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► Integrating trade and decent work

Volume 1

Has trade led to better jobs?

Findings based on the ILO's Decent Work Indicators

Edited by Marva Corley-Coulibaly, Pelin Sekerler Richiardi and
Franz Christian Ebert



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► Abbreviations

ADB-MRIO	Asian Development Bank multi-regional input–output
ASEAN	Association of Southeast Asian Nations
CEACR	Committee of Experts on the Application of Conventions and Recommendations (of the ILO)
CFCL	Federal Centre for Labour Conciliation and Registration (Mexico)
CGE	computable general equilibrium
COMESA	Common Market for Eastern and Southern Africa
EU	European Union
GATT	General Agreement on Tariffs and Trade
GPM	Global Policy Model (United Nations)
GSC	global supply chain
GSP	Generalised Scheme of Preferences
GTAP	Global Trade Analysis Project
GVC	global value chain
IMSS	Mexican Institute for Social Security
INEGI	National Institute for Statistics and Geography (Mexico)
LEED	linked employer–employee dataset
LFPR	labour force participation rate
MFN	most favoured nation
NAFTA	North American Free Trade Agreement
NAICS	North American Industry Classification System
NTM	non-tariff measure
OSH	occupational safety and health
RTA	regional trade agreement
SADC	Southern African Development Community
SAM	social accounting matrix
SMART	Software for Market Analysis and Restrictions on Trade
SMEs	small and medium-sized enterprises
STEM	science, technology, engineering and mathematics
USMCA	United States–Mexico–Canada Agreement
WTO	World Trade Organization

► Foreword

In June 2023 the “World of Work Summit: Social Justice for All” event during the ILO’s annual International Labour Conference served as a platform for the leaders from multilateral organizations involved in trade and human rights, as well as governments and representatives of workers and employers, to reflect on the crucial social aspects of trade. The discussion underscored that international trade has undoubtedly brought about significant advancements in the world, fostering prosperity and interconnectedness. It also emphasized that concerted efforts must be made to ensure that workers and firms that have not yet reaped the benefits of trade have their fair share of them in the future.

The question is not whether countries should participate in international trade, but rather how they should do so in a way that more fully takes account of both the quantity and quality of the jobs being generated. This volume, the first of a two-volume set entitled *Integrating trade and decent work*, offers a framework for analysing and taking action to address this challenge in a more rigorous and structured way. It utilizes a specific set of decent work indicators tailored to the unique circumstances of each country to conduct comprehensive assessments of the effects of trade on the labour market at the macro, sectoral and micro levels. Such analysis can better inform policies to promote trade while enhancing the well-being of workers.

The volume also explores the role of labour market institutions and the policies necessary to sustain them. These include strengthening legislative and institutional frameworks to support decent work; providing adequate assistance for workers who are affected; creating an enabling environment for firms; and fortifying the domestic institutions responsible for implementation, particularly in the context of specific labour market needs linked to informality and skills. Ultimately, supporting meaningful tripartite dialogue between governments and the social partners – workers’ and employers’ representatives – is crucial if we are to foster a sustainable pathway for empowering workers and improving the competitiveness of enterprises. By undertaking these concrete actions, we can pave the way for a more equitable and prosperous society.

Finally, the volume highlights the important ways in which the ILO has offered support to promote decent work within the context of international trade. Established over a century ago, the Organization has been dedicated to fostering fair and equitable working conditions within and across borders. The principle embedded in the preamble to the ILO Constitution – that

neglect of humane labour conditions by any nation poses a formidable barrier for other nations aspiring to enhance the welfare of their own citizens – remains as relevant today as ever.

This volume is part of a larger body of work which the ILO is undertaking to carry forward the “human-centred approach” framed by its Centenary Declaration for the Future of Work (2019). Representing the interests of its 187 Member States, including their social partners, the ILO has a crucial role to play in global discussions concerning trade and labour. We hope this volume helps to strengthen the foundations of policy dialogue, development and coherence within and between nations and international organizations on this crucial topic.

Richard Samans
Director, ILO Research Department

► Introduction

Marva Corley-Coulibaly, Pelin Sekerler Richiardi and Franz Christian Ebert

In the aftermath of the COVID-19 pandemic and in a period characterized by geopolitical tensions, different voices about the future of globalization are heard. Some predict its retreat (Foroohar 2022; Keller and Marold 2023), while others insist that it is still “alive and well” (Bedoya 2023). Despite the fact that the pandemic exposed supply chain vulnerabilities (see, for example, Ferreira et al. (2021)), there was a quick rebound of international trade. Trade increased from a pandemic low of around 25 per cent of global output in 2020 to 34 per cent in 2022, which is higher than pre-pandemic levels and serves as a clear indication of trade’s resilience (UNCTAD 2023). These trends also carry implications for the hundreds of millions of workers whose livelihoods rely on trade-oriented industries.¹

Undoubtedly, trade has generated job opportunities for all skill levels in both developed and developing economies, helping to lift millions out of poverty (WTO and World Bank 2018; OECD 2009). The evolving trade dynamics in developing and emerging economies have also resulted in notable gains in employment prospects for both young people and women (Kpognon, Ondoa and Bah 2020; ILO 2021b). This trend has become so pronounced that women now constitute a large part of the workforce in export-oriented manufacturing industries across numerous countries.² Although, in economies belonging to the Organisation for Economic Co-operation and Development (OECD), the share of women linked to trade-oriented jobs is 37.4 per cent (OECD 2021), in South-East Asia women represent 45 per cent of all jobs associated with global supply chains (GSCs) (Viegelahn, Huynh and Kim 2023). This entry of women into the formal labour market has boosted not only their income but also their engagement in society at large (UNDAW 1999; Dejardin 2008).

At the same time, the benefits of trade have not been distributed evenly, either across countries with diverse resources and capacities (WTO and World Bank 2018) or across sectors with different production patterns. Even within the same sectors, firms and workers with different characteristics have seen

1 Roughly 347 million workers in 2018 were in domestic employment embodied in gross exports in 51 countries where estimates were available (OECD 2021).

2 In the textile industry, female workers constituted 60.5 per cent of the total workforce in Bangladesh and 68 per cent in Viet Nam (Matsuura and Teng 2020; Svarer, Meiers and Rothmeier 2017).

a range of different effects, with more productive firms and more skilled workers often faring better (WTO 2017). Thus, trade has been linked to the rise of income inequalities. The existing literature has extensively examined the skill premium and its determinants as the primary mechanism by which trade influences income disparities (Acemoglu 2003; Goldberg and Pavcnik 2007; WTO and ILO 2017; Adão et al. 2022). However, less attention has been paid to other aspects of employment that have an impact on the quality of work, such as working terms and conditions that include, for example, status of employment, hours of work and provision of social security.

