 2017). Additionally, the global dispersion of services may have implications for labour rights and working conditions. This is especially so when service jobs are located in countries whose governance mechanisms and labour market

institutions are not sufficiently strong to enforce compliance with labour laws and regulations. Moreover, the expansion of the digital economy (including the use of remote working facilities) in the service sector makes it more challenging to monitor working conditions in the new types of service jobs.

3 Decent work indicators for assessing the impact of trade

Chapter 3. Decent work indicators for assessing the impact of trade

This chapter presents 46 labour market indicators that are relevant to trade assessments and are related to the 11 substantive elements of the Decent Work Agenda. These "decent work indicators" include both statistical and legal framework indicators, with the latter covering the policy and legislative aspects of decent work (see the summary table below).

For each indicator this chapter provides:

a) a list of indicators with definitions, methods of computation and preferred data sources, based on ILO (2013);

b) a brief description of the "impact channels" linking trade and the specific labour market impacts represented by the indicators;

c) some empirical evidence in order to fill in the context and facilitate interpretation.[12]

Summary table: Decent work indicators that can be used in assessing the impact of trade

Substantive element of the Decent Work Agenda:	Decent work indicators		
	Indicator grouping[a]	**Statistical indicators**	**Legal framework indicators**
Employment opportunities	Employment (table 3.1)	Employment-to-population ratio*	Government commitment to full employment
	Unemployment (table 3.2)	Unemployment rate* Youth unemployment rate* Youth not in employment, education or training* Unemployment by level of educational attainment*	
	Labour force participation (table 3.3)	Labour force participation rate*	
Economic and social context for decent work	Employment by branch of economic activity (table 3.4)	Employment by branch of economic activity*	
	Labour productivity (table 3.6)	Labour productivity (GDP per employed person, level and growth rate)	
	Labour share of value added and income inequality (table 3.7)	Labour share of gross value added Earnings inequality (90:10 ratio) Gini coefficient	
		Employment by occupational group*	
Equal opportunity and treatment in employment	Employment by occupational group (table 3.5)	Occupational segregation by sex Female share of employment in senior and middle management	Equal opportunity and treatment
		Gender wage gap	Equal remuneration of men and women for work of equal value

12 The empirical literature on trade and labour markets uses different concepts of trade that capture changes in both policy and patterns – for example, trade openness measured as the share of GDP accounted for by exports and imports; trade liberalization represented as tariff cuts; bilateral or regional trade agreements; trade shocks; trade intensity; trade through global supply chains; and so on.

Substantive element of the Decent Work Agenda:	Decent work indicators		
Adequate earnings and productive work	Wages (table 3.8)	Average real wages* Average hourly earnings by occupational group* Skill premium	Statutory minimum wage
	Poverty and working poverty (table 3.9)	Working poverty rate* Poverty measures	
Social security	Status in employment (table 3.10)	Employment by status in employment* Proportion of own-account workers and contributing family workers in total employment* Share of women in wage employment in the non-agricultural sector	Unemployment insurance Maternity leave Parental leave Termination of employment Old-age social security or pension benefits (public/private) Incapacity for work due to sickness / sick leave (income replacement in case of sickness / sick leave) Incapacity for work due to invalidity (income replacement in case of nonoccupational invalidity)
	Informality (table 3.11)	Informal employment rate*	
	Social security (table 3.12)	Share of population above the statutory pensionable age (or aged 65 or above) benefiting from an old-age pension Public social security expenditure (percentage of GDP) Share of economically active population contributing to a pension scheme	
Decent working time Combining work, family and personal life Stability and security of work	Working hours, working arrangements and non-standard forms of employment (table 3.13)	Employment in excessive working time (more than 48 hours per week) Employment by weekly hours worked Average annual working time per employed person Time-related underemployment rate* Precarious employment rate*	Maximum hours of work Paid annual leave
Safe work environment	Occupational safety and health, non-exploitative work and labour standards (table 3.14)	Occupational injury frequency rate, fatal Occupational injury frequency rate, non-fatal Labour inspection (inspectors per 10,000 employed persons)	Employment injury benefits Occupational safety and health labour inspection
Work that should be abolished		Child labour rate Forced labour rate	Child labour Forced labour
Social dialogue, workers' and employers' representation	Social dialogue (table 3.15)	Trade union density rate Employers' organization density rate Collective bargaining coverage rate Days not worked due to strikes and lockouts	Freedom of association and the right to organize Collective bargaining right Tripartite consultations

Notes: [a] The indicator groupings in this table include both statistical and legal framework indicators, as recommended by ILO (2013). The complete list of decent work indicators can be found in that report. [b] Distributional impacts refer to impacts revealed through disaggregation by sex, age group and any other characteristic deemed relevant for the statistical indicators marked by an asterisk (*). Distributional impacts are considered to be cross-cutting, that is, extending across the three dimensions of quantity, structure and quality.

A. Employment opportunities

The decent work indicators that can be used to assess the employment opportunity impacts of trade refer primarily to employment, unemployment and labour force participation. Of these three areas, only employment (measured by the employment-to-population ratio) has been examined within the framework of traditional trade theories, because of the assumption of full employment, which is central to both the classical and neoclassical models. Modern trade theories introduce labour market rigidities that make it possible to analyse unemployment and labour force participation as well.

3.1. Employment

Definition and context

The employment-to-population ratio (EPR), often referred to as the employment rate, is defined as the share of the working-age population that is employed, and therefore contributing to economic activity and the generation of income (table 3.1).[13] Employment comprises all persons of legal working age who during a given reference period were in paid employment or self-employment.[14] Changes in the EPR indicate whether growth in employment is keeping pace with the growth of the working-age population – an important sign of an economy's capacity to create employment. Although employment levels are highly dependent on economic conditions and cyclical factors in the short run, they are largely determined by growth of the working-age population in the long run.

Relationship with trade

Traditional trade theories (classical and neoclassical) suggest a positive association between trade and employment. This is due to the assumptions of frictionless employment shifts by workers across industries resulting in full employment leading to a general rise in output and employment levels. New trade theory and new-new trade theory, however, both allow for labour market frictions and suggest that workers' movements across sectors are constrained by factors such as limited geographical mobility and skills mismatch. Additionally, exporting firms may have a limited capacity to absorb workers (Menezes-Filho and Muendler 2011); and

13 For more information on this indicator, see https://ilostat.ilo.org/resources/methods/description-employment-to-population-ratio/.

14 The legal working age varies from country to country, but in studies, the working-age population is often defined as all persons aged 15 and older in order to allow inter-country comparisons.

▶ Table 3.1. Decent work indicators pertaining to employment

Decent work indicator	EMPL-1. Employment-to-population ratio (EPR)* [15]
Statistical indicators	
Definition/computation	$\textit{EPR}\ (\%) = \frac{\textit{Number of employed persons in the working age population}}{\textit{Total number of persons in the working age population}} \times 100$ $\textit{EPRw}\ (\%) = \frac{\textit{Number of employed women in the working age population}}{\textit{Total number of women in the working age population}} \times 100$
Preferred sources of raw data	Labour force surveys, population censuses, other household surveys (with an employment module)
Available sources of processed data	ILOSTAT, OECD employment database
Related legal framework indicator	**L2: Government commitment to full employment**

Note: * Indicator to be disaggregated by sex (but can also be disaggregated by age group or another relevant characteristic). When calculating indicators for a particular group, the numerator and denominator must be adjusted accordingly. In this table, the calculation of the EPR for women is shown as an example.

trade liberalization and the loss of income for firms and workers resulting from import competition is expected to result in both lower wages and lower labour demand (Revenga 1997).[15]

Whether trade leads to an increase or decrease in the EPR , it ultimately depends on the net effect, that is, on whether or not there is employment creation (and/or employment destruction) in the firms and sectors that are directly and indirectly affected by trade. The direct effects refer to the extent to which trade-induced job creation in exporting sectors is offset by job contraction in negatively affected firms and industries (those which are less productive or import-competing). The indirect effects refer to whether displaced workers are able to relocate to other sectors, become unemployed, or are discouraged and eventually drop out of the labour force altogether.[16] Trade can have differential impacts on male and female workers depending on the gender and sectoral structure of employment. For example, trade can affect the female EPR through a change in relative demand for female labour (caused, e.g. by the relative female intensity of employment, or by complementarity between technology and female skills in the sectors that benefit from trade). Other impact channels include the "added-worker effect",[17] lowering of gender discrimination and gender-specific barriers to sectoral reallocation. Similarly, trade could have a differential effect by age group (for example, if it leads to growth in sectors that employ a large proportion of young people) or geography (for example, the regional clustering of exporting industries).

Empirical evidence

There is some empirical evidence suggesting that trade can lead to net job creation (Nicita 2008; WTO 2017; Doan and Long 2019; European Commission 2015).[18] However, other studies suggest that job creation may in fact not be sufficient to offset job destruction (Casacuberta, Fachola and Gandelman 2004; Menezes-Filho and Muendler 2011),

15 The codes displayed before the indicator, e.g. "EMPL-1", correspond to ILO Guidelines as published in ILO 2013.

16 At the aggregate (economy-wide) level, as opposed to the regional level, for example, trade is assumed to have no impact on the size of the working-age population because cross-border labour mobility remains limited in free trade areas, even within customs unions. Where there is deeper economic integration (as in single markets or monetary and economic unions), labour movements as a result of trade could result in changes in the size of the working-age population and therefore affect the EPR.

17 This effect can be defined as the higher likelihood of another family member participating in the labour market when the family's breadwinner becomes unemployed (Juhn and Potter 2007).

18 There are a large number of literature reviews on this topic. See, for example, Jansen and Lee (2007), Newfarmer and Sztajerowska (2012), and Shepherd (2013).

particularly when the impact of trade shocks on import-competing sectors in local labour markets is taken into account (Autor, Dorn and Hanson 2016). Consequently, large intersectoral shifts in employment owing to trade liberalization could result in an expansion of non-traditional work arrangements in the service sector (Ostry and Spiegel 2013; see also section 3.13) and drive down both wages and labour demand (Revenga 1997).

With regard to gender, most studies support the idea that the labour market benefits for women from trade depend on their relative presence in the sectors that are variously impacted. For instance, Aguayo-Tellez et al. (2014) showed that trade liberalization in Mexico owing to NAFTA resulted in an expansion of female-intensive sectors and promoted inter-sectoral and within-industry shifts for women. Similarly, Nicita (2008) showed that female workers in Madagascar benefited from export growth through having greater employment opportunities in the textile industry. Additionally, because of women's relatively higher representation in innovative activities and in manufacturing compared with commodity production, increased engagement in more sophisticated trade leads to an increase in women's share of employment (World Bank and WTO 2020).

At the firm level, cross-country analysis by the ILO using data on formal private sector firms in manufacturing and services[19] from the World Bank Enterprise Surveys (Duda-Nyczak and Viegelahn 2017) found a positive association between participation in trade and the female share of employment. Indeed, a positive correlation between export orientation and the female intensity of employment has generally been established for manufacturing industries (Berik 2011). However, research suggests that women in agriculture may be worse off after trade liberalization because they tend to predominate in smallholder agriculture and are likely to be over-represented in import-competing industries within agriculture (Bussolo and De Hoyos 2009; UNCTAD 2017). They, therefore, do not benefit from export growth, which favours the large-scale production of cash crops, and at the same time suffer from food imports bringing down the price of their produce (UNCTAD 2019). Furthermore, women make up a significant proportion of cross-border traders of agricultural goods, who are especially vulnerable to trade restriction measures (UNCTAD 2018).

As for age, Kletzer (2001) demonstrated that the likelihood of worker reallocation in the aftermath of trade-related displacement is greater for younger workers. D'Amico and Schochet (2012) observe this phenomenon in their evaluation of the Trade Adjustment Assistance programme in the United States, noting that older workers take significantly longer to find employment after losing their jobs as a result of trade. This is consistent with the finding by Coşar (2013) that older, more experienced adult workers have higher adjustment costs and fewer incentives to invest in the acquisition of new skills.

3.2. Unemployment

Definition and context

The unemployment rate measures the share of labour force participants who are (a) not employed, (b) available to work and (c) actively looking for work (table 3.2). Unemployment is sometimes decomposed into cyclical (shorter-term) and structural (longer-term) components. It is important to note as well that low unemployment rates may conceal considerable hardship, particularly in low- and middle-income countries, where being unemployed is not a viable option for the poor owing to the absence of unemployment insurance and social protection systems. Low unemployment rates may mask high levels of informality and limited social protection, resulting in high EPRs as described in section 3.1 above. The unemployment rate is also an important indicator for tracking progress on SDG target 8.5, which calls for full and productive employment to be achieved for all women and men by 2030.

Whenever possible, unemployment should be disaggregated by sex and age group. The youth unemployment rate is measured as

19 Microenterprises and agricultural producers were not included.

▶ Table 3.2. Decent work indicators pertaining to unemployment

Decent work indicators	
Statistical indicators	**EMPL-2: Unemployment rate (UR)***
Definition/computation	$UR\ (\%) = \frac{\text{Number of unemployed persons in the working age population}}{\text{Total number of persons in the labour force}} \times 100$
	EMPL-6: Youth unemployment rate (YUR)*
	$YUR\ (\%) = \frac{\text{Number of unemployed youth}}{\text{Total number of youth in the labour force}} \times 100$
	EMPL-3: Youth not in employment, education or training (NEET)*
	$NEET\ (\%) = \frac{\text{Total number of youth – (Number of youth in employment + Number of youth not in empl. who are in education and training)}}{\text{Total number of youth}} \times 100$
	EMPL-7: Unemployment by level of educational attainment (ULEA)*
	$ULEA\ (\%) = \frac{\text{Number of unemployed persons with a given level of educational attainment}}{\text{Total number of persons who are unemployed}} \times 100$
Preferred sources of raw data	Labour force surveys, population censuses, other household surveys (with an employment module)
Available sources of processed data	ILOSTAT, OECD employment database

Note: * Indicator to be disaggregated by sex, age group and level of educational attainment. When calculating indicators for a particular group, the numerator and denominator must be adjusted accordingly.

the unemployed share of the youth labour force (usually defined as the economically active population aged 15–24, or 15–29). It is often complemented by the youth NEET (not in employment, education or training) rate. Because a large number of young people who are not in the labour force are in education, a low youth labour force participation rate (or, put differently, a high inactivity rate) often overestimates the number of potential young labour market entrants or young people who are available for work. Thus, the youth NEET rate is considered a better measure for that purpose. The Agenda 2030 framework identifies the NEET rate as a measure for tracking progress on SDG target 8.6, which calls for the proportion of youth not in employment, education or training to be substantially reduced by 2030.

Another important indicator in the unemployment grouping, particularly in the context of trade impacts, is unemployment by level of educational attainment, which is often used as a measure of, or proxy for, skills.

Relationship with trade

Traditional trade theories assumed full employment, thereby precluding the possibility of evaluating unemployment in great detail. Modern trade theories, often complemented by labour market search-and-matching theories such as that developed by Mortensen and Pissarides (1994), allow for trade-induced unemployment attributable to factors such as labour market frictions, skills mismatch and labour mobility barriers. For instance, some theories suggest a heterogeneous effect of trade openness on labour markets, depending on the level of country- and sector-specific labour market frictions (Helpman and Itskhoki 2010) or on the interaction between comparative advantage and labour market frictions (Fugazza et al. 2014). In Helpman and Itskhoki (2010), changes in the aggregate unemployment rate depend on both the indirect "composition effect", which is the reallocation of workers across sectors (for example, from import-competing to more productive export firms),

and the direct "sectoral unemployment effect" in import-competing sectors. The direction and dominance of each of these effects depend on the relative level of labour market frictions and conditions across sectors and countries (trading partners).

There is general agreement that most trade-induced unemployment is frictional or temporary (Gibson 2011). Indeed, in many cases, the nature and magnitude of adjustment costs faced by workers and firms mean that trade reform could result in long-term unemployment, particularly for workers with lower mobility[20] or lower skills, or for older workers and workers at micro, small and medium-sized enterprises. In general, the depth and duration of unemployment have been found to correlate with the degree of import penetration (Gibson 2011). Policy interventions, in the form of trade-specific or general adjustment programmes, have been directed at alleviating trade induced unemployment (WTO 2017).

A number of transmission channels have been proposed in the literature to warrant the decomposition of unemployment by sex, age and skill level (often measured by educational attainment and/or previous occupation in this context). With respect to gender, the same mechanisms that impact on the EPR could be considered for unemployment. Trade could have a differential effect on unemployment through such channels as the sectoral distribution of male and female employment, the "added-worker effect", lower discrimination due to foreign competition, different skill distributions and gender-specific labour market frictions. In the case of youth unemployment, trade could, on the one hand, result in increased selectivity/screening by firms in exporting sectors, which may potentially disadvantage new labour market entrants with less experience. On the other hand, young people may be better positioned to take advantage of opportunities in growing sectors (they are more likely, for example, to possess skills compatible with trade-induced technological change) and may face lower relocation costs than older, more experienced workers (Coşar 2013; Dix-Carneiro 2014).

The disaggregation of unemployment by skill level is also important. First, because the expansion of job opportunities following trade liberalization could disproportionately benefit the highly educated (for example, through skill-biased technological change) and those with higher-than-average ability – for instance, owing to increased screening by the more productive exporting firms (Helpman, Itskhoki and Redding 2010) or to the rebalancing of the task content of occupations towards particular cognitive and non-routine skills (Acemoglu and Autor 2011). Secondly, because the costs of labour market adjustment itself may differ across skill levels (Francois, Jansen and Peters 2011; D'Amico and Schochet 2012; Autor et al. 2014).

Empirical evidence

There is an extensive body of empirical literature on the relationship between trade and unemployment, and the evidence it provides is mixed. For instance, Attanasio, Goldberg and Pavcnik (2004) found, in the context of Colombia, that the probability of being unemployed was not higher for workers in the manufacturing sector, which had experienced the largest tariff cuts, than for workers with similar characteristics in non-traded goods sectors. In contrast, Ranjan (2012) finds the impact on economy-wide unemployment to be ambiguous owing to the differential impacts of trade liberalization in import-competing sectors (where it increases unemployment) and exporting sectors (where it reduces unemployment). Other studies find that limited worker reallocations between sectors due to limited labour absorption in productive firms (Menezes-Filho and Muendler 2011) and reduced income for both workers and firms (Revenga 1997) may lead to net increases in unemployment. The interaction of comparative advantage and differential labour market frictions at the sectoral level (Fugazza et al. 2014) could also result in

20 The lower mobility could be due to a range of reasons including, but not restricted to, housing availability, credit constraints and search and matching frictions within the labour market.

▶ **Table 3.3. Decent work indicators pertaining to labour force participation**

Decent work indicator	EMPL-5: Labour force participation rate (LFPR)*
Definition/computation	$LFPR\ (\%) = \frac{\text{Number of employed persons + Number of unemployed persons}}{\text{Total number of persons in the working age population}} \times 100$
Preferred sources of raw data	Labour force surveys, population censuses, other household surveys (with an employment module)
Available sources of processed data	ILOSTAT, OECD employment database

Note: * Indicator to be disaggregated by sex (but can also be disaggregated by age group or another relevant characteristic). When calculating indicators for a particular group, the numerator and denominator must be adjusted accordingly.

net unemployment.[21] Specifically, after a certain threshold, the covariance between comparative advantage and labour market frictions influences the unemployment effect of trade liberalization. The model developed by Fugazza et al. (2014) helps to account for some of the mixed findings in the empirical literature. For instance, Brazil, Mexico and the United States are above the aforementioned threshold (studies consistently find a negative association between trade and employment in these countries), while Ethiopia, Madagascar and Zambia are below it, and empirical studies point to a positive impact of trade on employment in these countries. The duration of unemployment may also vary for workers engaged in trade-related sectors (McMillan, Welch and Rodrik 2004).[22]

Although labour market institutions play a crucial role in limiting the costs and duration of adjustment to trade, studies have shown that even in advanced economies, which have relatively fluid or flexible labour markets, unemployment rates can remain high for an extended period following trade shocks. Autor, Dorn and Hanson (2016) also found that adjustment to the rapid increase in imports from China was surprisingly slow in US local labour markets, with unemployment rates remaining high and labour force participation rates low for an entire decade after the onset of the trade shock. Again in the context of the United States, D'Amico and Schochet (2012) show in their evaluation of the Trade Adjustment Assistance programme that temporary spells of unemployment can be fairly long, with workers enrolled in the programme taking up to four years to recover employment levels similar to those of workers not affected by trade-related displacement.

3.3. Labour force participation

Definition and context

The labour force participation rate (LFPR) measures the proportion of the working-age population (usually defined as the population aged 15 and over) who are economically active, that is, either employed or unemployed (table 3.3). The LFPR should be disaggregated by sex, age and level of educational attainment whenever possible. Changes in LFPRs over time are linked to structural, social and institutional factors – for example, increased educational attainment can lead to a lower youth LFPR, while changing social attitudes towards the role of women can influence female LFPRs. Such changes can also reflect business cycle fluctuations in the short term and perceptions of the long-term economic outlook. For these reasons, the relationship between the LFPR and trade openness is not clear-cut.

21 In their analysis, Fugazza et al. (2014) use sectors disaggregated at the HS-2 level (under the Harmonized System (HS) for classifying goods). Some of the sectors with the highest labour market frictions include manufacturing industries such as iron and steel, fertilizers and mineral fuels. The sectors with the lowest labour market frictions are clock and watch manufacturing and agricultural products such as silk and cotton.

22 However, as recognized by the authors, this may be not entirely attributable to trade policy as such, but also to policy failure on other fronts (not taking into account the initial labour market conditions and not implementing active labour market policies or other support measures for those who were adversely impacted).

The LFPR is an important indicator of economic activity and potential, and changes in its value result in changes in unemployment levels as well. Another important aspect is the connection between the LFPR and own-account work and informal employment. Where these two forms of employment are widespread, both the LFPR and the EPR tend to be high. In such circumstances, changes in economic conditions are more likely to be reflected in shifts between sectors, between employment statuses and between formal and informal employment than in changes in labour force participation.

Relationship with trade

Much of the theoretical literature on the labour market impacts of trade, including recent models that relax the assumption of full employment (see sections 3.1 and 3.2), assume constant LFPRs. Thus, changes in unemployment are attributed entirely to the costs and pace of labour market adjustments. However, there are a number of channels through which trade openness can affect labour force participation. On the one hand, the actual or expected expansion of exporting sectors (real or perceived increase in opportunities) could draw inactive people into the labour market (Madanizadeh and Pilvar 2019). Higher wages could also attract more labour market entrants by raising the opportunity cost of inactivity (Cooray, Dutta and Mallick 2017). On the other hand, the contraction of import-competing sectors, or limited absorption of displaced workers by exporting firms and sectors, can cause long-term unemployed persons to drop out of the labour force, resulting in higher inactivity rates or, put differently, lower LFPRs (Menezes-Filho and Muendler 2011).

With respect to gender, the same factors driving an increase in female employment (or a decrease in female unemployment) as discussed in section 3.1 also apply to female LFPRs. Although few studies have focused on the differential impacts of trade

on labour force participation across age groups, disaggregating the LFPR by age may be worthwhile for a number of reasons. First, some export sectors may have greater shares of young workers, particularly in services in certain countries (for example, tourism). The liberalization of these sectors could spark an expansion of opportunities that disproportionately benefit young people and therefore increase youth labour force participation (ILO 2015b). Furthermore, younger workers may face lower reallocation costs than older workers (Dix-Carneiro 2014; Coşar 2013). Consequently, older workers who have lost their jobs are relatively more likely to drop out of the labour force. At the same time, depending on context-specific factors, labour market or income insecurity could compel older workers to work an additional number of years, thus raising the adult LFPR (Cooray, Dutta and Mallick 2017).

Empirical evidence

In general, trade openness is associated with greater labour force participation. A number of empirical studies have confirmed this, regardless of whether the impact is significant (Madanizadeh and Pilvar 2019) or marginal and mediated by different factors. For instance, studies show that the impact of trade openness on LFPRs increases with the quality of institutions – for example, of political institutions in the case of low-income countries in sub-Saharan Africa (Cooray, Dutta and Mallick 2017).

However, some studies find a negative association. For example, Madanizadeh and Pilvar (2019) find that an increase in tariff rates by 10 percentage points lowers the LFPR by 4 to 6 percentage points, with the impact increasing over time, and that the rise in labour force participation following trade liberalization accounts for 27 per cent of the rise in unemployment. In assessing the impact of a trade shock – specifically the rapid growth of imports from China – on US regional (local) labour markets, Autor, Dorn and Hanson (2016) found evidence of a decline in manufacturing employment, an increase in unemployment and an increase in inactivity.

A number of empirical studies have investigated differential gender impacts as reflected in labour force participation. Sauré and Zoabi (2010; 2014), for example, observed a counter-intuitive phenomenon, whereby an expansion of opportunities in female–intensive exporting sectors causes female workers' wages to rise initially, but then to fall along with female labour force participation. This is because expansion in female-intensive sectors is accompanied by contractions in male-intensive sectors, driving male employment towards the former. This shift ultimately leads to a widening wage gap and lower female labour force participation.

Gaddis and Pieters (2017) found a positive link between tariff reductions and female labour force participation during Brazil's trade liberalization episode from 1987 to 1994, which they attribute to a variety of factors, such as sectoral employment shifts, increased labour market insecurity and male unemployment. Labour market institutions are of a pivotal importance in moderating the impact of trade openness on LFPRs. The inclusion of labour provisions in trade agreements has been found to have a statistically significant impact on reducing the gender gap in LFPRs in a wide range of countries (ILO 2016c). This may be due to a greater positive impact on female LFPRs stemming from the emphasis on gender equity found in many labour provisions and, more generally, from the policy dialogue around these provisions, which raises awareness and expectations of better working conditions.

B. Economic and social context

Decent work indicators for assessment of the economic and social context (or structural) aspects of trade refer to the distribution of employment by economic activity and to the occupational (or labour demand) structure. These indicators are related to trade in both classical/ neoclassical and modern trade theories. Indicators measuring labour productivity, the labour share of income and income inequality, which have to do with the economic and social context for decent work, are also considered in the context of structural impacts.

3.4. Employment by branch of economic activity

Definition and context

The indicator for employment by branch of economic activity at the aggregate level breaks employment down into three broad sectors: agriculture, industry and services (table 3.4). Alternatively, employment can be further disaggregated into the one-digit ISIC[23] categories (21 sectors) or into clearly defined groupings of these categories as deemed relevant. For instance, analysts may wish to consider using the categories "Agriculture", "Manufacturing", "Other industry" and "Services", where "Other industry" refers to mining and quarrying, construction, and utilities. This would be relevant when examining the impact of trade on the labour markets of resource-dependent countries, where growth in the broad industry sector driven by exports of natural resources can overstate the importance of manufacturing (SDG target 9.2 views manufacturing as playing the main role in significantly raising industry's share of employment and GDP by 2030.) After all, tourism may be driven by trade, and so the number of jobs in tourism industries is just as important to sustainable development. The number of such jobs is part of an indicator used for tracking the achievement of SDG target 8.9, which calls for policies to promote sustainable tourism.

Changes in the sectoral distribution of employment at the aggregate level reflect structural transformation and provide insights into overall productivity growth – that is, whether such transformation is taking place because of shifts in production and employment from low- to high-productivity sectors, or otherwise because of within-sector productivity growth. At the same time, aggregate metrics can hide diverging trends at a more detailed industry level. For instance, the rise in services employment has involved growth both in high-productivity, knowledge-intensive subsectors and in low-productivity sub-sectors with a high incidence of informality. Similarly, within the manufacturing sector, industries can differ significantly in terms of labour intensity, productivity and gender composition. Employment shifts within the manufacturing sector may, moreover, have important implications for, say, skills demand, which it would be difficult to explain using aggregated data for the manufacturing sector.

The sectoral reallocation of labour could also have gender implications owing to the clustering of female workers in specific economic activities. Female and male

▶ **Table 3.4. Decent work indicators pertaining to employment by branch of economic activity**

Decent work indicators	
Definition/computation	**CONT-6: Employment by branch of economic activity** $\text{Employment in economic activity } i\ (\%) = \frac{\text{Number of employed in economic activity } i}{\text{Total number of employed persons}} \times 100$ **CONT-10: Female share of employment by industry (ISIC tabulation category)** $\text{Share of women in employment in economic activity } i\ (\%) = \frac{\text{Number of women employed in economic activity } i}{\text{Total number of employed persons in economic activity } i} \times 100$
Preferred sources of raw data	Labour force surveys, household surveys, establishment surveys, censuses
Available sources of processed data	ILOSTAT, OECD employment database

23 Maintained by the United Nations Statistics Division (UNSD), the International Standard Industrial Classification of All Economic Activities (ISIC) is useful for compiling and comparing statistics across countries.

workers are imperfect substitutes (Sauré and Zoabi 2010; 2014), and so they face different adjustment costs and labour market frictions. The same forces or factors (such as discrimination and social norms) that result in female workers clustering in certain activities and occupations limit their reallocation possibilities (Gaddis and Pieters 2017). For this reason, when assessing the distributional impacts of trade it is necessary to look at changes in the female employment structure or the industry-level female intensity of employment.[24] Employment by branch of economic activity and the female share of employment by industry are key indicators under the "economic and social context for decent work" substantive element of the Decent Work Agenda (table 3.4).

Relationship with trade

The reallocation of labour between industries is a basic prediction of traditional classical and neoclassical trade theories, according to both of which trade liberalization leads to partial or full specialization. Additionally, trade policy can affect some industries more than others: in the first place, by design, as in the case of selective tariff reductions, but also because initial levels of protection (before trade reform) may be higher in some industries than others, leading them to experience sharper cuts. Given that a large share of world trade takes place within global supply chains, a shock to an industry in a country can have an effect on other industries through spill-over effects, depending on the strength of the industry's backward and forward linkages (both domestic and international) (WTO 2019). Trade could have different (and potentially compensatory) impacts on industrial subsectors or different industries along the supply chain.

In modern trade theories, which incorporate firm-level heterogeneity, adjustment to trade involves *intra-industry* reallocations towards more efficient firms and corresponding changes in wage levels, rather than *inter-industry* labour reallocation (Melitz 2003). Furthermore, interindustry reallocation is limited by the presence of labour market rigidities, or labour market frictions, including switching costs for workers and searching costs for firms (Topalova 2010; Helpman, Itskhoki and Redding 2010). Labour mobility barriers faced by workers (whether due to geography, skills or other factors) prevent them from moving between industries and sectors. This results in displaced workers reallocating to lower-productivity firms or to informal or own-account work within the same industry, or in their dropping out of the labour force altogether.

Empirical evidence

Although the structural shifts observed in many of the world's economies correlate with increased globalization and trade, the empirical findings are mixed. For instance, Gaddis and Pieters (2017) found evidence of accelerated labour shifts following trade liberalization in Brazil, namely, from agriculture and manufacturing to trade and other services sectors. Menezes-Filho and Muendler (2011) also found evidence of reallocation towards services in Brazil. However, in a cross-country study, Wacziarg and Wallack (2004) did not find evidence of increased intersectoral labour movements at the one-digit ISIC level of disaggregation in the wake of liberalization episodes, and found only weak evidence of such movements at the three-digit level within the manufacturing sector.

Similarly, Autor, Dorn and Hanson (2016) found that, contrary to neoclassical predictions, trade-induced shocks to manufacturing in the United States (following the "China shock") did not result in sectoral reallocation or labour mobility, but, rather, to a modest decline in the wage level of low-skilled workers and a significant decline in employment rates in the affected localities. At the worker level, they noted that the likelihood of relocating outside the manufacturing sector was higher for workers with more skills, that is, those in the highest tercile of the earnings distribution, than for the lower-skilled workers in the bottom tercile. As a result of greater

24 Similarly, the sectoral distribution of youth employment can change if trade has an impact on industries that have higher-than-average shares of young workers because of low entry barriers (as in the case of trade and domestic work), flexible work arrangements (as in hotels and restaurants) or specific skill requirements (as in the ICT field and tourism). Young workers may also face fewer obstacles to intersectoral mobility because they have less industry-specific experience than older workers (Coşar 2013).

intersectoral mobility, the higher-skilled group suffered smaller earnings losses than the lower-skilled group. Other studies have also found evidence of trade-induced labour reallocations, specifically from manufacturing to services, at the worker level (Ebenstein et al. 2014; Acemoglu et al. 2016).