Two previous ILO publications, *Trade and Decent Work: Indicator Guide* (2021b) and *Trade and Decent Work: Handbook of Assessment Methodologies* (2021a), offer a framework based on a set of indicators and methodologies for undertaking more comprehensive assessments of the effects of trade on the labour market. The Guide proposes a toolkit of labour market indicators based on the ILO's Decent Work Indicators (ILO 2013), while the Handbook analyses relevant analytical frameworks, highlighting the need to employ them in a complementary manner to avoid a partial view of trade impacts. In this way, these two publications provide a road map to conduct studies that offer a more comprehensive picture of the labour effects of trade.

The first volume of this two-volume set picks up where the Guide and Handbook leave off, providing a comprehensive framework for assessing the impact of trade on the labour market and concrete examples of trade impacts in specific countries. It also explores labour market policy options to ensure that trade contributes to – rather than hampers – decent work. The second volume focuses on trade policies and how they have been used as a tool in their own right to address labour market challenges, especially in the area of labour rights.

The objective of both volumes is to better align trade and labour market policies to achieve decent work outcomes. This has implications for domestic, regional and global policy objectives, particularly in accelerating progress towards attaining the Sustainable Development Agenda – notably Sustainable Development Goal (SDG) 8 (“Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all”). This is all the more important today as trade is undergoing a transformational process. The move towards regionalization and more resilient GSCs, and the change in the composition of trade fuelled by digitalization and climate change (WTO 2018, 2022), are emerging trends

with vast implications for the world of work (Baldwin 2020). Thus, related policies must be transformational as well.

In light of this, Volume 1 is divided into three sections:³

Part 1 deals with the tools and techniques that are employed to study the links between trade and labour. In order to achieve a more realistic analysis of such links, it is first necessary to evaluate the adequacy of the tools currently used. This requires, on the one hand, a reflection on the indicators that represent trade and labour, and on the other, an assessment of the methodologies that are employed to make the link between them. To facilitate this endeavour, Corley-Coulibaly and Ghani (Chapter 1) examine the instruments of trade policy and evaluate their impact on employment and wages. In a second step, the authors focus on a broader range of labour market indicators which have scarcely been studied in the context of trade policy.

The following two chapters analyse methodologies that are commonly used in the field of economics to assess the impact of trade on the labour market, highlighting their strengths and weaknesses. Hernandez (Chapter 2) examines studies at the macro level (covering an entire economy) or at the meso level (covering one or more sectors) with the objective of clarifying their underlying assumptions, data requirements, advantages and limitations. Moving beyond the quantitative approaches, the chapter draws attention to qualitative and mixed methods, which tend to offer a more detailed picture of workers' experiences. Starting where the previous chapter leaves off, Aleman-Castilla and Rodríguez-Pueblita (Chapter 3) focus on micro methodologies that take firms and workers as units of analysis. They highlight the contribution of micro-level analysis to the design of effective trade and labour policies, complementing and nuancing the findings of macro-level and sectoral studies.

Part 2 conducts empirical analysis of trade impacts in three countries based on the methodologies presented in Part 1 (at macro, sectoral, firm and worker levels). All chapters highlight the heterogeneous nature of the effects of trade and the need for policymaking to take into account such heterogeneity to be effective. Two chapters focus on the labour effects of trade in Mexico, a country that is highly integrated in international trade. Moreno-Brid et al. (Chapter 4) use input-output methods to explore the effects that the rise in final and global value chain (GVC)-related exports in the automotive sector have had on decent work in the aftermath of the North American Free Trade Agreement (NAFTA). The authors argue that, while Mexico has improved its

3 For more detailed summaries, emphasizing each chapter's policy recommendations, see the "snapshots" for the contributions in this volume available at ilo.org/ITDW.

engagement in automobile-sector GVCs, this has not been accompanied by the expected employment gains or progress towards decent work. Meanwhile, Aleman-Castilla (Chapter 5) combines firm- and worker-level (micro) data to analyse the differences in terms of labour market outcomes between the manufacturing and non-manufacturing sectors in Mexico. He finds that manufacturing firms exposed to globalization seem to offer better working conditions. However, further trade liberalization does not seem to have helped to reduce working poverty or excessive working hours, nor has it improved the representation of women in managerial positions.

Sekerler Richiardi, Ghani and Pham (Chapter 6) turn to Viet Nam, a country whose integration in international trade has increased over recent decades. Using micro data and techniques, the authors explore the links between exporting and importing in small and medium-sized enterprises (SMEs) and several decent work indicators. They find that trade is positively associated with the presence of written formal contracts, and social protection coverage represented through insurance for healthcare, unemployment benefits and sick leave. Next, Kankwamba (Chapter 7) explores the impact of tariff increases on female unemployment and the agricultural sector in Malawi. Combining a standard general equilibrium (GE) model with a top-down behavioural microsimulation, the author finds that a move towards trade restrictions would destroy over 1 million jobs in the country, affecting primarily women across the labour market but more markedly in agriculture.

Finally, **Part 3** focuses on the role of labour market institutions and the policies needed to support them, including innovative ways in which the ILO has provided support to ensure decent work in the context of trade. Chapters 8 and 9 focus on specific labour market needs linked to skills and informality and show the importance of comprehensive policy responses to address trade-related challenges. Kizu and Tumurchudur Klok (Chapter 8) examine skills development and lifelong learning as a policy area that is relevant to promoting inclusive trade for decent work. They draw on the ILO's country-level interventions under the Skills for Trade and Economic Diversification (STED) programme, highlighting its potential to help build resilience and foster sustainable development. Then, Ernst and Leung (Chapter 9) analyse the relationship between trade and informal employment and propose policy interventions to support the transition to formalization. In this regard, the authors discuss policies in the context of diversification, global and regional value chains (including the ILO Better Work programme) and digital transformation.

The volume's last chapter looks at the ILO's efforts to support countries in improving labour standards in relation to trade policy. Curtis and Echeverría Manrique (Chapter 10) examine the ILO's ongoing Trade for Decent Work

(T4DW) project, which provides technical cooperation to countries in the context of European Union (EU) trade arrangements. They then turn to the ILO's observation of workplace democratic processes in Mexico in the context of the United States–Mexico–Canada Agreement (USMCA). Both experiences can provide inspiration on how to strengthen ILO action to foster social justice and decent work in a trade context.