With respect to gender, evidence points to growing employment opportunities for women in global supply chains (GSCs)[25] in recent years, as their share in GSC-related employment is higher than their share in total employment at the global level and specifically among emerging economies (ILO 2015a). In advanced economies, female workers' share of GSC-related employment is lower than their share in total employment and has generally remained stable because the decline in GSC-related manufacturing jobs has been offset by increases in GSC-related services jobs.

3.5. Employment by occupation/skill level

Definition and context

The indicator for employment by occupation/skill level at the aggregate level breaks employment down into four broad categories: low, medium, high and a separate category for the armed forces. Employment can be further disaggregated into the one-digit ISCO[26] categories (ten occupations) or clearly defined groupings of these categories as deemed relevant (table 3.5). This indicator has historically also been used to reflect the skills demand structure of an economy by drawing on the underlying links between the ISCO and International Standard Classification of Education (ISCED) systems.[27] It is included here under the "equal opportunity and treatment in employment" substantive element of the Decent Work Agenda, and is particularly relevant for identifying gender differences in occupational structure or occupational segregation by sex. (Significantly, SDG target 5.5 calls for women's full and effective participation and for them to have equal opportunities for leadership at all levels of decision-making.) However, it should be noted that skills are also evaluated using a task-based framework (see section 3.8) because of the constant evolution of occupations in terms of their constituent tasks. This section deals mainly with an occupational and educational definition of skills.

Occupational distributions by age group (for example, the youth employment intensity of occupations) have traditionally been analysed in a similar manner to gender. Like female employment, youth employment may be concentrated or disproportionately represented in middle-skill intensive occupations involving cognitive and manual routine tasks, and also in low-skill services occupations with a high incidence of part-time work or flexible or irregular working hours (as in hotels and restaurants). In addition to disaggregation by sex and age, it is also helpful to decompose overall changes in occupational structure into between-industry and within-industry components.

Relationship with trade

Under the task-based framework, occupation and skills can be roughly understood as part of the underlying "technology" that can lead to comparative advantage in classical trade theory. This means that a country's comparative advantage can often be based on the skill composition of its workforce, and that a skills-based policy response can optimize the gains of a country from trade liberalization

25 In this report, the terms "global supply chain" and "global value chain" are used interchangeably. GSCs include the full range of activities undertaken globally by lead firms, supplier firms and their workers along the entire production process from inception to end use. Delautre (2019) provides detailed information on the concepts and definitions of the ILO framework for decent work in GSCs.

26 Produced by the ILO, the International Standard Classification of Occupations (ISCO) is useful for compiling and comparing job and labour market statistics across countries.

27 Most countries' labour force surveys use either the ISCO 2008 or the ISCO 1988 classification system (which are equivalent at the one-digit level), together with ISCED 2011 or national classification systems for educational attainment that can be linked to ISCED. One example of occupation-to-skill mapping is as follows: (a) skilled occupations (ISCO groups 1–3; skill levels 3-4) correspond to post-secondary and higher education for managers and technicians, and to university education and above for professionals; (b) semi-skilled occupations (ISCO groups 5, 7 and 8; skill level 2) correspond to the first and second stages of secondary education and may require on-the-job training and experience, sometimes formalized through apprenticeships or traineeships, to supplement formal training or to partially – or, in some cases, completely – replace it; and (c) low-skilled occupations are elementary occupations (ISCO group 9; skill level 1) requiring only primary education (ILO, 2016d).

▶ Table 3.5. Decent work indicators pertaining to occupation/skill level

Decent work indicators	
Statistical indicators Definition/computation	**Employment by occupational group*** $\text{Employment in ISCO 08 subgroup } i\ (\%) = \frac{\text{Number of employed in ISCO 08 subgroup } i}{\text{Total number of employed persons}} \times 100$ **EQUA-1: Occupational segregation by sex** Possible measures of occupational segregation by sex: (a) female share of employment in ISCO sub-major group $i = W_i / N_i$ (b) female occupational distribution obtained by computing W_i / W for each ISCO sub-major group; similarly, the male occupational distribution is obtained by computing M_i / M (c) the index of dissimilarity = $1/2\ \Sigma | (W_i / W) - (M_i / M) |$, where the summation is of the absolute difference over all sub-major groups. In the above formula: W = total number of employed females ($W = \Sigma W_i$) M = total number of employed males ($M = \Sigma M_i$) Ni = total employed persons in sub-major group i ($N_i = W_i + M_i$) N = total employed persons: $N = \Sigma N_i = W + M$
Preferred sources of raw data	Labour force surveys, other household surveys with an employment module, establishment surveys, administrative records
Available sources of processed data	ILOSTAT, OECD employment database
Related legal framework indicator	L12: Equal opportunity and treatment

Note: * Although only the sex-disaggregated indicator (EQUA-1) features in the ILO's list of decent work indicators, the overall occupational distribution is also relevant for assessing the impact of trade, for instance in order to identify patterns such as job polarization at the aggregate economy level. The indicator "employment by occupational group" can be calculated at the industry level too in order to assess within-industry changes in occupational structures (such as job polarization or increased demand for skilled workers). Furthermore, while this indicator is usually calculated for ISCO sub-major groups, valuable insights may be obtained by looking at occupational structures at a more detailed level – for example, to analyse trade-induced changes in the share of occupations in science, technology, engineering and mathematics, which would not come across as clearly if more general occupational categories are used.

and mitigate any effects from trade shocks (ILO and WTO 2017). Under neoclassical theories, the initial endowments of factors – including labour and, in this case, also the skill composition of labour – are interrelated with the country's trading patterns. Countries with a relative abundance of skilled labour will specialize in skill-intensive industries, and vice versa. This suggests that trade liberalization should increase the demand for and returns to skilled labour in advanced economies, while increasing the demand for and returns to low-skilled labour in developing and emerging economies. In that regard, women, who are disproportionately represented in the low-skilled workforce in developing countries, would benefit from wage and employment gains in connection with trade opening.

In practice, however, trade seems to be biased towards skilled labour in advanced, emerging and developing economies. A number of models based on new trade theory, new-new trade theory and search-and-matching theories of the labour market have been developed that incorporate the structural features of the market and firm heterogeneity in order to account for this observed trend.

Additionally, technological change has been shown to have a profound impact on labour markets, with skills being one of the main channels through which this impact is transmitted. Under the task-based framework, technological change can be categorized as either "skill-biased" or "routine-based", with the former generally increasing the demand for high-skilled occupations and the latter increasing the demand for occupations with a high routine content, which are more likely to be low-skilled (Acemoglu and Autor 2011). However, it should be emphasized that there

are considerable differences in the skill level of occupations across countries. The task-based framework has been used at both the intersectoral and the intra-sectoral level to explain labour market trends related to job polarization, automation and offshoring.

Empirical evidence

The empirical evidence shows job polarization (by skill level of workers) along with a decline in medium-skilled occupations for a wide range of advanced and developing economies (WTO 2017).[28] Job polarization is reflected in an increase in both high- and low-skilled occupations. Some common reasons for the changing occupational structure include automation and offshoring (Acemoglu and Autor 2011; Goos, Manning and Salomons 2014). Indeed, the offshoring of business services has been shown to increase the demand for skilled tasks – both in the country where these tasks are performed and in the offshoring country (Gonzales et al. 2012). One of the seminal studies on polarization is that by Acemoglu and Autor (2011), who use data from the United States and Europe and a novel task-based model to analyse the changes in occupations between and within industries in order to try to account for many structural shifts in the US labour market, such as falling real wages, wage polarization, job polarization, automation and offshoring. Other studies have reached similar conclusions regarding the increasing premium for skill-intensive occupations in developing countries, much of which can be attributed to skill-biased technological change, there being only weak or indirect linkages to trade reforms (Kijima 2006; Goldberg and Pavcnik 2007).

28 Many studies have focused on job polarization across the world. This phenomenon has been identified in the United States by Acemoglu (1999); in a number of European countries by Goos, Manning and Salomons (2009); and in developing countries such as Mexico and Morocco by Maloney and Molina (2016).

With respect to gender, there is some evidence that trade and technological change have benefited female workers, notably in the manufacturing sector in developing and emerging economies, where women tend to be employed in low-skilled occupations. For instance, trade liberalization in export markets in the East African Community and the Southern African Development Community has had a positive impact on the female share of employment among production workers in manufacturing (UNCTAD 2019). A study by the World Bank and WTO (2020) similarly finds that the female share of employment is higher for exporting firms than for non-exporting ones, and that the exporting of manufactured goods is linked to a higher female wage share in developing countries.

More recently, as workforce skills and technology have replaced low labour costs as drivers of comparative advantage, the relative demand for female workers in exporting sectors has declined, resulting in the "defeminization" of labour (Tejani and Milberg 2016; UNCTAD 2019). However, the impact of trade-induced technological upgrading on female employment is not clear-cut. For instance, although an increasing demand for skills may disadvantage women – especially since in many countries women still face numerous barriers to education – it can also lead to a reduced need for physical skills and therefore increase the relative productivity of female workers in blue-collar jobs (Juhn, Ujhelyi and Villegas-Sanchez 2014). Indeed, a study by Acemoglu and Autor (2011) found evidence that offshoring affected the occupational structure in the United States by increasing both high- and low-skill employment for women. A decline in employment in "production and operative" occupations and some routine service occupations was offset by a rise in female employment both in professional, managerial and technical occupations (involving non-routine cognitive tasks) and in low-skilled service occupations (involving non-routine manual tasks).

3.6. Labour productivity

Definition and context

Labour productivity is measured as GDP per worker or, alternatively, as GDP per hour worked, where GDP represents the value of the total output produced during a particular time period (table 3.6). The output figures are drawn from the national accounts of a country

▶ **Table 3.6. Decent work indicators pertaining to labour productivity**

Decent work indicator	**CONT-3: Labour productivity (GDP per employed person, level and growth rate)***
Statistical indicators	
Definition/computation	$\text{Labour productivity (employed)} = \frac{\text{GDP at constant prices}}{\text{Number of employed persons}}$
	$\text{Labour productivity (hours)} = \frac{\text{GDP at constant prices}}{\text{Number of hours worked in all jobs}}$
	$\text{Labour productivity growth rate} = \frac{\text{Labour productivity}_{\text{year N}} - \text{Labour productivity}_{\text{year N–1}}}{\text{Labour productivity}_{\text{year N–1}}} \times 100$
Preferred sources of raw data	National accounts Labour force surveys, household surveys with an employment module
Available sources of processed data	ILOSTAT, OECD employment database

Note: * The decent work indicator presented above refers to aggregate labour productivity. However, examining labour productivity at the industry level may yield valuable insights, particularly into the dynamics of within-sector reallocation (Melitz 2003). Labour productivity at the industry level may be calculated by using the added value of an industry in the numerator and industry employment (or hours worked) in the denominator.

and the labour figures from labour force or household surveys. Both labour productivity and its growth rate are key indicators under the "economic and social context for decent work" substantive element of the Decent Work Agenda; the growth rate of labour productivity is included as an indicator for SDG target 8.2. At the industry level, labour productivity is often measured as gross value added (GVA) per worker or as GVA per hour worked.

Relationship with trade

In trade theory, labour productivity is an indicator of economic efficiency at the aggregate level and of competitiveness at the industry and firm level. There is an endogenous relationship between trade and productivity: trade affects productivity through the channels described in more detail below, but sustained productivity growth is also crucial for successful integration into the global economy (UNCTAD 2015).

Classical and neoclassical trade theories posit that trade is expected to lead to higher aggregate labour productivity and, therefore, to higher wages and improved welfare owing to static efficiency gains. These static gains are due to specialization (either partial or total), which leads to a more efficient allocation of productive resources in a given country. Modern trade theories, in contrast, argue that dynamic gains achieved through technology transfer and supporting innovation can also lead to increases in labour productivity. According to new trade theory, which looks at the industry level, trade liberalization leads to productivity gains in exporting sectors as a result of such factors as higher returns to scale and the greater availability of low-cost intermediate inputs (Krugman 1979; 1981). New-new trade theory further disaggregates to the firm level. Competitive forces result in the survival and expansion of the more productive firms ("intensive" margins of trade), the opening up of new markets and the appearance of new participants in international markets ("extensive" margins of trade), and greater within-firm investment that enhances productivity (Melitz 2003; Melitz and Trefler 2012). These margins operate at both the industry and firm level, which means that trade liberalization should not necessarily always lead to a fall in productivity in an import-competing sector.

Although many studies predict a positive impact of trade on aggregate productivity, some have pointed out that this link is not automatic (Kang 2015; Menezes-Filho and Muendler 2011; Alemán-Castilla 2013). In particular, despite firm- or industry-level productivity gains due to greater competition, aggregate productivity could decline if displaced workers are absorbed by less productive firms or by the informal sector (Menezes-Filho and Muendler 2011). Labour market impacts may also depend on the specific type of trade liberalization (Alemán-Castilla 2013).

Empirical evidence

At the aggregate level, both within- and between-sectoral shifts in capital and labour have contributed to productivity growth in lower-middle- and low-income countries over the past 30 years (ILO 2017c). This highlights the importance of structural transformation for the improvement of living standards. In upper-middle- and high-income countries, however, within-sector shifts have been the most important driver of overall productivity growth.

Studies based on new-new trade theory have broken within-sector productivity growth down further into within-industry and within-firm growth. For example, Melitz and Trefler (2012) decomposed the overall positive impact of NAFTA on Canadian manufacturing productivity and found that the between-plant (within-industry) effect was larger, but that the within-plant (within-firm) effect mattered as well and was primarily driven by new exporters' productivity-enhancing investments. Lileeva (2008) came to a similar conclusion about the effect of NAFTA on Canadian manufacturing, with aggregate productivity gains explained largely by the reallocation of market shares towards highly productive firms. As for developing countries, Nataraj (2011) observed the same effect in India, where trade liberalization caused many informal firms to exit the market and the surviving firms to increase their productivity. McCaig and Pavcnik (2018) identified a similar effect in Viet Nam, where the United States–

Viet Nam bilateral trade agreement led to a reallocation of labour to the formal sector. Finally, Muendler (2004) uses data from Brazil to show that competitive pressures have had a far stronger and more significant effect on firm productivity than improved access to world-market inputs, and that the survival probability of less productive firms did indeed decrease with trade liberalization. This means that trade can enhance firm productivity at both the intensive and the extensive margin.

Trade liberalization has also been shown to lead to increased productivity growth in import-competing sectors owing to the reallocation of employment towards more productive firms and to there being more incentives for innovation and technological adoption within these firms – for example, as shown by Bloom, Draca and Van Reenen (2016) for European textile manufacturing firms exposed to Chinese imports between 1996 and 2007. An ILO cross-country analysis of trade-related efficiency gains using firm-level data from the World Bank's Enterprise Surveys found that the positive productivity impacts of trade were generally higher for both exporters and importers than for non-trading firms. The study found that productivity growth generally increased with import intensity for importers, and that it had a non-linear relationship with export intensity for exporters (ILO 2017c).[29] The study also found a positive relationship between exporting experience and labour productivity, which points to "learning effects" and suggests that productivity gains from trade may be greater in the long term. Both exporters and importers tend to have larger workforces than non-trading firms in the same industry, but the difference is more pronounced in low-income economies than in advanced ones. This points to the existence of trade barriers in the form of high fixed costs, which only the more productive firms in developing economies can afford – a further factor that explains the productivity premium of exporting firms (ILO 2017c; Ciuriak et al. 2015).