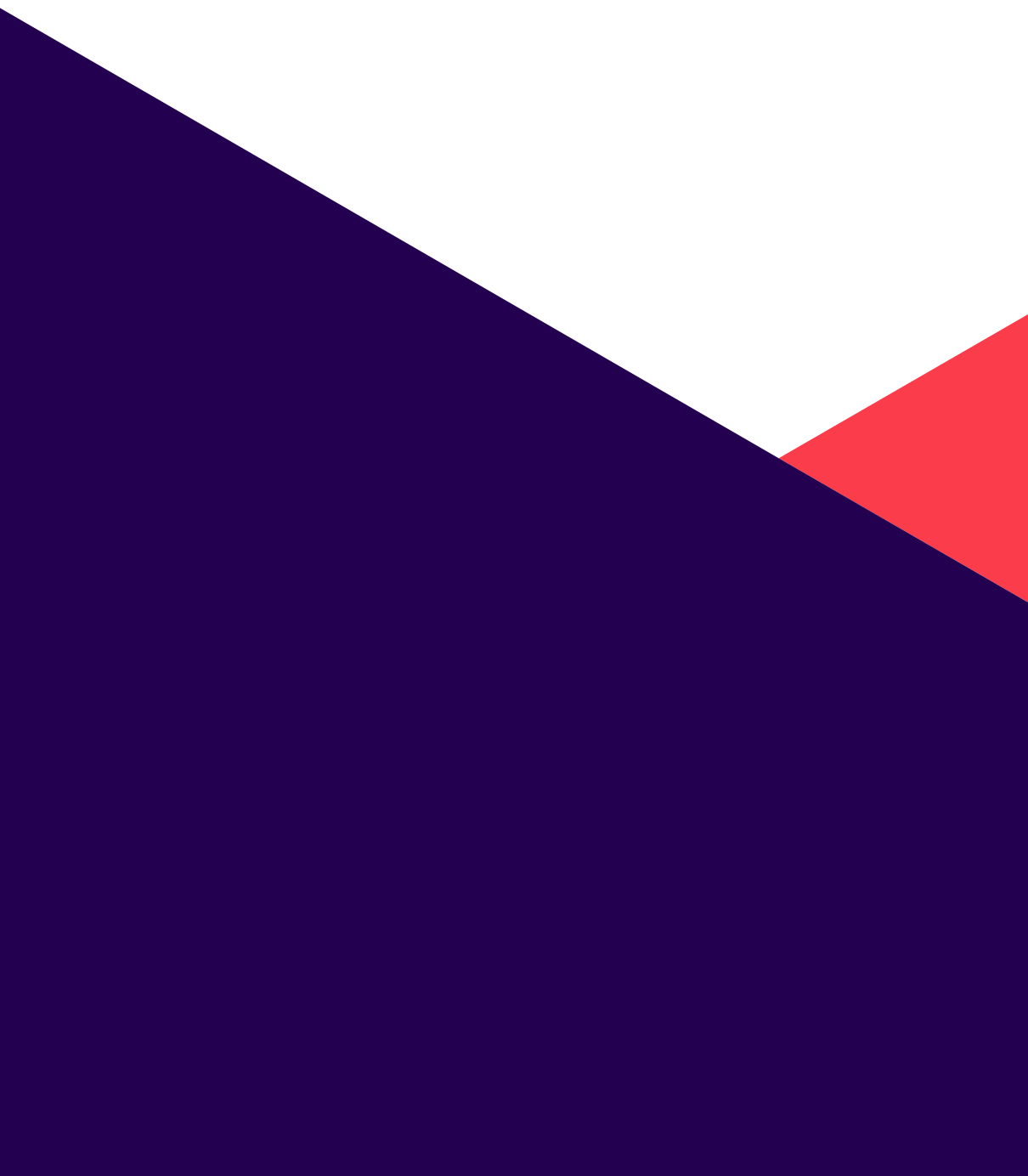
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Part 1

**Indicators and
methodological
frameworks at the macro,
meso and micro level**

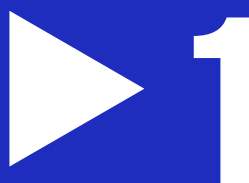


Trade policy and labour markets:

Indicators and evidence

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► Introduction

The world's growth and prosperity are heavily fuelled by international trade. In 2021 exports and imports constituted roughly 57 per cent of world gross domestic product (GDP), slightly down from a high of 61 per cent in 2008.¹ The value of world merchandise trade rose from roughly US\$1.1 trillion in 1977 to US\$22.5 trillion in 2021, while commercial services rose from US\$3.9 trillion in 2010 to US\$5.9 trillion in 2021.²

The transformative effects of international trade on economies, specific sectors and labour markets have been widely analysed over recent decades using a broad range of frameworks and indicators.³ Broad-based country-wide assessments have given way to sectoral and firm-level analysis. This shift has contributed to more in-depth analysis of the distributional effects of trade on the labour market, such as inequalities between and within capital and labour, countries, regions, and types of firms and workers (WTO 2017). However, the scope of analysis of the labour market remains markedly limited to employment and wage effects, albeit with more granularity.

Two recent ILO publications provide an in-depth analysis of the relationship between methodological approaches and data availability to explore the effects of trade on a wider set of labour market impact indicators. *Trade and Decent Work: Handbook of Assessment Methodologies* (ILO 2021a) critically reviews the theory and empirical models that have been utilized in the literature on the labour market effects of trade. *Trade and Decent Work: Indicator Guide* (ILO 2021b) highlights a set of labour market indicators, based on the ILO's Decent Work Agenda (ILO 2013), that allow a more comprehensive analysis of the labour market effects of trade. The two publications offer insights into research techniques and tools for studying the impact of trade on various aspects of employment, such as working arrangements, working conditions, and other qualitative elements related to "decent work".⁴

An underlying theme within both the Handbook and the Guide is that the heterogeneous nature of trade policies has important determinative effects on the channels through which trade affects labour markets and the

1 [World Bank World Development Indicators](#).

2 The value of merchandise trade is measured as the average of exports and imports (WTO 2022).

3 See WTO (2017) for a summary of the literature on the labour market effects of trade.

4 Decent work "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". (ILO Decent Work).

magnitude of this impact. Goldberg and Pavcnik (2016) draw attention to a dilemma between the conceptualization of trade policy and the focus of trade research. They argue that the emphasis of trade research has shifted from trade policy to trade frictions (such as transportation, information and communication costs). This shift is attributed to the challenges in measuring trade policy, and has resulted in the literature overlooking important changes in labour market and broader economic developments related to trade policy. Therefore, a comprehensive treatment of trade and labour market outcomes requires consideration of a wider range of dimensions of not only labour but also trade. To this end, the current chapter reviews the evolution of the effects of trade policy on the labour market, using a variety of trade and labour indicators. The different instruments of trade policy are based on the framework provided by UNCTAD and WTO (2012), which also disaggregates trade between trade flows, trade costs and trade composition for the purpose of theoretical and empirical applications of trade.