With respect to global supply chains (GSCs), studies have found that firms supplying inputs to GSCs are more productive than both firms supplying final goods and those that are non-exporters (ILO 2017c). At the industry level, participation in GSCs (both forward and backward) has been associated with higher productivity levels in advanced economies, but only to a smaller degree in emerging economies. The difference may have to do with the fact that the costs saved by sourcing inputs through GSCs are lower for emerging economies (ILO 2015).

Despite the large body of empirical literature showing aggregate productivity gains from trade, there is evidence that such gains are not always to be expected. For instance, Menezes-Filho and Muendler (2011) found that, although output did shift towards the more productive firms as a result of trade, those firms' increased efficiency reduced their need for additional workers, and so labour shifted in the other direction (towards less productive sectors), resulting in lower aggregate productivity. Alemán-Castilla (2013) argues that the specific type of trade liberalization also plays a role. For example, trade liberalization in the context of regional trade agreements may not necessarily lead to aggregate productivity growth if the trade diversion effect predominates over the trade creation effect – that is, if the agreement results in resources shifting towards its less efficient parties.

3.7. Labour share of income, and inequality of earnings and income

3.7.1. Labour share of income

Definition and context

The labour share of income is the share of gross value added that goes to workers in the form of wages and compensation (table 3.7). This indicator captures the distributional impacts of trade based on the differential returns to the two broad factors of production, capital and labour. More specifically, changes in the labour share of

29 Import intensity is measured as the share of imports in the total value of a firm's inputs used for production. Export intensity is the share of exports in a firm's total sales value (ILO 2017c).

▶ Table 3.7. Decent work indicators pertaining to income and inequality

Decent work indicators	
Statistical indicators	**CONT-8: Labour share of gross value added (GVA)**
Definition/computation	$$\textit{Labour share of gross value added} = \frac{\textit{Total compensation of employees}}{\textit{Gross value added}}$$
	Note: An adjusted labour share of GVA can be calculated to take into account the income of self-employed persons; the indicator can also be computed by sector/industry
	CONT-4: Income inequality (90:10 ratio)
	$$\textit{Income inequality}\ (90{:}10\ \textit{ratio}) = \log \frac{\textit{Total annual household disposable income of the top decile}}{\textit{Total annual household disposable income of the bottom decile}}$$
	CONT-11: Earnings inequality (90:10 ratio)
	$$\textit{Earnings inequality}\ (90{:}10\ \textit{ratio}) = \log \frac{\textit{Gross total monthly earnings of full-time employees in the top decile}}{\textit{Gross total monthly earnings of full-time employees in the bottom decile}}$$
	Gini coefficient (G)
	$$G = A / (A + B)$$
	where *A* is the area between the perfect equality line and the Lorenz curve, and *B* is the area below the Lorenz curve. The Lorenz curve plots the proportion of total income cumulatively earned by each percentile of the population.
Preferred sources of raw data	Household income and expenditure surveys, household budget surveys (CONT-4, CONT-11) Population censuses (CONT-11) National accounts (CONT-8)
Available sources of processed data	ILOSTAT, OECD employment database, World Inequality Database, World Bank's database of World Development Indicators

income reflect a change in the distribution of rents across capital owners and workers. A decreasing labour share implies that workers may not be receiving an equitable share of the benefits from growth or, conversely, that they are bearing a greater burden of a decline in output or productivity. Studies suggest that the labour share of income has been declining worldwide, and that this indicator has a countercyclical nature (ILO 2019b). The SDG framework highlights the importance of tracking the labour share of GDP as a way of measuring the success of fiscal, wage and social protection policies adopted to achieve greater equality (SDG target 10.4).

Relationship with trade

Neoclassical trade models predict that the returns to capital and labour will evolve on the basis of a country's relative endowments and the mobility of factors within sectors.[30] Trade liberalization should increase the returns to the factor that a country possesses in abundance. However, contemporary empirical analysis has shown capital to have

30 Neoclassical theory (the Heckscher–Ohlin model) holds that an increase (decrease) in the prices of output goods caused by international trade increases (decreases) the prices of the factors (for example, wages for labour) used intensively in their production. This postulate is also known as the Stolper–Samuelson theorem.

gained more than labour across the world, and that the gap has widened even in labour-intensive countries, which should theoretically experience relatively higher returns to labour. This evolution of capital returns has been explained in the literature by reference to the following factors:

(a) The endogeneity of trade and technology, and an associated shift in production structures towards more capital-intensive processes (for example, through automation and computerization), resulting in higher rent capture by capital owners relative to workers.

(b) The impact of increased capital mobility on the relative bargaining power of capital and labour: globalization and the removal of barriers to trade, combined with advances in communications and transport, have enabled firms to relocate their operations to countries with low-cost labour, resulting in higher price elasticity of labour, lower bargaining power of unions and a decline in wages (Turrini 2002).

(c) Trade-induced pressures on firms and rent-sharing under unequal power relations: higher price elasticity of demand due to competition arising from trade openness leads to lower firm rents (profits) and more concessions by trade unions (Freeman and Katz 1991; Huizinga 1993), especially in view of their reduced bargaining power.

(d) Power asymmetries between multinational enterprises and their suppliers: the proliferation of global production networks together with limited government capacity to implement and monitor labour rights and working conditions (ILO 2016c).

(e) Financialization, whereby the global fragmentation of production makes it possible to generate excess profits, which can free up capital to be paid to shareholders (ILO 2017c).

Empirical evidence

There has been a considerable shift in the proportion of income that is divided between labour and capital in favour of the latter, with technological advances being one of the main reasons. Robotization and computerization have transformed labour markets around the world, and these trends are expected to accelerate in the near future (Brynjolfsson and McAfee 2011; Frey and Osborne 2017). These changes in employment and wages have been evaluated under the task-based framework by Acemoglu and Restrepo (2019), who find that while automation leads to a rise in productivity and a corresponding rise in wages, the rise in productivity often outpaces the latter, which implies an increase in the share of income going to capital (see also ILO 2017c). Moreover, the authors find that while automation often leads to many tasks (particularly routine ones) being taken over by robots, new tasks are created in which workers have a comparative advantage because of a "reinstatement effect". Autor and Salomons (2018) show that the labour-displacing effect of automation has become more pronounced over the past few decades.

Collective bargaining can result in the gains from trade liberalization being reflected in higher wages (Felbermayr, Prat and Schmerer 2011) or in employment growth (Arbache 2004). In either case, rent sharing under unequal power relations is likely to result in a decline in the labour share of income, increased import competition from low-wage countries, and the offshoring of low-skilled jobs, all of which reduce bargaining power even further (Dumont, Rayp and Willemé 2010; Abraham, Konings and Vanormelingen 2009). However, this relationship often depends on the labour market institutions that are in place (Scruggs and Lange 2002). Similarly, technological change can also lead to a decline in collective bargaining coverage (Meyer and Biegert 2019). In the context of global supply chains, a positive impact on labour productivity from participation in a supply chain without a corresponding positive impact on wages has been linked to a declining wage share in both developed and emerging economies (ILO 2015a). Increased financialization (measured as the ratio of financial returns to non-financial profits) has been associated with a decrease in the labour share of income, an increase in the remuneration of senior executives, and greater earnings dispersion among workers at the industry level in the United States (Lin and Tomaskovic-Devey 2013). Similarly, increased interest and dividend payments have been associated with a decline

in the labour share in 13 OECD countries (Dünhaupt 2013).

3.7.2. Inequality of earnings and income

Definition and context

Measures of inequality that are relevant to the "economic and social context for decent work" substantive element of the Decent Work Agenda include income inequality (90:10 ratio) and wage/earnings/labour income inequality (90:10 ratio). These ratios compare the share of income (from all sources, including employment), wages or labour income (wages and other labour compensation) of the top decile of the distribution with the share of the bottom decile (see table 3.7 above).

The Gini coefficient, obtained from the Lorenz curve, which plots the proportion of total income cumulatively earned by each percentile of the population, is another widely used measure of inequality. This coefficient usually ranges between 0.2 and 0.4, with values closer to 0 representing a higher degree of equality, and those closer to 1 representing higher inequality (ILO 2013). It should be noted that while the labour share in income (see section 3.7.1 above) captures income inequality between the two broad factors of production (capital and labour), the indicators outlined in this section reflect inequality within the total population (income inequality and Gini coefficient) or among workers (wage or earnings inequality). Consequently, even though the labour income share has been decreasing, global inequality as measured by the labour income distribution on the global level has decreased over the past decade, with much of the decline attributable to higher-than-average GDP growth rates in countries such as China and India. However, this has to be viewed against rising inequality in a wide range of developed and developing economies.

Relationship with trade

It is widely acknowledged that trade has distributional effects that can influence inequality. For instance, inequality could increase if the gains from trade (or from trade and technology) accrue disproportionately to capital owners and high-skilled workers, or if those gains are concentrated in a specific geographical region. Inequality may also increase if trade liberalization leads to a decline in wages and also a decline in demand for low- and medium-skilled workers (through wage polarization or job polarization, which are often concurrent). Indeed, the skill premium (see section 3.8.3) and its drivers are regarded in the literature as the primary channel whereby trade influences inequality. In many studies (for example, Acemoglu 2003; Goldberg and Pavcnik 2007), the skill premium is treated as a measure of, or as equivalent to, wage inequality. Other channels include labour force shifts towards the informal sector, where wages are lower, resulting in higher inequality (Attanasio, Goldberg and Pavcnik 2004). In some models, the relationship between trade liberalization and inequality is non-linear. For instance, in the model proposed by Helpman, Itskhoki and Redding (2010), which includes heterogeneous firms and search and matching frictions, when an economy first opens up to trade, wage inequality increases because of an increased gap between the larger and more productive firms and smaller ones, but later on, it decreases.

Empirical evidence

In a study of the impacts of trade liberalization on the wage distribution in Colombia, Attanasio, Goldberg and Pavcnik (2004) found that trade reforms increased wage inequality through skill-biased technological change, skill premiums, industry wage premiums, and informality. However, the overall effect was limited compared with other countries, particularly Mexico. In contrast, Mishra and Kumar (2005) found that, since tariff cuts were larger in sectors employing a larger share of unskilled workers, the increase in wage premiums in those sectors resulted in lower overall wage inequality. Drawing on panel data from 18 Latin American countries covering the period 1980–98, Behrman, Birdsall and Székely (2000) found that trade openness did not have any impact on wage differentials. Instead, technology and economic reforms (capital account liberalization, financial markets and tax reform) may have had an impact on these differentials, particularly in the short run.

Empirical studies looking at broader measures of inequality do not find conclusive evidence on the relationship between trade and inequality (Attanasio, Goldberg and Pavcnik 2004). Although trade openness seems to have helped to narrow the gap between advanced economies and developing and emerging economies, its impact on inequality among developing economies or within countries is less clear (Urata and Narjoko 2017). Mixed results at the country level reflect mixed theoretical predictions and multiple impact channels, along with differences in the policy and institutional context (for example, with regard to labour market flexibility and redistributive policies) and in the skills distribution of the workforce, among other factors. For instance, a cross-country panel analysis of Latin America and the Caribbean (Beaton, Cebotari and Komaromi 2017) found a negative but not statistically significant effect of trade openness on the Gini coefficient in their total sample, whereas financial openness had a positive, but also not significant, effect. The authors found a statistically insignificant negative effect of trade openness on inequality for the subsamples consisting of emerging economies – an effect that no longer held when a net measure of inequality (the "net Gini coefficient", which accounts for taxes and transfer payments) was used. This suggests that redistributive policies may be playing a role in the negative correlation between trade openness and inequality.

C. Labour relations, working terms and conditions

Decent work indicators that can be used for the assessment of the labour relations, working terms and conditions impacts of trade include wages, working poverty, status in employment, informality, social protection, non-standard forms of employment, occupational safety and health, non-exploitative forms of employment, and social dialogue. Most of these indicators, beyond wages, cannot be adequately analysed under traditional trade theory frameworks, since the latter are based on the assumption of homogenous (average) firms and workers producing homogenous goods or services. In contrast, modern trade theories, which allow for heterogeneous firms and workers, provide adequate frameworks that can be used for a more comprehensive analysis of the impacts of trade on employment quality.

3.8. Wages

Indicators relating to the "adequate earnings and productive work" substantive element of the Decent Work Agenda include average real wages (aggregate-level impact), skill premium and industry wage premium. Another relevant indicator is the gender wage gap, which pertains to the "equal opportunity and treatment in employment" substantive element. These indicators are presented in table 3.8 below.

▶ Table 3.8. Decent work indicators pertaining to wages

Decent work indicators

Statistical indicators

Definition/computation

EARN-4: Average real wages (ARW)

Step 1.

$$\text{Average nominal earnings} = \frac{\text{Total nominal earnings by month}}{\text{Total number of employees}}$$

Step 2.

$$ARW = \frac{\text{Average nominal earnings}}{CPI}$$

EQUA-3: Gender wage gap

$$\text{Gender wage gap (\%)} = \frac{(E_m - E_w)}{E_m} \times 100$$

where E_m and E_w are the gross average hourly earnings of men and women, respectively, in any given population group.

EARN-3: Average hourly earnings by occupational group (AHE)

Step 1.

Option *a* (with data from establishment surveys):

$$AHE_i = \frac{\text{Total earnings for paid employees in occupation } i}{\text{Total hours worked by paid employees in occupation } i}$$

Option *b* (with data from labour force surveys or other household surveys):

$$AHE_{ij} = \frac{\sum_{j=1}^{n}(AHE_{ij} \times H_{ij})}{\sum_{j=1}^{n} = H_{ij}}$$

where AHE_{ij} refers to the average hourly earnings of individual *j* in occupation *i*.

Step 2.

$$\text{Real } AHE_i = \frac{AHE_i}{CPI}$$

Skill premium

$$\text{Skill premium} = \frac{\text{AHE high-skilled occupations}}{\text{AHE low-skilled occupations}}$$

Industry wage premium

$$\text{Industry wage premium}_i\,(\%) = \frac{w_i - \overline{w}}{\overline{w}} \times 100$$

where w_i is the average wage rate for industry *i*, and $(\overline{w})$ is the average wage rate across all industries

Preferred sources of raw data	Labour force surveys with an earnings module (EARN-3, EARN-4, EQUA-3, industry wage premium) Establishment survey on employment and earnings (EARN-4, EQUA-3) Establishment survey on occupational earnings (EARN-3) Establishment survey on wage rates by economic activity (manufacturing) (EARN-3 Administrative data (EQUA-3)
Available sources of processed data	ILOSTAT, OECD employment database
Related legal framework indicators	L4: Statutory minimum wage L13: Equal remuneration of men and women for work of equal value

3.8.1. Average real wages

Definition and context

Average real wages, or average real earnings of employees (where earnings include wages and other forms of compensation), are the total monthly wages (or earnings) of all employees divided by the number of employees, adjusted for inflation (see table 3.8 above). Average real wages reflect workers' purchasing power and are, therefore, alongside working conditions, an important determinant of welfare. There is usually a positive correlation between average real wages and labour productivity.

Relationship with trade

The study of the effects of trade on wages goes back to neoclassical models, where factor prices (wages and rents) respond to changes in output prices. There is an increase in return to the factor which is used more intensively to produce the good exported by a country. By equalizing output prices across countries, trade liberalization equalizes payments to the factors of production. Therefore, the wages of low-skilled workers in a capital-intensive country would be expected to converge towards the wages of low-skilled workers in a labour-intensive country. On average, however, as allocative efficiency moves production towards an optimal state, higher productivity in both types of countries would result in wage increases for the most abundant factor. Trade should accordingly result in higher wages for both trading partners.

In modern trade theory, including both new and new-new trade theory, the dynamic gains of trade (such as productivity gains) drive the change in wages, not the static gains from allocative efficiency. Productivity gains at the firm, industry and aggregate levels can arise for all the reasons described in section 3.6 on labour productivity, although these gains are not automatic, particularly at the aggregate level (Kang 2015; Menezes-Filho and Muendler 2011). A number of studies (for example, Ghazali 2011) have also considered wage outcomes through the rent-sharing impact channel, whereby collective bargaining plays a role in determining the wage gains from trade.