Section 1.1 opens with an overview of the relationship between trade and labour markets based on general trade policy goals and objectives. Section 1.2 presents a discussion of the various dimensions and indicators of trade policy, and the link with employment and wages based on the empirical literature. Section 1.3 turns to labour market indicators beyond employment and wages, especially in the context of analysing the effects of trade on decent work using the ILO's Decent Work Indicators. Section 1.4 concludes the chapter and suggests avenues for future research.

► 1.1 Historical context of trade policy and labour markets

Trade policies are the rules, regulations and formal practices that govern international trade. Throughout history, national, bilateral and multilateral trade policies have had an impact on and transformed labour markets around the world. These policies consist of a variety of actions and instruments for the general purpose of strengthening economic growth and development, promoting and protecting domestic industries, increasing domestic employment opportunities, enhancing consumer welfare, and cooperating with trade partners in areas of national interest. Thus, trade policy is often

inherently linked to labour market objectives (see Corley-Coulibaly, Grasselli and Postolachi, and der Boghossian, both in Volume 2).

Trade instruments, for the purposes of this chapter, fall into two broad areas: tariffs and non-tariff measures (NTMs). NTMs can include a range of measures that have an economic effect on the international trade of particular products, or products from particular countries or regions. They can also promote exports of particular domestic industries and set framework conditions for rules and cooperation in specific areas, including areas that promote general welfare. Most contemporary trade policies focus more on NTMs than on tariffs. Although the World Trade Organization (WTO) defines free trade as “rules dedicated to open, fair, and undistorted competition” (WTO n.d.), this ideal has proved to be fairly elusive over the years.

Tariffs, the oldest instrument of trade policy, are essentially taxes imposed on imported goods. They have historically been used for geopolitical purposes, to generate revenue or to limit imports in certain sectors (thereby protecting them from outside competition, especially in the case of infant industries). The concept of absolute and comparative advantage, central to classical trade theory, provides the case for a shift from autarky to free trade. The Ricardian two goods–one factor paradigm, in particular, offered a useful foundation for all countries and individuals to benefit from free trade. One of the earliest applications of tariffs was the Corn Laws, tariffs placed by the United Kingdom on various agricultural products in the nineteenth century to protect domestic agriculture. Although less common than import tariffs, export tariffs can be imposed, thus acting as a tax on a nation's exports.

Indeed, the first wave of globalization was ushered in at the beginning of the nineteenth century by stable low tariffs and the adoption of common monetary standards (López-Córdova and Meissner 2003; Collier and Dollar 2002). This straightforward yet well-coordinated trade policy, as well as a decline in other trading costs (for example, shipping and communication costs), led to the development of a global trading regime based on south–north flows of low-value-added raw materials and commodities and north–north flows of high-value-added manufactured goods – a trade arrangement institutionalized through colonialism (Mitchener and Weidenmier 2008; Beckert 2015).⁵

In terms of the labour market, a rise in routine factory work, rapid urbanization, higher productivity and higher wages for workers in advanced economies were all aided by the reduction in tariffs and opening of new

5 An industry-level example representative of this trend is provided by Beckert (2015) for the cultivation of cotton and its use in downstream industries.

international markets. However, this period was also characterized by widespread unfavourable working conditions, particularly in the industrial sector (Stearns 2013), as well as by the capitalization of low-skilled labour (Katz and Margo 2014). These adverse labour conditions included long working hours, lax safety regulations and precarious employment arrangements. Meanwhile, many developing countries' economies were being reoriented to facilitate commodity exports and natural resource extraction to link to manufacturing supply chains in the North (Wallerstein 1974).

During the period of the two World Wars (1914–45),⁶ trade policy became severely restrictive among the world's leading economies. This was exacerbated by the financial crisis of 1929, leading to the Great Depression. Tariffs were raised by a wide range of countries (for example, in the United States, the Smoot-Hawley Tariff Act of 1930 increased tariffs by an average of 40–48 per cent on over 20,000 imported goods); quotas were imposed on specific goods such as automobiles (Mitchener, O'Rourke and Wandschneider 2022); and imports from non-allied countries were severely curtailed in order to protect domestic industries through "beggar-thy-neighbour" policies.

However, following this turbulent time of conflict and sluggish economic growth, there was a revived interest in the reintegration of the global economy. There were significant tariff reductions among the advanced economies and the removal of other NTMs in a series of formal negotiations, or "GATT rounds", which started in 1947.⁷ The GATT framework aimed to liberalize international trade by treating each member equally under the most favoured nation (MFN) concept, but the system was dogged from the outset by the pervasive use of discriminatory practices. These practices included customs unions, free trade areas, preferential trade arrangements and voluntary export restrictions to (among other things) support regional integration (particularly European integration), to foster development in developing countries, and to protect domestic labour markets and specific industries (Pomfret 2001; Carpenter 2009).⁸ By 1985, "half of the major

6 O'Rourke (2018) provides a good overview of the decline in global trade in the 1930s.

7 The GATT (General Agreement on Tariffs and Trade) rounds consisted of the Geneva Round (1947 with 23 countries participating); Annecy Round (1949 with 13 countries participating); Torquay Round (1951 with 38 countries participating); Geneva Round (1956 with 26 countries participating); Geneva Dillon Round (1960–61 with 26 countries participating); Geneva Kennedy Round (1964–67 with 62 countries participating); Geneva Tokyo Round (1973–79 with 102 countries participating); and the final Geneva Uruguay Round (1986–94 with 123 countries participating). The final round led to the establishment of the WTO, which absorbed the function of facilitating the negotiation of multilateral agreements.

8 Although it can be argued that customs unions, free trade areas (Article XXIV) and preferential trade arrangements (1979 Enabling Clause) all fall under the scope of GATT rules, the same cannot be said of safeguard actions such as voluntary export restrictions (Carpenter 2009).

GATT signatories' imports [were] being granted other than MFN treatment" (Pomfret 2001, 126), and ultimately "only the least favoured nations pa[id] the MFN tariff; others pa[id] a preferential tariff or none at all" (Carpenter 2009, section 5). This situation led to a raft of new regional trade agreements (RTAs) in the 1990s that included deeper commitments on a range of non-trade issues such as investment, labour and the environment. Thus, the challenge that the WTO faced, once it had replaced the GATT system, was one of combining the many and various overlapping trade agreements into a coherent multilateral framework, or "multilateralizing regionalism", as Baldwin and Low (2009) described it.⁹

Alongside the proliferation of RTAs came rapid and extensive changes in trade composition, such as increased intra-industry (as opposed to inter-industry) trade, as well as the formation of agglomerated production clusters linked to GSCs in advanced economies. Participation in GSCs changed regional specialization patterns and dramatically increased trade in intermediate commodities. A strong theoretical framework for comprehending this phenomenon was provided by the "new trade theory" pioneered by Krugman (1979).