Empirical evidence

At the aggregate level, trade seems to have a mixed effect on average real wages through two main channels – the direct channel of the change in wage remuneration and the indirect channel of the effect on price levels in a country. With regard to the first channel, the empirical literature of the past decade has been dominated by studies showing a small or insignificant decline in average wages in industries facing import competition in a number of advanced economies (Autor, Dorn and Hanson 2013 for the United States; Ashournia, Munch and Nguyen 2014 for Denmark; Malgouyres 2017 for France; Balsvik, Jensen and Salvanes 2015, and Utar 2018 for Norway; and Dauth, Findeisen and Suedekum 2016 for Germany). The conclusions often differ when the analysis is carried out at the firm level, rather than the aggregate level (WTO 2017; Muendler 2017). The aggregate results in these studies are also often imperfectly reconciled against measurements of wage gains in export-intensive industries, where rising wages often go hand in hand with wage polarization (as in the services sectors). In developing and emerging economies, an

insignificant or small decline in wages has similarly been observed in import-competing industries (Revenga 1997 for Mexico; Currie and Harrison 1997 for Morocco), though there are greater methodological challenges because of the need to take into account the structural differences of these countries' labour markets. As far as the second channel is concerned, there is quite robust evidence of trade having considerable positive effects in terms of reducing price levels across countries (Amiti et al. 2017; Handley and Limão 2017),[31] thereby increasing real wages. With respect to wage remuneration, the results of studies vary considerably depending on the skill, education and/or income level of workers.

Firms engaged in trade tend to offer higher wages than non-trading firms across a wide range of sectors and across country income groups (Bernard and Jensen 1995; Yeaple 2005; ILO 2017c). However, the fact that the wage premium which these trading firms have vis-à-vis their non-trading counterparts is smaller than the corresponding productivity premium suggests that workers may be capturing a smaller share of productivity gains from trade – for example, through a rise in the return to capital and other factors relative to labour (Farole 2016; Chen, Los and Timmer 2018). Studies have consistently found that trade conducted through global supply chains tends to generate more benefits for firms, in terms of productivity gains, than for workers, in terms of wages. This disparity may be attributable in part to asymmetric power relations between lead firms (multinational enterprises) and supplier firms in global supply chains, and to limited government capacity to implement and monitor labour rights and working conditions (ILO 2016c).

Other factors may also influence the impact of trade on wages at the firm level. For instance, some studies of the association between wages and trade intensity find that while trade itself may lead to a fall in wages, this is moderated by the skill intensity of a firm, which has positive effects on wages (Munch and Skaksen 2008). Similarly, Amiti and Davis (2012) emphasize the "mode of globalization" (whether or not the specific firm is an exporter or produces mainly for domestic consumption, and whether it is a producer of final products or intermediate inputs). They find that a reduction of tariffs on final products raises wages for exporting firms relative to firms serving only the domestic market, while a reduction of tariffs on intermediate inputs increases wages at firms that use imported inputs to a greater extent than at those using domestically produced inputs. Finally, there is evidence that labour market institutions and arrangements have a strong influence on wage outcomes at the firm and worker level. For example, Carluccio, Fougère and Gautier (2015) show that collective bargaining arrangements increase the elasticity of wages with respect to exports and offshoring.

3.8.2. Gender wage gap

Definition and context

The gender wage gap is the difference between the gross average hourly earnings of men and women expressed as a percentage of the gross average hourly earnings of men (see table 3.8 above). This gap can be calculated at the aggregate level (for the total employed population) or by economic activity or occupational category. The gender wage gap is an indicator for SDG target 8.5, which calls for equal pay for work of equal value to be achieved by 2030.

Relationship with trade

Neoclassical theories postulate that trade liberalization leads to wage equality between countries of different development levels. This means that unskilled workers should see a rise in their income in developing economies, while the income of skilled workers should decline in advanced economies. Therefore, insofar as women account for a larger share of the unskilled workforce in advanced and developing economies, neoclassical trade theory (specifically the Heckscher–Ohlin model) predicts that increased trade will

31 Amiti et al. (2017) estimate that Chinese imports caused the US manufacturing price index to decrease by 8 per cent. Handley and Limão (2017) show that China's accession to the WTO in 2001 led to a fall in the prices of US goods because of a reduction in uncertainty for US investors.

decrease women's relative wages in the former and raise them in the latter.

More recent models emphasize the role of trade-induced technological upgrading, whereby tariff reductions lead to improved productivity and processes that rely less on routine, physical tasks, raising the relative productivity and wages of women in blue-collar jobs (Juhn, Ujhelyi and Villegas-Sanchez 2014). Sauré and Zoabi (2014) argue that the complementarity between capital and female labour is greater than that between capital and male labour, and that an increase in capital stock at first tends to close the gender wage gap. Some empirical studies do not support this conclusion. Indeed, Sauré and Zoabi (2014) also find that factor reallocation towards the female-intensive sector eventually dampens its capital intensity and the relative marginal productivity of female workers, thereby widening the gender wage gap.

Other approaches – particularly those that emphasize group bargaining and power relations between workers and employers, and among (male and female) groups of workers – are less optimistic about women's ability to narrow the wage gap (Berik 2011). The assumption underlying these approaches is that the gender wage gap is attributable to employment segregation, with women tending to concentrate in relatively unskilled, lower-pay positions, because of both real and perceived skill gaps – a phenomenon that is reinforced by gender norms and discrimination. The relatively low wages of women and their short, but intensive employment tenure (often due to marriage and childbearing) enable firms to attain high productivity levels. Furthermore, thanks to the informal and home-based work arrangements of many women, exporting firms face less risk and have more flexibility in responding to changes in market conditions.

Empirical evidence

Empirical studies yield mixed results. For instance, there seems to be a positive association between trade liberalization and the gender wage gap in Mexico (Domínguez-Villalobos and Brown-Grossman 2010). Other studies found, in contrast, that trade reform reduced the gap in Bangladesh and Pakistan (Fontana 2007; Siddiqui 2009). Studies examining whether trade-induced competition reduces wage discrimination generally do not find supporting evidence that the gender wage gap has narrowed at the detailed occupational level, that is, between equally skilled male and female workers (Berik 2011). Further, Berik (2011) argues that although the gender wage gap may be narrowing as a result of women's rising levels of educational attainment and skills, the gap's discriminatory component has persisted – and has even grown in some developing countries where trade has increased. This is attributed to a number of factors associated with trade liberalization that undermine women's bargaining power – for example, women face greater competition from other workers around the world and surplus agricultural labour increases the supply of low-skilled women for the manufacturing sector, keeping wages low.

In contrast to the theory, there is some empirical evidence pointing to a negative association between skills upgrading (as measured by increased productivity and capital intensity) and female share of employment. This negative association is largely due to a mismatch between newly required skills and the existing skills of the female labour force. Specifically, despite recent improvements in female educational attainment, technological changes have required skills that are more prevalent in the male workforce (Berik 2000). This effect is reinforced by gender segregation in vocational education, which is largely attributable to gender norms.

3.8.3. Skill premium

Definition and context

The skill premium, or the wage gap between high- and low-skilled workers (measured through educational attainment, occupation or a task-based framework), is a narrower and more commonly used measure of wage inequality. In terms of educational attainment, one of the ways of determining the skill premium is by taking the ratio of the wages of those with a university degree to the wages of those with a primary education. In terms of occupation, one categorization is between

production and non-production workers (blue- and white-collar), while another is a division into low-, medium- and high-skilled workers according to the ten different one-digit categories under ISCO. Finally, a task-based framework disaggregates skills by routine, non-routine, manual, interactive and analytic tasks (Autor, Levy and Murnane 2003). The skill premium may essentially be regarded as a "summary measure of the market's valuation of skills" (Acemoglu and Autor 2011) disaggregated by interrelated categories of educational attainment, occupation and tasks.

Relationship with trade

Neoclassical trade theory makes it possible to explore the skill divide on a macro level, with the relative endowments of countries being expressed as the skill level (measured in terms of either occupation or education) of the labour force. This means that the factor (low or high skill) used more intensively in the production of a good exported by a country is likely to see its relative return increase after trade liberalization. Furthermore, there should be an equalization of factor prices between the two trading countries.

New trade theory enabled the use of intermediate goods and fragmentation of the production process in determining skill abundance by country. Trade liberalization and the removal of capital controls allowed the production of intermediate goods to be relocated from developed countries (where such production is relatively high-skilled intensive in high-skilled) to developing countries (where it is relatively low-skilled intensive), resulting in an increased skill premium in both developed and developing countries (Feenstra and Hanson 1996; 1997; 1999; 2003). This pattern can also be characterized as firms engaging in Heckscher–Ohlin trade.

The skill premium can also be considered from a task-based perspective, with occupations disaggregated into those with routine, non-routine, cognitive, manual and interactive tasks (Autor, Levy and Murnane 2003). This framework is often applied when evaluating the effects of technical change on trade and labour markets – for example, the effects of offshoring and/or automation. Increases in the skill premium can also be accounted for by a combination of skill-biased technological change and growth in capital flows (Acemoglu 2003). This channel includes the "defensive innovation" theory, whereby trade openness increases a firm's incentives to innovate (Wood 1995; Thoenig and Verdier 2003), and endogenous technological change, where trade liberalization reduces the prices of capital goods and leads to an increase in imports of those goods, which are complementary to skilled labour (Bustos 2005; Parro 2013; Li 2019). Thus, large capital inflows have led to an increased demand for skilled workers required to make use of the capital and thereby to greater returns to skill-intensive occupations (Cragg and Epelbaum 1996; Behrman, Birdsall and Székely 2000).

Another channel that affects the skill premium comprises the extensive and intensive margins in new-new trade theory, whereby within-firm and within-industry effects lead to a reallocation of market shares towards firms with higher productivity and to an aggregate productivity increase (Melitz 2003). Both of these changes can increase the demand for skilled workers, for example through the upgrading of products (Verhoogen 2008).

Empirical evidence

Over the past few decades, the skill premium has increased in a wide range of countries (WTO 2017). Goldberg and Pavnick (2007) found that a number of countries that underwent trade liberalization episodes in the 1980s and 1990s had experienced an increase in the skill premium, and in many cases, the increase coincided with trade reforms. Similarly, Parro (2013) was able to demonstrate that the skill premium had increased owing to trade in several advanced economies, including Italy, Portugal, Spain, Sweden, the United Kingdom and the United States, and in developing countries such as China, Colombia, India, Mexico and Thailand. Kijima (2006) found that wage inequality had increased in India between 1983 and 1999 as a result of greater returns to skills, which were in turn driven by an increase in the demand for skilled labour that was largely unrelated to trade reform (measured by between-industry demand shifts).

The evidence on the specific channels through which the skill premium increases is mixed. For example, a channel based on the extension of Stolper–Samuelson effects has been called into question by studies that find that the relative price of skill-intensive goods declined or did not increase during the period of increase in the skill premium (Lawrence and Slaughter 1993; Sachs and Shatz 1996; Desjonqueres, Machin and Van Reenen 1999). Additionally, that channel fails to explain increases in the skill premium in developing or less developed countries (Krugman 1995). With respect to skill-biased technological change, Hanson and Harrison (1999) found that, within each industry, firms importing capital goods in Mexico in the 1980s had greater shares of white-collar workers than firms that did not import such goods. Burstein, Morales and Vogel (2015) show that computerization accounted for over 60 per cent of the rise in the skill premium in more than 60 countries. However, other studies do not find a significant impact of the use of imported capital on demand for skilled labour (Pavcnik 2003) or on productivity (Muendler 2004).

Another strand of the literature examines the impact of trade on the skill premium through the channel of offshoring. Drawing on data from Denmark, Hummels et al. (2014) show that an increase in offshoring by a firm leads to an increase in the high-skilled wage and a decrease in the low-skilled wage. Looking at data from the United States, Ebenstein et al. (2014) show the same direction of impact of offshoring by skill and, moreover, that the wages of low-skilled workers were more sensitive to trade and offshoring than those of high-skilled workers. A skills gap can also constrain the impact of trade on productivity and growth by limiting the performance and expansion of firms in tradable sectors. Thus, investments in education, skills development and training can ensure that the positive impact of trade in terms of access to decent work is optimized (ILO and WTO 2017).

An ILO study on developed and emerging economies found that the skill premium was increased by backward participation in global supply chains in the textile and garments industry (defined as participation from a lead firm's perspective), but not by forward participation (defined as participation from the suppliers' perspective). The study attributed this to the fact that lead firms generally outsource the lower-value, labour-intensive tasks, keeping the higher-value, knowledge-intensive ones in-house (Kizu, Kühn and Viegelahn 2016). Consequently, sectors with backward linkages in global supply chains experienced upward pressures on skilled wages, but not those with forward linkages.

3.8.4. Industry wage premiums

Definition and context

Although much of the focus on wage inequality in relation to trade is on the skill premium and the gender wage gap, it is also important to consider industry wage premiums, or the difference between the average wage of a worker in a specific industry and the overall average wage. Industry wage premiums represent the component of workers´ wages attributable to industry affiliation that cannot be explained by other factors such as education, sex, geographical location, age and experience (Goldberg and Pavcnik 2007). These premiums can be interpreted "as either industry rents, or returns to industry-specific skills that are not transferable in the short run, and are particularly relevant in the presence of imperfect competition, and/or in cases in which labour mobility is constrained" (Attanasio, Goldberg and Pavcnik 2004). Since different industries employ skilled and unskilled workers in different proportions, changes in industry wage premiums can translate into changes in skill premiums (Mishra and Kumar 2005).

Relationship with trade

In new trade theory, economic geography can contribute to wage premiums at the industry level, with the premiums being higher in industries located in urban areas of agglomeration. In new trade theory, trade can increase industry wage premiums because of industry-level productivity changes being passed on to workers in the form of higher wages (Melitz 2003), regardless of whether the increase in the premium is due to higher wages of new workers in the industry or

to higher efficiency wages for existing workers. This is the direct effect of trade liberalization on the intensive and extensive margins under that theoretical framework. The effect may occur as a result of trade leading to "quality upgrading" of products, which requires a shift in skills composition and thereby results in an increase in wages (Frías, Kaplan and Verhoogen 2009). Newer theoretical approaches that build on new-new trade theory by incorporating search and matching frictions show that trade can also reduce industry wage premiums by preventing labour reallocation (Mishra and Kumar 2005; Topalova 2010). A decrease in the industry wage premium can likewise arise if liberalization results in a decline in industry rents (previously conferred by trade protection and shared with labour because of union bargaining power) (Revenga 1997; Ghazali 2011), or if gains from productivity are not passed on to workers through wages.

Empirical evidence

The empirical evidence on industry wage premiums is mixed. While some studies find that tariff reductions decrease these premiums (Attanasio, Goldberg and Pavcnik 2004; Mishra and Kumar 2005; Ghazali 2011), others find a positive impact (Bhattacharya and Nguyen 2019; Murakami 2020; Goldberg and Pavcnik 2005). Additionally, other studies do not find any statistically significant association (Feliciano 2001; Pavcnik et al. 2004). With regard to global supply chains, an ILO study found no significant effect of either forward or backward participation on average wages at the sectoral level, despite a generally positive impact on labour productivity (ILO 2015a). In sum, although trade is generally associated with higher wages at the firm level, industry-level effects are more ambiguous and depend on a number of factors, both structural and institutional.

3.9. Poverty and working poverty

Definition and context

Measures of poverty include "poverty incidence", which is the share of the population living in households with incomes below the poverty line and is sometimes also referred to as the "poverty headcount ratio", and the "poverty gap index", which reflects the depth of poverty (see table 3.9). Poverty is a multidimensional concept that goes beyond income and consumption to include other aspects of deprivation, such as health, education, opportunities and quality of work. Thus, an important decent work indicator is the working poverty rate, which reflects a shortage of opportunities for decent employment: where working poverty rates are high, the main problem is the quality, not the quantity, of jobs. Although ending poverty for all people by 2030 is an SDG in its own right (namely, Goal 1), this work-related indicator gives a good idea of where the world as a whole stands.

The working poverty rate is the share of the employed population who live in households with incomes below the national poverty line. In developing and emerging economies, one-third of the extreme and moderate poor[32] are employed – in low-skilled, low-productivity jobs, often as own-account workers in agriculture or services, with limited social protection coverage. The poor rely almost exclusively on labour income (ILO 2016a). In advanced economies, where more than 80 per cent of the working poor are wage and salaried workers, poverty is associated with job precariousness associated with changing patterns of work, such as the gig economy and underemployment (ILO 2016a). Women are, in general, disproportionately affected by poverty because of a wide range of factors relating to labour market entry barriers, access to education and finance, and their inordinately large share of household responsibilities.

32 The extreme poor are those with income or consumption below the international poverty line of US$1.90 in purchasing power parity (PPP) terms per capita per day, while the moderately poor are those living on between US$1.90 PPP and US$3.10 PPP per day (ILO 2016d). International poverty measures are a natural choice for cross-country studies, while national poverty lines are more relevant for in-depth country studies, as recommended in ILO (2013) for the EARN-1 and CONT-12 indicators.

▶ Table 3.9. Decent work indicators pertaining to poverty and working poverty

Decent work indicators	
Definition/computation	**EARN-1: Working poverty rate (WPR)***
	$$WPRe\ (\%) = \frac{\text{Number of employed persons living in households below the national poverty line}}{\text{Total number of employed persons}} \times 100$$
	$$WPReap\ (\%) = \frac{\text{Number of persons in the economically active population living in households below the national poverty line}}{\text{Total number of persons in the economically active population}} \times 100$$
	CONT-12: Poverty measures
	$$\text{Poverty incidence (headcount ratio)}(\%) = \frac{\text{Number of persons living in households with incomes below the poverty line}}{\text{Total population}} \times 100$$
	$$\text{Poverty gap index} = \frac{1}{N}\sum\frac{G_i}{z} = \frac{1}{N}\sum\frac{(z - y_i)}{z}$$
	where N is the total population, G_i is the poverty gap (poverty line (z) minus household income (y_i)).
Preferred sources of raw data	Household income and expenditure survey or living standards measurement survey, each with an employment module, labour force survey with a household income module (EARN-1)
	Household income and expenditure survey, household budget survey, population census (CONT-12)
Available sources of processed data	ILOSTAT, Eurostat database

Note: * Indicator to be disaggregated by sex (but can also be disaggregated by age group or another relevant characteristic). When calculating indicators for a particular group, the numerator and denominator must be adjusted accordingly.

Relationship with trade

The theoretical literature describes a number of channels through which international trade impacts poverty. Bhagwati and Srinivasan (2002), for example, invoke static and dynamic arguments. According to the static approach, trade openness in developing countries should lead to an increase in the income of the abundant factor (unskilled labour), thus helping to reduce poverty. In the dynamic approach, trade is characterized as an "engine of growth",[33] which ultimately helps to reduce poverty through the creation of higher-productivity jobs, resulting in higher wages and labour incomes. Both channels would also lead, via expansion of the tax base, to greater government revenues, which can be used for poverty reduction and social protection programmes. The picture is far more nuanced in reality, as the impact of trade in terms of poverty reduction may be impeded by rigidities in labour mobility and by limited effects on the extreme poor.

Proceeding from the assumption that working poverty largely affects low-skilled workers, neoclassical models (Heckscher–Ohlin) predict a decrease in poverty in developing and emerging economies. However, more recent theories, which incorporate firm heterogeneity and search and matching frictions, have shown that low-skilled workers could be negatively impacted even in developing countries (for example, because of skill-biased technological change). Ultimately, the impact of trade on poverty and on working poverty depends on appropriate policies being taken and on their effect on the availability of decent work and its multiple dimensions.

With respect to distributional effects across gender, trade can play a positive

33 Trade was first described in such terms by Robertson (1940).

role in empowering women and reducing poverty through, for example, the creation of employment opportunities in exporting sectors and lower discrimination due to greater competition. However, female poverty can increase when sectors with high female intensity of employment are negatively affected, and women may face more reallocation difficulties owing to gender-specific constraints. Again, policymakers and institutions have a crucial role to play in addressing distributional impacts.

Empirical evidence

The empirical evidence on the relationship between trade and poverty is ambiguous. China and India, home to a large proportion of the world's poor,[34] are the most commonly cited examples of a positive association between trade liberalization and poverty reduction. However, there is no confirmation of causality in the relationship in either case: trade liberalization is intertwined with profound structural changes to the economy of both countries. Some cross-country studies have found evidence of an association between trade liberalization and poverty reduction, but it is often not significant when one takes into account time effects (Mitra 2016) or other specific factors such as the political economy (Porto 2003) and heterogeneity in the effects of trade reforms on the poor (Le Goff and Singh 2014).

Two joint World Bank–WTO publications (2015; 2018) dealing with the topic of trade and poverty at the global and country level provide empirical evidence of the constraints faced by the extreme poor, who may not be able to benefit directly from trade openness. In particular, these publications contain studies of the differential impacts of trade liberalization in rural and urban areas (Depetris-Chauvin, Depetris-Chauvin and Mulangu 2018; Kunaka 2018) and of the situation of poor households in trade-exposed sectors (Magrini and Montalbano 2018).

Topalova (2007) argues that the positive findings from focusing on manufacturing industries in a number of studies (including Goldberg and Pavcnik 2004) do not apply to most of the moderate and extreme poor, who are generally own-account and informal workers in agriculture and services. Indeed, some studies focusing on sub-Saharan African economies (Singh and Huang 2015; Onakoya, Johnson and Ogundajo 2019) have found a negative association between trade openness and poverty (measured using the poverty headcount, poverty gap index and Human Development Index).

UNCTAD (2018) suggests that regional disparities caused by export concentration and mobility constraints can limit distributional gains for the poor, particularly in some countries that participate heavily in global supply chains. The hyperspecialization associated with participation in global supply chains may, moreover, make economies more susceptible to macro-level volatility (Kose and Riezman 2001).

In general, studies suggest a policy mix that covers export diversification (products and destinations), strengthening of the financial sector (Le Goff and Singh 2014), human capacity-building in exporting sectors (Jensen 2012; Onakoya, Johnson and Ogundajo 2019), and targeted policies and programmes be adopted to enhance the benefits of trade to reach the poor (Magrini and Montalbano 2018).

3.10. Status in employment

Definition and context

The "employment by status in employment" indicator provides information on the inherent characteristics of employment.[35] It classifies workers into two main categories: wage and salaried workers (or employees) and self-employed workers. The latter group consists of four additional categories: employers, own-account workers, members of producers' cooperatives and contributing family workers (sometimes referred to as unpaid family workers). Employment status is presented as a share of total employment

34 In 2011, India was home to 30 per cent of the world's extremely poor; it was followed in this ranking by Nigeria (10 per cent) and China (8 per cent) (World Bank 2015).

35 For more information, see: https://www.ilo.org/ilostat-files/Documents/description_STE_EN.pdf.

▶ Table 3.10. Decent work indicators pertaining to status in employment

Decent work indicators	
Definition/computation	**EMPL-8: Employment by status in employment (ESE)*** $ESE\ (\%) = \frac{\text{Number of employed persons in a given status in employment category}}{\text{Total employed population}} \times 100$ **EMPL-9: Proportion of own-account and contributing family workers in total employment (POACFW)*** $POACFW\ (\%) = \frac{\text{Total number of own-account workers+Total number of contributing family workers}}{\text{Total employed population}} \times 100$ **EMPL-10: Share of wage employment in non-agricultural employment (SENAE)*** $SENAE\ (\%) = \frac{\text{Number of employees in the non-agricultural sector}}{\text{Total employment in the non-agricultural sector}} \times 100$ **EQUA-4: Share of women in wage employment in the non-agricultural sector** $\text{Share of women in wage employment in the non-agricultural sector (\%)} = \frac{\text{Number of women in paid employment in the non-agricultural sector}}{\text{Total number of paid employment in the non-agricultural sector}} \times 100$
Preferred sources of raw data	Labour force surveys, other household surveys with an employment module, population censuses
Available sources of processed data	ILOSTAT, OECD employment database

Note: * Indicator to be disaggregated by sex (but can also be disaggregated by age group or another relevant characteristic). In the context of trade and labour market impacts, calculating this indicator at the industry level can yield valuable insights (as with labour productivity and informality). When calculating indicators for a particular group or industry, the numerator and denominator must be adjusted accordingly.

(table 3.10). These categories are based on the 1993 International Classification of Status in Employment (ICSE) and reflect the level of economic risk that workers face, the strength of their institutional attachment to their jobs, and the level of authority that they have in relation to other workers (ILO 2016d). In particular, own-account and unpaid family workers are less likely to enjoy formal work arrangements, social protection and other elements of decent work. For this reason, the proportion of workers in these two categories is a stand-alone decent work indicator (see EMPL-9 below).

The "employment by status in employment" indicator is strongly linked to the "employment by branch of economic activity" (section 3.4) and "informality" (section 3.11) indicators. Specifically, in high-income economies, where formal employment predominates, over 85 per cent of workers are wage and salaried workers, and less than 10 per cent are own-account or contributing family workers (ILO 2019c, 12, table 1.3). Conversely, in developing and emerging economies, a large proportion of the population are own-account workers (approximately half of all workers in low-and lower-middle income countries) or unpaid family workers (over 25 per cent of workers in low income countries, and over 10 per cent of workers in lower-middle income countries), who work predominantly in agriculture or the informal services sector. However, it should be noted that although status in employment and informality certainly correlate, the two indicators provide complementary insights into the structure and productivity of industries and into inter-industry and intra-industry labour reallocations.

The "employment by status in employment" indicator should be disaggregated by sex and age, whenever possible, since women and

young people are often over-represented in own-account and unpaid family work. For instance, women account for a large share of agricultural employment in developing countries (as own-account smallholder farmers or contributing family workers). Accordingly, the indicator EQUA-4 below, which relates to the "equal opportunity and treatment in employment" substantive element of the Decent Work Agenda, focuses on female wage employment in the non-agricultural sector.

Relationship with trade

Traditional trade theory assumes homogenous workers and does not differentiate between statuses in employment. In contrast, new-new trade theory provides a heterogenous worker framework that allows one to consider trade-induced changes to employment status distributions. These distributions may change, for example, as a result of between- and within-industry effects. The former are due to intersectoral reallocations across industries with different distributions, while the latter arise from intra-industry reallocations across different types of firms. Within-industry effects can also be caused by both the intensive and extensive margins of trade. Specifically, following liberalization, the expansion of surviving firms (intensive margins) and the entry of new firms (extensive margins), both of which tend to be more productive, lead to the hiring of more wage and salaried workers. At the same time, less productive firms exiting the market are likely to include smaller and often informal enterprises with higher shares of own-account and contributing family workers.

The higher productivity of surviving firms under new-new trade theory could also lead to more selective hiring, and displaced workers may then turn to own-account work, which would result in a smaller overall share of wage and salaried workers. For instance, if trade-induced productivity growth results in more capital-intensive production processes,

▶ **Table 3.11. Decent work indicators pertaining to informality**

Decent work indicator	EMPL-4: Informal employment rate (IER)*
Definition/computation	$IER\ (\%) = \frac{\text{Number of employed persons in informal employment}}{\text{Total number of employed persons}} \times 100$
Preferred sources of raw data	Labour force surveys, other household surveys (with an employment module)
Available sources of processed data	ILOSTAT

Note: * Indicator to be disaggregated by sex (but can also be disaggregated by age group or another relevant characteristic). In the context of trade and labour market impacts, calculating this indicator at the industry level can yield valuable insights (as with labour productivity and status in employment). When calculating indicators for a particular group or industry, the numerator and denominator must be adjusted accordingly.

and workers who lose their factory jobs turn to self-employment within the same industry or elsewhere (Menezes-Filho and Muendler 2011), the share of own-account workers could increase. Similarly, wage and salaried workers in negatively affected import-competing industries could turn to own-account work in the informal sector or be absorbed in agricultural employment as contributing family workers. Wage increases due to higher productivity could, moreover, raise the cost of formality, pushing firms at the margin into informality (Alemán-Castilla 2006), with an associated shift in the employment status distribution away from wage employment. At the aggregate level, changes in the various indicators related to status in employment depend on which countervailing effect prevails.

Empirical evidence

There are quite a few studies providing evidence of the effects of trade liberalization on informality (see section 3.11), wage and salaried employment (section 3.1) and the reallocation of workers across sectors. Much less research has been undertaken on the effects of trade liberalization on the adjustment for workers between employment statuses. This is mainly due to the lack of long-term data that could be used to monitor the situation of workers before and after the change in trade policy. In one of the few studies covering a developing country, McCaig and McMillan (2020) use household and labour force surveys to follow workers over ten years in Botswana during the period of trade liberalization in the Southern African Customs Union. They find no evidence of tariff reductions being associated with workers' movement across industries. However, they do find evidence of within-industry changes in employment status, namely an increase in the number of workers moving to informal firms or self-employment within the manufacturing sector.

3.11. Informality

Definition and context

The ILO has put forward three definitions of informality over the years, first defining the "informal sector" as unincorporated enterprises that may also be unregistered and/or small (ICLS 1993); then defining "informal employment" as employment without social protection (ICLS 2003); and, finally, in the Transition from the Informal to the Formal Economy Recommendation, 2015 (No. 204), defining the "informal economy" as both firms and workers not covered or insufficiently covered by formal arrangements. The informal employment rate is the share of employed persons who are in informal employment, with the detailed disaggregation being based on the guidelines contained in ICLS (2003). Wherever possible, the informal employment rate should be disaggregated by sex and age group because there are relatively high female and youth rates in many contexts (particularly in agriculture and low-productivity services). These high informality rates among women and young people are due, respectively, to gender-specific barriers (related to access

to education and skills acquisition) to formal sector employment and to the limited experience of young labour market entrants (with "young" referring to those aged between 15 and 24 years).

Relationship with trade

Neither classical nor neoclassical trade theory differentiates between types of employment. New and new-new trade theory provide a better framework for examining potential trade-induced changes in informal employment by virtue of their incorporation of the structural features of markets and firm and worker heterogeneity. At the aggregate level, changes in informality can be caused by both inter- and intra-sectoral effects, and the overall impact of these changes may not be clear-cut on a theoretical level. For example, some models suggest that both wages and formal employment should expand in exporting industries as productivity rises and greater opportunities induce more productive (formal) firms to enter the market (Melitz 2003). At the same time, higher wages increase the costs of formality, prompting the less productive firms to become informal (Alemán-Castilla 2006) or to exit the market altogether, with their workers often transitioning to informal jobs. Similarly, other models suggest that as trade raises average productivity and efficiency for exporting firms, hiring practices become more focused on worker quality, resulting in a decrease in formal employment and a rise in unemployment (Menezes-Filho and Muendler 2011). An ambiguous impact at the aggregate level may also be attributable to offsetting sectoral effects. Wage increases in exporting industries may be accompanied by greater informality (as the cost of formal employment increases), while wage declines in importing sectors result in less informality (Paz 2012).

Many models in new-new trade theory are based on the assumption that mobility between the formal and informal sectors within an industry may be greater than mobility across industries (Menezes-Filho and Muendler 2011; Goldberg and Pavcnik 2003). Firms optimize the share of formal and informal workers in response to tariff changes in each sector (Goldberg and Pavcnik 2003) or the level of regulatory enforcement (Ponczek and Ulyssea 2015). Specifically, competitive pressures following tariff cuts could lead firms to either become informal or hire relatively more informal workers. The response by firms also depends on the level of enforcement of labour regulations (Ponczek and Ulyssea 2015). Ulyssea (2018) developed a model with two margins of informality, whereby firms make a choice regarding their formality (whether or not to be registered) that determines the extensive margin (the share of formal and informal firms). Those firms that are formal (registered) must choose between hiring formal or informal workers (that is, "off the books") – a choice that determines the intensive margin (the extent of formality or informality of firms). Dix-Carneiro et al. (2019) use a structural equilibrium model to show that domestic policies aimed at reducing informality have a larger impact on welfare than policies aimed at reducing trade costs.