This period, which is frequently referred to as "hyperglobalization" (Rodrik 2011; Subramanian and Kessler 2014), is characterized by a stronger integration of the global South into the international trading system. This is underscored by the entry of China into the WTO in 2001, the increase in North–South RTAs, and the enhanced prominence of South–South trade. Additionally, intra-firm trade within multinational enterprises increased (Krugman 1995; OECD 2002), and by 2010 had reached 80 per cent of all trade within global production networks (UNCTAD 2013a). The *new* trade theory approach, developed by Melitz (2003), likewise changed the focus of the trade literature from industries and agglomerations to specific enterprises and workers.

The rise in female labour force participation and a corresponding increase in manufacturing formal employment helped to fuel this process of rapid industrialization, particularly in the four Asian tigers (Hong Kong, China; Republic of Korea; Singapore; and Taiwan, China). However, in the majority of developing economies, employment remained primarily concentrated in the agricultural sector or in the extraction of natural resources. Additionally, informality was pervasive (Ohnsorge and Yu 2022). In economies with high levels of informal employment, there were mixed labour market outcomes because of the generally weak labour institutional environment, which was

9 The GATT system refers to the 1947 agreement and the subsequent rounds of negotiations under its aegis.

linked, in many instances, to downward pressure on wages and working conditions. In advanced economies, the offshoring of production became linked to job polarization (an increase in low- and high-wage jobs and a decline in middle-wage jobs) (Firpo, Fortin and Lemieux 2011).

A shift in trade policy towards a more protectionist stance, which started around 2017 and was characterized by increased tariffs and quotas, laid the foundation for a strong reaction. This took the form of a trend towards “deglobalization”, which has been marked by a greater emphasis on regional trade, shortening of supply chains, heightened geopolitical considerations, and an overall decline in integration and interdependence between some economies. An example of this trend is the US–China trade war, which began in 2018 and has since seen a sustained drive towards the “decoupling” of the two largest trading economies in the world.¹⁰ In 2018 there was an increase in tariffs, most notably between the United States and China on a wide range of goods and services traded between the two countries.¹¹ The United Kingdom’s exit from the EU (Brexit), which resulted in widespread changes in tariffs between the United Kingdom and several of its largest trading partners, is another example of a significant change in tariffs.¹²

These trends have been accelerated even further by global health emergencies such as the COVID-19 outbreak and geopolitical crises such as the war of aggression in Ukraine. These events have widely disrupted supply chains on both the demand and the supply sides, prompting calls for “near-shoring” or “friend-shoring” – the systematic reorientation of supply chains towards like-minded nations. There is initial evidence of supply chain diversification at the firm level, including the decision taken by certain multinational enterprises to relocate production from China to Viet Nam in 2023, increased vertical integration of the automotive supply chain, and long-term supply agreements to replace energy, food and minerals originally sourced from the Russian Federation (*Economist* 2022; Lincicome 2022). It should be added that, in the wake of repeated crises, many GSCs appear

10 A variety of additional measures were also undertaken, including reductions in export licence approvals, software restrictions, delisting of companies from stock exchanges, and a decline in foreign direct investment.

11 US–China bilateral tariffs increased substantially between January 2018 and January 2020. In the case of the United States, they increased from 3.1 per cent to 21 per cent for Chinese goods, while in the case of China they increased from 8 per cent to 20.9 per cent for US goods (Bown 2020).

12 The United Kingdom has since been negotiating separate agreements with countries which were formerly trading with it under EU-wide agreements. See the [ILO Labour Provisions Hub](#) for a complete list of the RTAs signed by the United Kingdom in 2021.

to have become dysfunctional, and developing countries are struggling to preserve livelihoods and minimum living standards (UNCTAD 2022).

Furthermore, the suspension of the WTO's multilateral adjudicating function at the appellate level,¹³ and the replacement and modernization of RTAs, have led to a shift in the type and orientation of agreements currently being negotiated between countries, with a greater focus on regionalization and sustainability provisions. In particular, there is an emphasis on issues such as supply chain sustainability, corporate social responsibility, labour rights and gender, which has strengthened dialogue and cooperation surrounding these issues.

► 1.2 Assessing trade policy and labour markets

The existing body of theoretical and empirical research that examines the impact of trade policy on labour market outcomes employs a diverse set of measures to conceptualize the notion of trade. These trade measures are well summed up in UNCTAD and WTO (2012), which focuses on trade costs (through both tariffs and NTMs), trade flows (exports and/or imports), trade composition (at the industry and product level) and GSC participation (backward and forward linkages).

Table 1.1 lists some common trade policy instruments, their definition, and some impacts based on specific policy examples. The literature mainly limits impacts to trade costs, trade flows and welfare effects. Indeed, accurately measuring trade policy and its impacts, especially on labour markets, has proved to be a complex task, primarily as a consequence of the inherent challenges associated with quantifying and establishing a direct link between trade policy and its corresponding outcomes (Goldberg and Pavcnik 2016). This is the result of a combination of factors including the difficulty in measuring NTMs, the scarcity of data, endogeneity problems, and agency behaviour in terms of anticipation or uncertainty of trade policy. This is problematic because, as has already been mentioned, the outcomes of trade policy are heterogeneous and depend on the idiosyncrasies of the country,

¹³ As an alternative and temporary measure, the Multi-Party Interim Appeal Arbitration Arrangement, subscribed to by 25 Members, has been set up to arbitrate WTO disputes in the absence of a functioning WTO Appellate Body.

sector and other macroeconomic policies that are being enacted. In fact, one of the widely accepted effects of international trade is that it improves overall welfare while simultaneously having wide-ranging and long-lasting negative distributional impacts.

This section reviews traditional trade policy instruments, their measurement, and their direct or indirect relationship with labour market outcomes. It should be noted that, for the sake of clarity, each measure is listed separately and in its most disaggregated form. In practice, however, such measures are often employed in combination as part of an overall trade policy “stance” (UNCTAD and WTO 2012).

► **Table 1.1 Trade policy instruments, examples and impacts**

Trade policy instrument	Definition	Policy example and impacts
Tariffs	Taxes levied on imported goods	<p>Corn Laws of the United Kingdom (1815): The repeal of the Corn Laws led to increased grain imports, a subsequent decline in domestic production and reduced inequality (Irwin and Chepeliev 2020). The reduced inequality has mainly been attributed to location-specific redistribution of income from landowners to workers (Heblich, Redding and Zylberberg 2022).</p> <p>Smoot–Hawley Tariff Act (1930): Irwin (1998) finds that although the enactment of the Smoot–Hawley Tariff Act led to a decline in the volume of US imports of between 12 and 20 per cent, there were only small efficiency losses. However, retaliatory measures by other countries led to a decline in US exports of between 15 and 32 per cent and welfare losses of between 8 and 16 per cent (Mitchener, O'Rourke and Wandschneider 2022).</p>
Import quotas and tariff rate quotas	Import quotas are quantity restrictions on imported goods; tariff rate quotas combine import quotas and tariffs by allowing lower tier tariffs on a specific quantity of imports.	Dairy Import Licensing Program of the United States (1995): Langley, Somwaru and Normile (2006) show that removing US dairy tariff rate quotas will reduce domestic milk production by around 6 per cent, resulting in higher global dairy prices in the absence of countervailing measures.

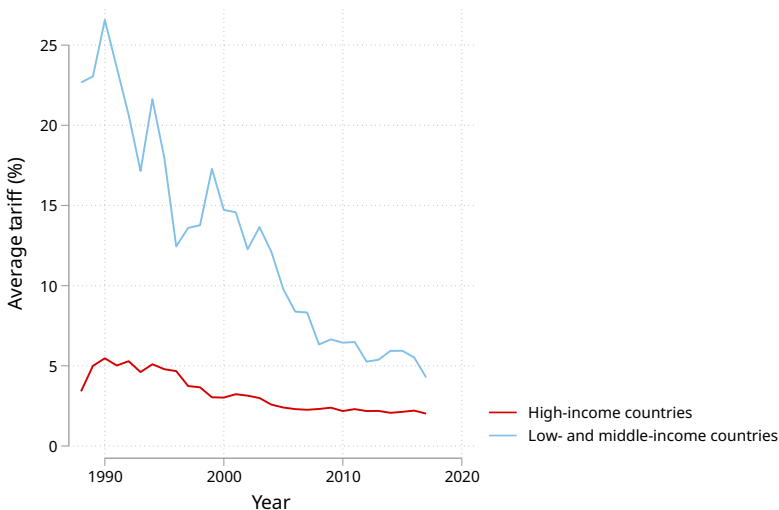
Trade policy instrument	Definition	Policy example and impacts
Anti-dumping measures	Duties levied on goods that are found to have a lower import price than the price in the exporter's domestic market	South Africa poultry anti-dumping measures (2001–22): Cochrane, Hansen and Seeley (2016) find that South Africa's anti-dumping duties imposed on US poultry imports, beginning in 2001, reduced such imports to practically zero and diverted trade to suppliers in the EU and other economies. Edwards et al. (2022) estimate that the price effects were passed along to consumers and contributed to a 40 per cent increase in poultry prices in South Africa between 2012 and 2021.
Voluntary export restraints (VERs)	A voluntary limit on the quantity of a specific good's export	Japan automotive imports to the United States (1981): Berry, Levinsohn and Pakes (1999) find that VERs raised domestic sales, increased profits of domestic companies, reduced consumer welfare and led to a substantial amount of foregone tariff revenue in the United States.
Export subsidy/export credit	A payment or subsidized loan to a firm or individual that ships goods abroad. It can be specific (a fixed amount per unit) or ad valorem (a percentage of the export value).	EU Common Agricultural Policy (1962): Borrell and Hubbard (2000) find that the policy has led to depressed prices of agricultural goods, overproduction in the EU, under-production outside the EU, and considerable negative costs, of around US\$75 billion to the global economy, due to misallocation of resources.
Technical barriers to trade (TBTs)	Measures stemming from countries' implementation of technical regulations and standards	TBT measures in the agricultural sector of developed countries (varying years): Disdier, Fontagné and Mimouni (2008) find that TBTs lead to a reduction in imports from developing countries but not developed countries.
Sanitary and phytosanitary measures/standards (SPS)	Measures used to protect humans, animals and plants from additives, toxins and contaminants	Hazard Analysis Critical Control Points introduced by the United States (1959): Anders and Caswell (2009) find that the measure reduced imports, but had a positive impact on trade flows from developed countries and a negative impact on trade flows from developing countries.
Sustainability provisions in trade agreements	Measures used to establish commitment, cooperation and/or compliance with environmental or labour standards	Labour provisions in trade agreements: Studies by the ILO (2016a) and Carrère, Olarreaga and Raess (2022) find that labour provisions in trade agreements do not reduce or divert trade but instead increase trade flows similarly to trade agreements without labour provisions.

Source: Authors' compilation.

1.2.1 Tariffs and labour markets

Tariffs have historically played a crucial function in the regulation of international trade. More generally, they have been used to achieve economic, political and social objectives, including as a component in the industrial strategy of many countries. Over recent decades, a reduction in tariffs has coincided with and supported the shift to liberal markets,¹⁴ and tariffs have been utilized as important tools for countries to adjust their trade policies towards regionalism or multilateralism (Rodrik 2011). Figure 1.1 shows how tariffs changed in relation to countries' income levels between 1990 and 2020. While relatively high tariffs were still maintained by low- and middle-income countries in the 1990s, they have since declined and are approaching convergence with those of advanced economies, which had previously undergone a wide range of tariff reductions throughout the GATT years. Nevertheless, differences remain across regions (figure 1.2) and industries.

► **Figure 1.1** Evolution of tariffs in countries by level of income, 1990–2020

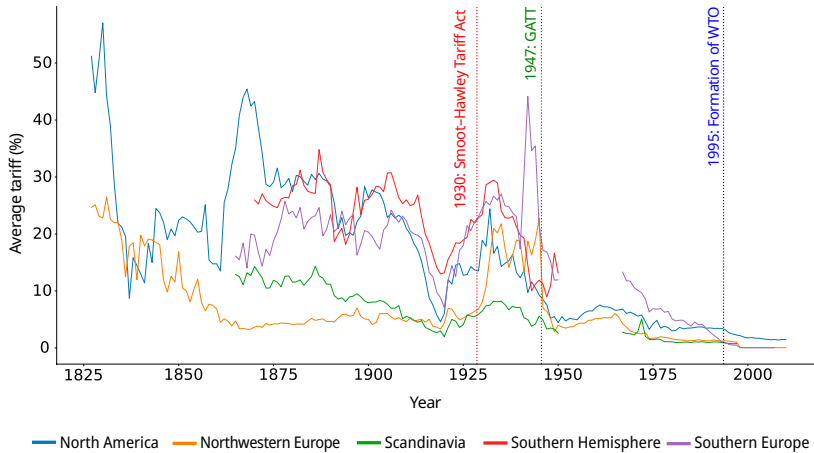


Note: The figure utilizes the weighted mean of applied tariffs for all products.

Source: World Bank World Development Indicators.

¹⁴ This includes changes such as freedom of capital movement and a general trend towards deregulation.