Empirical evidence

The informal economy accounts for a high share of employment in most developing countries and is generally characterized by lower wages and productivity in informal firms (La Porta and Shleifer 2014; Bacchetta, Ernst and Bustamante, 2009). The findings of studies on its relationship with trade liberalization are mixed. Some studies conclude that trade liberalization leads to a rise in formal employment (for example, McCaig and Pavcnik 2018, who look at the Vietnamese manufacturing sector), while others have found a negative association between trade openness and informal employment (Fiess and Fugazza 2012). The relationship between trade and informality can be decomposed at the sectoral level, where the overall effects depend on the differences between the changes in the exporting and import-competing industries. For instance, Paz (2014) found that during Brazil's trade liberalization episode from 1989 to 2001, domestic tariff cuts on imports increased the informal share of employment, whereas tariff cuts on imports by other countries (that is, tariff cuts on exports) decreased the informal share by a larger amount (therefore offsetting the increase). Alemán-Castilla (2006) found

that reductions in tariffs due to NAFTA were linked to a lower likelihood of informality in the tradable industries in Mexico, and particularly in the more export-oriented ones. Additionally, Ben Yahmed and Bombarda (2020) found that female and male formal employment shares can respond differently to trade openness. Although regional trade liberalization increases the probability of being formally employed for both men and women in manufacturing industries, the probability increases more for men than for women. In the services sector, trade liberalization decreases the probability of formal employment for low-skilled women.

Other studies have emphasized the role of institutions. For instance, Goldberg and Pavcnik (2003) found no evidence linking trade liberalization and informality in Brazil, where the labour market is relatively rigid, but they did find some evidence that liberalization increased informality in Colombia, where various reforms had increased labour market flexibility. They conclude that such flexibility is a key intervening variable in the relationship between trade openness and informality. Bosch, Goñi-Pacchioni and Maloney (2012) also studied the rise of informality in the wake of Brazilian trade liberalization and, similarly, found little evidence of the impact of trade liberalization on informality: it accounted for just 1 to 2.5 per cent of the increase in informality. In contrast, labour reforms, such as increased firing costs, more severe restrictions on overtime work and fewer restrictions on union activity, accounted for 30 to 40 per cent of the rise in informality. Ponczeck and Ulyssea (2015) found that regions in Brazil with a higher level of enforcement of labour market regulations experienced a lower rise in informality in the wake of trade liberalization. Moreover, Ponczek and Ulyssea (2017) conclude that the employment creation effects of trade liberalization could have been much larger if the enforcement of labour market regulations had been stricter in Brazil.

3.12. Social security

Definition and context

Social security refers to the provision of benefits to secure protection from lack of work-related income, inability to access affordable healthcare, insufficient family support, and general poverty and social exclusion (ILO 2013). Decent work indicators pertaining to social security include some statistical indicators and a number of important legal framework indicators. In the SDG framework, social protection coverage is also singled out as a key indicator of progress on sustainable development. The decent work-related statistical indicators include measures such as the share of the population above the statutory pensionable age benefiting from an old-age pension, the percentage of GDP going to public social security expenditure, and the share of the labour force contributing to a pension scheme. The legal framework indicators include unemployment insurance, maternal and parental leave, and provisions for the termination of employment (table 3.12). It is worth noting that some legal framework indicators have a statistical component (for example, coverage rates).

Relationship with trade

Social security is a crucial component in the labour market's adjustment to trade. It is also important to consider whether trade liberalization itself has an impact on social protection policy or coverage. In theory, such

▶ **Table 3.12. Decent work indicators pertaining to social security**

Decent work indicators	
Definition/computation	**SECU-1: Share of population above the statutory pensionable age (or aged 65 or above) benefiting from an old-age pension** $\text{Share of old-age pension beneficiaries (\%)} = \frac{\text{Number of old-age pension beneficiaries above statutory retirement age}}{\text{Total number of persons above statutory retirement age}} \times 100$ **SECU-2: Public social security expenditure (percentage of GDP)** $\text{Public social security expenditure (\%)} = \frac{\text{Total annual public social security expenditure}}{\text{GDP}} \times 100$ **SECU-4: Share of economically active population contributing to a pension scheme** $\text{Share of the economically active contributing to a pension scheme} = \frac{\text{Number of economically active contributing to an old-age pension scheme}}{\text{Total number of economically active population}} \times 100$
Preferred sources of raw data	Administrative records, household surveys, population censuses (SECU-1, SECU-4) National accounts, national social security scheme (SECU-2)
Available sources of processed data	ILOSTAT, OECD Social Expenditure Database
Related legal framework indicators	**L3: Unemployment insurance** **L7: Maternity leave** **L8: Parental leave** **L11: Termination of employment** **L16: Old-age social security or pension benefits (public/private)** **L17: Incapacity for work due to sickness/sick leave (income replacement in case of sickness/sick leave)** **L18: Incapacity for work due to invalidity (income replacement in case of non-occupational invalidity)**

an impact can be positive – for example, through growth and increased government revenues being channelled towards social protection, or through greater incentives to adopt social security legislation. Moreover, as employers experience higher growth rates through trade, theoretically, their gross share of social security taxes increase; in principal increasing government social security transfers. These transfers may also include unemployment and disability benefits. The impact could also be negative if liberalization leads to a rise in informality or to shifts towards certain employment statuses and working arrangements, which are associated with inadequate, limited or absent social protection coverage. As a result, countries social security programs may be compromised due to reduced tax cuts and lower economic growth.

Empirical evidence

Empirical studies on the impact of trade on social protection have found that globalization has led to a decline in employment protection legislation for both permanent and temporary workers in OECD countries (Fischer and Somogyi 2009). Some countries have, moreover, compromised their employment protection in order to attract foreign direct investment (Olney 2013). Desai and Rudra (2019) also find that countries with manufacturing trade surpluses have less social protection.

Based on evidence of a negative association between trade liberalization and social security in OECD countries, Rodrik (1997) suggests that globalization reduces government spending on social programmes. In contrast, Cameron (1978) and Rodrik (1998a; 1998b), cited in Rodrik (2018), show a direct link between exposure to trade and the expansion of public transfers in some countries. Avelino, Brown and Hunter (2005) find that trade openness is positively correlated to social security spending amongst 19 Latin American countries.

A negative association between trade and labour protection has also been observed for advanced economies in the context of regional trade agreements. Specifically, a study of 90 countries, covering the period from 1980 to 2005, found a negative association between such agreements and labour protection in advanced economies (reflected, for example, in reductions in the amount of severance pay given after 20 years of service and in reductions in unemployment benefits) in the case of agreements among high-income countries, but not in the case of agreements between high-income and low- or lower-middle-income countries (Häberli, Jansen and Monteiro 2012). The study found no evidence of such an association in low-income countries, while in middle-income countries, the impact of regional trade agreements on labour protection was either positive or negligible. Shaffer (2019) states that social security programs in United States "have been compromised because of reduced tax receipts" as a result of trade, and therefore suggests conditioning trade liberalization.

3.13. Working hours, working arrangements and non-standard forms of employment

Definition and context

The decent work indicators pertaining to working hours measure both the hours actually worked by an employee within a reference period and the share of employees who work excessive hours, with "excessive" defined as working more than 48 hours per week. As for working arrangements, the main indicator relating to the "stability and security of work" substantive element of the Decent Work Agenda is the precarious employment rate. Precariousness is defined as work that is low-paid (with a worker's earnings being close to or below poverty levels), offers inadequate employment protections, gives the worker minimal control over working conditions, and is not protected by laws or any collective agreements on issues relating to health and safety or discrimination (ILO 2012; 2016e). Non-standard forms of employment are defined by the ILO as temporary employment, part-time work, temporary agency work, work involving multiple parties and disguised employment relationships (ILO 2016e). Although non-standard employment has many features in common with precarious

employment, it is better to look at it through a prism of insecurity relating to such aspects of a job as employment, earnings, hours, occupational safety and health, social security, training, representation and other fundamental principles and rights at work. In advanced economies, non-standard employment also refers to the proliferation of "zero-hour" and "on-call" contracts (ILO 2016e).

Decent work indicators pertaining to non-standard forms of employment should be disaggregated by sex and age, since women and young people are often over-represented in certain employment categories (such as part-time work) and also because of the segregation of women into certain industries and occupations. Employment patterns in terms of working hours and arrangements are often specific to industries and occupations, which gives rise to a further channel whereby trade can have differential impacts across gender, age and skill groups.

Relationship with trade

The use of classical and neoclassical trade theories in the evaluation of non-standard employment has been limited since their assumptions often preclude a consideration of features of the labour market that are characteristics of such employment. However, many insights from modern trade theory, particularly new-new trade theory, can be used to examine the linkages between trade, working hours, working arrangements and non-standard forms of employment. Contemporary theories building on new-new trade theory consider aspects such as asymmetric information, exchange costs and contract theory, which allow a deeper investigation of the relevant indicators using worker and firm heterogeneity. However, most of the contemporary literature in this field has focused on working time, working arrangement and conditions linked to global supply chains (such as trade in tasks, the fragmentation of production processes and the offshoring of certain service tasks) and technological change (that is, automation and computerization). Studies on global supply chains focus on some industries' inherent characteristics (such as "just in time" production techniques) that have implications for firms and workers – in particular, firms resorting to less stable working arrangements and requiring long working hours from workers. Technological change and trade often make it possible to break occupations down into tasks many of which can be automated, computerized or offshored, and this often incentivizes firms to switch to nonstandard forms of employment.

Empirical evidence

In terms of working hours, a study by Burgoon and Raess (2011) using data from 18 European countries shows that the sectors with greater international trade and investment exposure do not necessarily exhibit differences in working hours, and that the institutional context is particularly important. For example, collective bargaining agreements significantly moderate any rise in working hours caused by greater trade and investment. Short-term contracts and irregular working hours have become increasingly widespread, notably in association with globalization driven by global supply chains and technological advances (ILO 2015a). In an examination of structural changes in the labour market of a wide range of developing countries and advanced economies, Lee and Eyraud (2008) find increases in non-standard forms of employment that are similar to the increases observed in national case studies from the Asia and the Pacific region. One particularly affected sector in developing countries is the garments sector, which has been associated with a high proportion of short-term contracts and highly variable working hours even within the same production units (for example, see a study of India by Bhaskaran et al. 2014). Global supply chains in the electronics sector are associated with high knowledge intensity requirements for supplier firms and strong linkages between lead and supplier firms. Nevertheless, the "volatility of orders and production is reflected in a high level of temporary and agency workers in tradable sectors in some countries and high levels of overtime in others", depending largely on domestic regulations (ILO 2015a). In India, the share of temporary, contractual and indirect wage employment in the electronics industry was just over 40 per cent in 2011–12. Moreover, such forms of employment were more prevalent (by approximately two

▶ Table 3.13. Decent work indicators pertaining to working time and arrangements

Decent work indicators	
Definition/computation	**TIME-1: Employment in excessive working time (more than 48 hours per week) (EEWT)** $EEWT\ (\%) = \frac{\text{Number of employed persons whose number of hours actually worked is more than 48 hours per week}}{\text{Total number of employed persons}} \times 100$ **TIME-2: Employment by weekly hours worked (EWHW)** $EWHW\ (\text{hour band (i)})\ (\%) = \frac{\text{Number of employed persons whose weekly hours actually worked fell within hour band (i)}}{\text{Total number of employed persons}} \times 100$ The indicator can be calculated for part-time employment by using part-time working hours (usually defined as less than 35 or 30 hours per week, although thresholds vary across countries) as the hour band. **TIME-3: Average annual working time per employed person** $\text{Average annual hours actually worked per employed person} = \frac{\text{Total annual hours actually worked of all employed persons}}{\text{Total number of employed persons over the year}}$ **TIME-4: Time-related underemployment rate (TRU)** $TRU\ (\%) = \frac{\text{Number of employed persons who are in time-related underemployment}}{\text{Total number of employed persons}} \times 100$ Workers in time-related underemployment are those who are available and willing to increase their working time, but who worked a number of hours below a specified threshold during a reference period. **STAB-1: Precarious employment rate (PER)** $PER\ (\%) = \frac{\text{Number of persons who are in precarious employment}}{\text{Total number of employed persons}} \times 100$ Precarious employment includes casual workers, short-term workers or seasonal workers, and workers whose contract of employment allows their employer to terminate the contract at short notice or at will, with specific circumstances determined by national legislation and custom.
Preferred sources of raw data	Labour force surveys, household surveys with an employment module, establishment surveys, administrative records
Available sources of processed data	ILOSTAT, OECD employment database
Related legal framework indicators	**L5: Maximum hours of work** **L6: Paid annual leave**

thirds) among female workers (ILO 2015a). The deindustrialization of some advanced economies, such as the United States, over the past decade has similarly led to a rise in the prevalence of non-standard employment in the services sector, into which many of the workers who have lost their jobs have transitioned (Acemoglu and Dorn 2011).

At the firm level, econometric studies have shown that exporting firms and firms that participate in global supply chains as assemblers of final goods have, on average, larger shares of temporary workers (ILO 2017c). Although flexibility may be essential for firms in a competitive global environment, studies have shown that this can be achieved in a way that ensures decent work outcomes. In particular, "internal functional flexibility" (for example, worker training) can result in greater long-term gains than "external numeric flexibility" (where firms rely heavily on temporary workers) (ILO 2017c).

3.14. Occupational safety and health, non-exploitative work and labour standards

Definition and context

The "safe work environment" substantive element of the Decent Work Agenda refers primarily to occupational safety and health, while the "work that should be abolished" element refers to abusive or exploitative work, specifically child labour and forced labour (table 3.14). To ensure the protection of labour rights, the SDG framework emphasizes that safe and secure working environments must be promoted for all workers. The SDGs also highlight the importance of eradicating forced labour and ending modern slavery, including forced child labour.

▶ Table 3.14. Decent work indicators pertaining to occupational safety and health, non-exploitative work and labour standards

Decent work indicators

Definition/computation

SAFE-1: Occupational injury frequency rate, fatal

$$\textit{Fatal occupational injury frequency rate} = \frac{\textit{Number of new cases of occupational fatalities during the reference period}}{\textit{Total number of hours worked by workers in the reference group during the reference period}} \times 1{,}000{,}000$$

SAFE-2: Occupational injury frequency rate, non-fatal

$$\textit{Non-fatal occupational injury frequency rate} = \frac{\textit{Number of new cases of non-fatal occupational injury during the reference period}}{\textit{Total number of hours worked by workers in the reference group during the reference period}} \times 1{,}000{,}000$$

$$\textit{Non-fatal occupational injury incidence rate} = \frac{\textit{Number of new cases of non-fatal occupational injury during the reference period}}{\textit{Total number of workers in the reference group during the reference period}} \times 100{,}000$$

SAFE-4: Labour inspection (inspectors per 10,000 employed persons)

$$\textit{Labour inspection} = \frac{\textit{Number of labour inspectors}}{\textit{Total number of employed persons}} \times 10{,}000$$

ABOL-1: Child labour rate (CLR)

$$\textit{CLR (\%)} = \frac{\textit{Number of children in child labour aged 5 to 17}}{\textit{Number of children aged 5 to 17}} \times 100$$

Child labour refers to the engagement of children in prohibited work and, more generally, in types of work to be eliminated in accordance with national and international standards because they are socially and morally reprehensible.