► Figure 1.2 Evolution of tariffs by region, 1825–2014



Source: Fouquin and Hugot (2016). The region Scandinavia includes economies based in modern-day Denmark, Finland, the Faroe Islands, Greenland, Iceland, Norway and Sweden. The region Northwestern Europe comprises economies based in modern-day Belgium, Switzerland, Germany, France, the United Kingdom, Ireland, Luxembourg, Monaco and the Netherlands. The region North America comprises economies based in the modern-day United States and Canada. The region South America comprises economies based in modern-day Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, the Falkland Islands, French Guiana, Guyana, Peru, Paraguay, South Georgia and the South Sandwich Islands, Suriname, Uruguay and Venezuela. The region Southern Europe comprises economies based in modern-day Albania, Andorra, Bosnia and Herzegovina, Cyprus, Spain, Gibraltar, Greece, Croatia, Italy, Kosovo, North Macedonia, Malta, Montenegro, Portugal, San Marino, Serbia, Vatican City and the former Yugoslavia.

In international trade, there are two types of tariffs that are imposed on goods and services entering or exiting a country. The first is *ad valorem*, which comprises a percentage of the value of the good or service in question. The second is *specific*, which comprises a fixed currency amount for a fixed amount of the good. The former remains predominant in international trade. Tariffs can be further disaggregated using multiple different distinctions and rates (see table AI.1 in Appendix I for types of tariff and data sources). Generally, all tariffs are applied at the product level using the Harmonized Commodity Description and Coding System, developed by the World Customs Organization to categorize products.¹⁵

¹⁵ The Harmonized System consists of more than 5,000 groups of products, each of which has a six-digit code. For more information see [World Customs Organization](http://www.wco.org).

Throughout history, various economic theories have provided the rationale for the implementation of tariffs, but neoclassical theories view tariffs as market distortions within a system of free trade. This concept has been further developed by modern trade theories that emphasize the role of factors such as economies of scale and network effects to provide a more nuanced understanding of the role of tariffs.

Many different objectives are frequently cited as grounds for using tariffs. To name but a few, these include the effects on domestic industries, consumers, labour markets, tax revenue, economic efficiency and income redistribution. First, tariffs can be used to safeguard domestic industries (the infant industry argument) until they are able to compete in foreign markets. Second, tariffs influence consumption patterns, making consumers less likely to buy more expensive imported goods in preference to their cheaper domestic counterparts. Third, tariffs can be used to achieve a wide range of labour market outcomes, which are primarily focused on improving job creation and incomes. Fourth, especially in the case of developing countries, tariffs are often a significant source of income for governments that have weak tax systems and constraints on other means of raising revenue. Finally, tariffs can have important effects on the income distribution of societies, either by increasing the cost of imported goods or by increasing profits and wages through the protection of domestic industries.

A wide range of research that has examined, in broad terms, the effects of tariffs on labour markets is listed in table AI.2 in Appendix I. When examining the effects of tariffs, there has traditionally been more emphasis on employment and wage consequences. Overall, these studies highlight some intriguing aspects regarding the effects of tariffs, such as the observation of significant variation by country type (advanced or developing), sector, worker and occupation.

One of the main conclusions of these studies is that, in reaction to tariff changes, wage adjustment often takes precedence over industry employment in developing and emerging economies (see, for example, the literature review provided by Goldberg and Pavcnik (2016)). Linked to this, additional research demonstrates that tariff changes only partially account for the rise in inequality in developing countries (Attanasio, Goldberg and Pavcnik 2004; Goldberg and Pavcnik 2005).

This is in sharp contrast to the effects observed in advanced economies, where changes in tariffs have led to steep changes in employment and smaller changes in wages. One common method for evaluating the changes brought about by tariffs is to consider how they affect import and export competition. There are numerous examples of this in the literature, with the

WTO's inclusion of China and its trading relationship with the United States serving as a notable example of how trade costs and uncertainty for China were significantly reduced. Examples of studies that assess the effects of exports/imports on labour market outcomes include those that focus most prominently on local labour markets, such as Autor, Dorn and Hanson (2013) and Feenstra, Ma and Xu (2019). In fact, there is a rich literature utilizing the impact of such import competition for a wide range of countries. Edwards and Jenkins (2015) show that increased Chinese imports led to a reduction in manufacturing output and employment in South Africa. Traiberman (2019) reviews the effects of import competition on the occupational structure in Denmark and finds that worker earnings were primarily impacted through the channel of occupational choice. Medina (2022), using data from Peru, finds that low-quality import competition leads to firms switching to production of higher-quality varieties and reducing prices.

In another instance of tariffs being reduced between a developing and an advanced economy, Faber (2014) examines the impact of US tariff reductions on Mexican consumers. He finds that, as tariffs are lowered, the import of cheaper, higher-quality goods from the United States increases real income inequality because of the different effects of inflation on household income. By contrast, Porto (2006) evaluates a similar framework for analysing the price effects of tariff reductions and shows that the benefits of MERCOSUR (the Southern Common Market) extend to low- and middle-income families in Argentina. In a more recent analysis of the price and wages channels, Borusyak and Jaravel (2021) find that the influence of trade on overall inequality is modest because the distributional effects of trade costs are concentrated within educational and income groups rather than between groups.

1.2.2 Non-tariff measures and labour markets

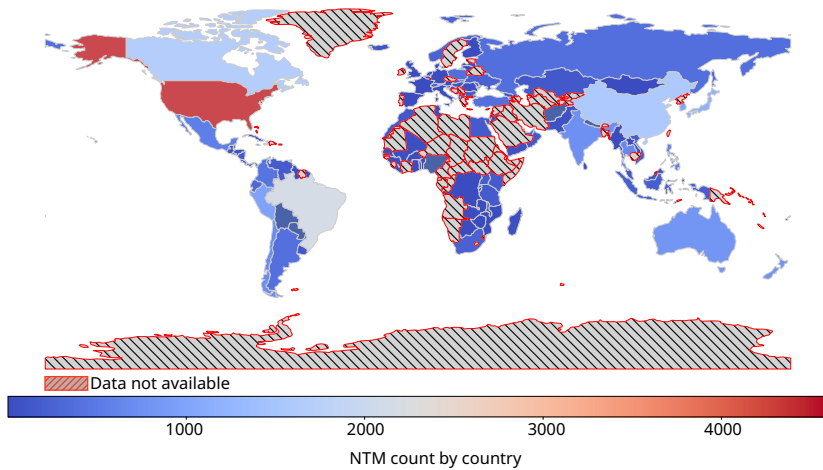
Historically, the use of NTMs has lagged behind the implementation of tariff barriers. The earlier types were established in the form of bans, quotas or technology requirements with the goal of limiting imports. Despite sharing many of the same objectives as tariffs, NTMs also have a wider range of objectives, such as those relating to public health, safety and the environment. They aim to regulate trade flows in order to achieve public policy goals, address externalities and improve social welfare. While they are sometimes also referred to as non-trade barriers, the terms are differentiated now whereby non-trade barriers are utilized to refer to a narrower set of

trade-restrictive measures, whereas NTMs refer to a broader set of measures which might not necessarily have trade-restrictive effects (UNCTAD 2013b).