ABOL-4: Forced labour rate

$$\textit{Forced labour rate (\%)} = \frac{\textit{Number of employed in forced labour}}{\textit{Total number of employed persons}} \times 100$$

Decent work indicators	
Preferred sources of raw data	National systems for the notification of occupational injuries (SAFE-1, SAFE-2, SAFE-4) Administrative data, household surveys, establishment surveys (SAFE-1, SAFE-2, SAFE-4) Household-based child labour surveys, labour force surveys with a child labour module, other household surveys with an employment module, establishment surveys conducted at children's workplace, population censuses (ABOL-1) Dedicated surveys, forced labour modules in household income and expenditure surveys, labour force surveys and child labour surveys, establishment surveys (ABOL-4).
Available sources of processed data	ILOSTAT
Related legal framework indicators	**L9: Child labour** **L10: Forced labour** **L14: Employment injury benefits** **L15: Occupational safety and health (OSH) labour inspection**

Relationship with trade

In theory, trade should improve working conditions through a virtuous cycle of productivity growth and upgrading of exporting industries. Although there may be short-term labour market disruptions, these are considered to be temporary: in the long term, competitiveness should foster improvements. However, a major concern regarding the impact of trade on employment quality is that trade-induced competitive pressures could result in non-compliance with labour standards and degradation of working conditions as countries (and firms) attempt to reduce costs and remain competitive, resulting in a "race to the bottom" (Lippoldt 2012; Doumbia-Henry and Gravel 2006).[36]

Institutions should play their part in addressing market failures and improving the labour market outcome of trade through, for example, the inclusion of labour provisions in trade agreements. Such specific trade-related initiatives can help to protect workers' rights and uphold international labour standards (ILO 2016c; 2017b).

Empirical evidence

Relatively few empirical studies have focused on the impacts of trade on occupational safety and health and on the elimination of exploitative work. For instance, Flanagan and Khor (2012) found a positive association between trade openness and the improvement of working conditions, which included lower rates of fatal on-the-job accidents in manufacturing. They also found that the impact of trade on labour conditions takes place mainly through the economic growth channel (rise in per capita GDP). Edmonds and Pavcnik (2006) found that an increase in trade openness by 1 per cent reduced child labour by 0.7 per cent, and that this effect was primarily achieved through income growth and poverty reduction. Busse (2004) found trade openness to be associated with a lower incidence of child labour, but that it had a significant negative impact with regard to forced labour and union rights.

In general, the empirical evidence suggests that inferior working conditions – as reflected, among other things, in child labour and lack of respect for rights to free association and collective bargaining – act as a deterrent to the foreign investment of multinational companies (Kucera 2001; Neumayer and de Soysa 2005, 2006, 2007; Newfarmer and Sztajerowska 2012).

Labour market institutions, such as through the inclusion of labour provisions in trade agreements has been associated with improvements in labour laws and regulations and in compliance with these at the micro level (ILO 2016b), including with regard to the elimination of forced labour and child labour in

36 For a review of early writings on trade and labour standards, see Servais (2009) and Corley-Coulibaly and Puri (2017).

global supply chains. However, it has also been noted that these provisions may not address the specificities of such supply chains (ILO et al. 2019). Complementary policies and instruments at the national and international level, such as social dialogue and workplace monitoring, are important in this respect (ILO 2016b).

3.15. Social dialogue

Definition and context

Social dialogue – which involves negotiation, consultation and any exchange of information between governments, employers and workers – and its institutions (such as trade unions and employers' organizations) and processes (such as collective bargaining) are central to decent work outcomes (ILO 2013). The decent work indicators under the "social dialogue" substantive element of the Decent Work Agenda comprise statistical indicators on trade union density, employers' organization density, collective bargaining coverage and labour strikes, along with a number of related legal framework indicators (table 3.15). Collective bargaining typically involves negotiations between trade unions and employers on matters involving wages, working time, and working conditions. The outcomes from negotiation offers protection to the workers as well as stability to the employers. Collective bargaining is a fundamental principle and right at work that is recognised by the international community (ILO, 2017a).

A further indicator in this area, the level of national compliance with labour rights (which captures violations of the rights to freedom of association and collective bargaining), has been incorporated into the SDGs (as indicator 8.8.2). The indicator is calculated by the Delphi method, whereby experts in labour law are asked to provide ratings, which are used to create evaluation criteria weights for the sub-indicators (Kucera 2002; Kucera 2007; Sari and Kucera 2011). Violations of labour rights are coded using a binary framework

▶ Table 3.15. Decent work indicators pertaining to social dialogue

Decent work indicators	
Definition/computation	**DIAL-1: Trade union density rate (TUR)** $TUR\ EES = \frac{\text{Trade union members who are employees}}{\text{Total number of employees}} \times 100$ $TUR\ EES{+}OAW = \frac{\text{Trade union members who are employees or own-account workers}}{\text{Total number of employees or own-account workers)}} \times 100$ $TUR\ EMP = \frac{\text{Trade union members in employment}}{\text{Total number of employed persons}} \times 100$ **DIAL-2: Employers' organization density rate (ED)** $\text{Employers' organization density rate (\%)} = \frac{\text{Number of employees working in enterprises belonging to an employers' organization}}{\text{Total number of employees}} \times 100$ **DIAL-3: Collective bargaining coverage rate (CBCR)** $CBCR\ EES = \frac{\text{Number of employees whose pay and conditions are determined by collective agreement}}{\text{Total number of employees}} \times 100$ $CBCR\ EES + OAW = \frac{\text{Number of employees and own-account workers whose pay and conditions are determined by collective agreement}}{\text{Total number of employees and own-account workers}} \times 100$ $CBCR\ EMP = \frac{\text{Number of employed persons whose pay and conditions are determined by collective agreement}}{\text{Total number of employed persons}} \times 100$ **DIAL-4: Days not worked due to strikes and lockouts** $\text{Days not worked due to strikes and lockouts per 1,000 workers} = \frac{\text{Time not worked by workers involved}}{\text{Total number of workers}} \times 100$
Preferred sources of raw data	Labour force surveys with data on union membership, administrative data, establishment surveys (DIAL-1) Labour force surveys, administrative data, establishment surveys (DIAL-2, DIAL-3, DIAL-4)
Available sources of processed data	ILOSTAT
Related legal framework indicators	**L19: Freedom of association and the right to organize** **L20: Collective bargaining right** **L21: Tripartite consultations**

and the scores are normalized over time.[37] The method also relies on the assumption that any restrictions enshrined in law imply restrictions on practice but not vice versa with regard to freedom of association and collective bargaining rights (ILO 2018b).

37 A detailed list of sub-indicators of violations is provided in ILO (2018b). These violations are counted using mainly six groups of ILO sources: reports of the Committee of Experts on the Application of Conventions and Recommendations; reports of the Conference Committee on the Application of Standards; country baselines under the ILO Declaration Annual Review; representations under Article 24 of the ILO Constitution; complaints under Article 26 of the ILO Constitution; and reports of the Committee on Freedom of Association.

Relationship with trade

Freedom of association and collective bargaining rights are often understood as "civic" rights for workers (Portes 1994). The conferral of these rights leads to higher labour costs and higher rates of unionization across industries, including trade-intensive ones.[38] A neoclassical perspective would suggest that this rise in labour costs is likely to lower the trade competitiveness of countries that are abundant in labour. However, these direct labour costs have to be juxtaposed against the advantages arising from the greater democracy and economic stability associated with freedom of association and collective bargaining rights, which enhance a country's attractiveness as a destination for foreign direct investment and lead to greater engagement by multinational enterprises.

The literature on trade and labour markets also focuses on union activity as an intervening variable in relation to the employment and wage impacts of trade, particularly the wage–employment trade-off (Jansen and Lee 2007; Arbache 2004). For instance, different models show that increased price elasticity of demand as a result of trade openness leads to lower firm rents (profits) and more concessions by trade unions (Freeman and Katz 1991; Huizinga 1993). Although unions may be more likely to focus on employment than on wages when faced with a negative shock (Arbache 2004), this is not guaranteed: some studies have found that collective bargaining causes the gains from trade reform to be reflected in higher wages, rather than in employment growth (Felbermayr, Prat and Schmerer 2011).

The reverse side of the equation, namely the impact of trade on collective labour rights, has also been the subject of many studies. These often highlight a decrease in unionization rates and erosion of collective labour rights (unionization and collective bargaining rights, the right to strike, and so on) in connection with trade liberalization. In advanced economies, firms secure compromises from workers through "credible threats" of moving their operations elsewhere, and workers are reluctant to join unions and undertake active efforts to improve working conditions for fear of losing their jobs (Berik 2011).

Empirical evidence

The findings of studies on the impact of freedom of association and collective bargaining rights on trade are mixed in terms of both the direction and magnitude of effects. Kucera and Sarna (2006) use a gravity model to show a positive relationship between stronger trade union rights and higher total manufacturing exports, but acknowledge that these results were highly susceptible to the model specification. A range of other studies identify a similar positive relationship between stronger rights and higher manufacturing wages (Rodrik 1999; Belser 2001; Kucera 2001). However, Busse (2002), using an alternative OECD measure for trade union rights in a study covering roughly 85 countries, finds a negative relationship between stronger rights and exports. In a study based on a sample of 30 countries, Dehejia and Samy (2004) find no evidence of an impact of unionization rates on export performance.

Looking at the relationship the other way round, the findings on the effects of trade on collective labour rights are also mixed. Some empirical studies have found a negative impact of trade openness on union rights (Busse 2004) or on summary measures of collective labour rights (Mosley and Uno 2007). Dumont, Rayp and Willemé (2010) and Abraham, Konings and Vanormelingen (2009) found a negative association between trade liberalization and bargaining power, specifically that increased import competition from low-wage countries and the offshoring of low-skilled jobs resulted in decreased bargaining power. Other studies have found a weak relationship or one that is conditional upon certain labour market institutions (Scruggs and Lange 2002).

Nevertheless, some studies have found trade openness to be associated with lower violations of freedom of association and with effective recognition of the right to collective bargaining (Neumayer and de Soysa 2006). One study on Chile also found that sectors

38 A broader definition of freedom of association and collective bargaining rights would incorporate the wider component of democracy.

with higher levels of trade openness had higher labour unionization rates, and that this accounted for most of the wage premium that those sectors' workers had vis-à-vis workers in less open sectors (Friedman et al. 2012).

The findings on trade union rights and foreign direct investment (FDI) have proved to be equally ambiguous. Busse (2003) found a positive relationship in a sample of roughly 69 countries, as did Busse, Nunnenkamp and Spatareanu (2011) in a sample of 30 source countries and 80 host countries. Mosley and Uno (2007) similarly found that FDI inflows were positively associated with collective labour rights, and concluded that the ways in which a country participated in global production networks played an important role in the impact of globalization on workers' rights. They also found a positive correlation between collective labour rights and a number of other factors, including domestic institutions and the labour rights in place in neighbouring countries. In contrast, Kucera (2002) did not find any significant relationship between freedom of association and collective bargaining rights and FDI in a sample of 130 countries, while Blanton and Blanton (2007) found that these rights were associated with lower FDI flows in 35 developing countries.

4 Concluding remarks

Chapter 4. Concluding remarks

While the impact of trade in terms of employment and wage impacts has been extensively studied (albeit with a few gaps), its effects on labour relations, working terms and conditions that are essential to decent work have been analysed to a far lesser degree. This has mainly been due to inadequate theoretical frameworks and methodological approaches on the one hand, and to limited data availability on the other. Many of these challenges have been successfully tackled in recent years. The purpose of this Guide was to take stock of the latest research on trade and decent work and to propose a broader set of relevant labour market indicators. The Guide and its companion publication, Trade and Decent Work: Handbook of Assessment Methodologies, together make up a toolkit for trade and labour market diagnostics which can be used for a comprehensive assessment of the labour market effects of trade that is in line with the objectives of inclusive growth, full employment and decent work for all, and therefore consistent with a human-centred approach to trade.

The methodologies and indicators used in such assessments should be selected after careful consideration of the various factors involved:

- **Data and resource availability or constraints**, which differ across countries depending on their level of economic (and institutional) development.
- **Suitability of the assumptions** underlying theoretical models and implementation methods in view of the country being studied, the specific objectives of the study, and the strengths and weaknesses of the available methods.

- **Relevance of the indicators** to the country being studied. While indicators of employment opportunities and structural impacts may be relevant in all contexts, certain indicators of labour relations, working terms and conditions may be more important in some contexts than others. For example, in advanced economies, indicators relating to contractual arrangements, working hours and so on are likely to be more relevant than informal employment or the incidence of child labour, while the opposite may be true of some emerging and developing economies.

The analysis presented in this Guide has highlighted how various contextual and intervening factors affect the relationship between trade and labour markets, resulting in divergent outcomes across countries. It is important to consider different levels of impact – by conducting analyses at the national and regional level, and at the industry, firm and worker level – and to use disaggregated data in order to capture the differential effects of trade. The Guide points out the crucial role of policies and institutions in addressing these effects and ensuring that the potential benefits of trade are spread more widely. Robust analysis of the labour impact of trade can help in developing a policy mix that is effective and takes into account, among other factors, a country's level of economic and institutional development.

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Appendix I

Table A1. Overlapping decent work indicators and SDG indicators[1]

Indicator grouping	Decent work indicator	Corresponding SDG indicator(s) and tier
Unemployment (table 3.2)	Unemployment rate	8.5.2: Unemployment rate, by sex, age and persons with disabilities [tier I]
	Youth not in employment, education or training	8.6.1: Proportion of youth (aged 15–24 years) not in education, employment or training [tier I]
Employment by branch of economic activity (table 3.4)	Employment by branch of economic activity	* 8.9.2: Proportion of jobs in sustainable tourism industries out of total tourism jobs [tier III]
		* 9.2.2: Manufacturing employment as a proportion of total employment [tier I]
Labour productivity (table 3.6)	Labour productivity (GDP per employed person, level and growth rate)	8.2.1: Annual growth rate of real GDP per employed person [tier I]
Labour share of value added and income inequality (table 3.7)	Labour share of gross value added	10.4.1: Labour share of GDP, comprising wages and social protection transfers [tier II]
Employment by occupation/skill level (table 3.5)	Female share of employment in senior and middle management	5.5.2: Proportion of women in managerial positions [tier I]
Wages (table 3.8)	Average hourly earnings by occupational group	8.5.1: Average hourly earnings of female and male employees, by occupation, age and persons with disabilities [tier II]
		* 2.3.2: Average income of small-scale food producers, by sex and indigenous status [tier II]
Poverty and working poverty (table 3.9)	Working poverty rate	1.1.1: Proportion of population below the international poverty line, by sex, age, employment status and geographical location (urban/rural) [tier I]
Informality (table 3.11)	Informal employment rate	8.3.1: Proportion of informal employment in non-agriculture employment, by sex [tier II]
Social security (table 3.12)	Share of population above the statutory pensionable age (or aged 65 or above) benefiting from an old age pension	1.3.1: Proportion of population covered by social protection floors/systems, by sex, distinguishing children, unemployed persons, older persons, persons with disabilities, pregnant women, newborns, workinjury victims and the poor and the vulnerable [tier II]
Occupational safety and health, non-exploitative work, and labour standards (table 3.14)	Occupational injury frequency rate, fatal	8.8.1: Frequency rates of fatal and non-fatal occupational injuries, by sex and migrant status [tier II]
	Occupational injury frequency rate, nonfatal	8.8.1: Frequency rates of fatal and non-fatal occupational injuries, by sex and migrant status [tier II]
	Forced labour rate	8.7.1: Proportion and number of children aged 5–17 years engaged in child labour, by sex and age [tier II]
Social dialogue (table 3.15)	Collective bargaining coverage rate	8.8.2: Level of national compliance with labour rights (freedom of association and collective bargaining) based on ILO textual sources and national legislation, by sex and migrant status [tier II]

Note: * The ILO is not the custodian of these SDG indicators, but they are linked to the decent work indicators.

1 The ILO is also custodian of two other SDG indicators not linked to the decent work indicators: 8.b.1 Existence of a developed and operationalized national strategy for youth employment, as a distinct strategy or as part of a national employment strategy [tier II]; and 10.7.1 Recruitment cost borne by employee as a proportion of yearly income earned in country of destination [tier II].

Trade and decent work: Indicator guide

The purpose of the Indicator Guide is to provide analytical tools, which can support further research on trade and decent work. It offers a broad set of labour market indicators for trade policy assessment that can be used in studies on the nexus between trade and employment, labour relations, and working terms and conditions. To that end, the Guide singles out and contextualizes those of the ILO's decent work indicators that are suitable for analysing the impact of trade policy on the labour market. It also facilitates the use of these indicators in macro, sectoral and micro assessments of the impact of trade on the labour market at the country level by providing an overview of measurement approaches, relevant data sources, links to trade theory and empirical evidence.

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