There is a wide range of classifications of NTMs. The classification given by UNCTAD (2019) divides NTMs into three categories: technical measures, non-technical measures and export-related measures (see table AII.1 in Appendix II). Some of these measures (such as tariff rate quotas, quotas and inspections) frequently overlap with one another in terms of both their overall structure and how they are applied. Additionally, the variety of measures presents unique challenges for the quantification of NTMs. One of the most common approaches is to approximate a tariff equivalent (ad valorem equivalent (AVE)) for an NTM, which means that the effect of that particular NTM on trade flows is the same as the given tariff (for further discussion of this see Chapter 2). One popular methodology to calculate AVEs is to use a gravity-based approach (UNCTAD and WTO 2012).

Given the wide variety of NTMs used by countries, the remainder of this section will focus on some of the most prevalent types, with widespread application, such as VERs, quotas, SPS measures, TBTs, and contingent trade-protective measures such as anti-dumping duties. Furthermore, certain NTMs, such as quotas and VERs, exhibit a general tendency of decreasing prevalence; while others, such as TBTs and SPS measures, show an upward trajectory in terms of prevalence. According to Ghodsi et al. (2017), high-income economies are the primary users of NTMs, possibly owing to the fact that they can afford higher-quality goods and are therefore more inclined to demand stricter standards. However, when examining the prevalence of NTMs across different countries, a more nuanced perspective emerges (figure 1.3).

► Figure 1.3 NTMs in force by country, July 2023



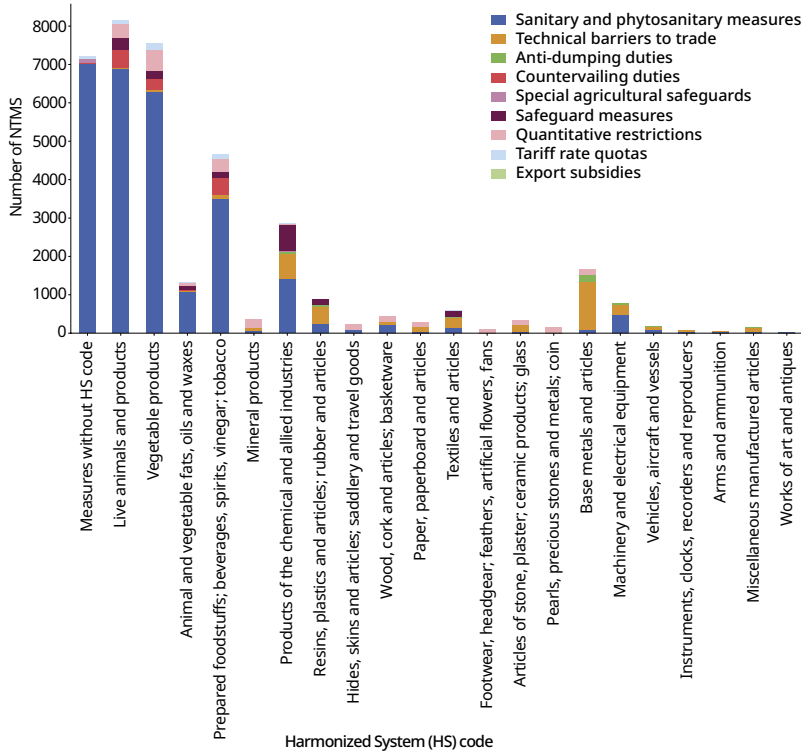
Source: WTO Integrated Trade Intelligence Portal (I-TIP).

Given the diversity of NTMs that are utilized by countries, there is a range of outcomes with respect to the particular characteristics of the sector, firm type and worker type when it comes to employment and wages. NTMs are particularly important, relative to other industries, in the agricultural and other primary industries because of the predominance of SPS measures and TBTs (figure 1.4).¹⁶ A detailed list of studies looking at the impact of NTMs on trade flows is provided in table AII.2 in Appendix II.

Regarding the impacts of specific NTMs, as noted earlier, there is a dearth of studies which look directly at the labour market outcomes. However, NTMs have been extensively analysed in terms of their impact on trade flows, which can often be utilized to provide an indication of subsequent effects on labour market outcomes such as employment. Within this context, an examination is conducted of the literature pertaining to various NTMs, including quotas, TBTs and trade-contingent measures.

¹⁶ These measures are more prevalent in agriculture owing to food safety concerns; for more information, see the relevant WTO pages explaining agreements with respect to [SPS measures](#) and [TBTs](#).

► **Figure 1.4 NTMs in force by product category, July 2023**



Source: I-TIP.

Quotas have been extensively analysed in previous studies. The prevailing theoretical viewpoint regarding quotas suggests that they are expected to result in trade diversion and a decrease in overall trade quantities compared with a scenario without quotas. The WTO Agreement on Textiles and Clothing (ATC) presented a significant case study in the examination of quota removal.¹⁷ By 2005 the ATC had effectively eliminated numerous quotas pertaining to textiles trade. Fugazza and Conway (2010) examine the empirical evidence pertaining to the removal of quotas as a result of the ATC, in order to ascertain the presence of both trade creation and diversion. While they do not explicitly analyse the implications for labour markets, trade diversion had considerable negative effects on the textile sector in many countries; for example, the ATC caused textile manufacturing to plummet in numerous European countries (see Ernst, Ferrer and Zult (2005); and Truett and Truett (2016) for the case of Spain).

¹⁷ WTO Agreement on Textiles and Clothing.

Another of the NTMs that has been extensively evaluated is VERs. The theoretical perspective on these measures also holds that they are likely to raise international prices and cause significant trade diversion. One prominent example of VERs relates to Japanese car exports to Western countries. While the labour implications of this measure have been sparsely studied, it has been found to affect the quality of the product that is subject to VERs. For example, in the case of Japanese VERs on cars exported to the United Kingdom, Japanese manufacturers shifted to exporting larger and newer models in order to maximize their profits (Walker 2017). Additionally, these measures benefited foreign manufacturers based in the United Kingdom, rather than UK manufacturers. Nevertheless, the study finds that there were positive employment effects of these foreign manufacturers expanding their presence in the UK market.

TBTs have also undergone thorough evaluation regarding their impact, revealing a significant effect at the firm level. In their study, Wei, Tu and Zhou (2023) observe that TBTs result in notable redistribution of resources within firms. They also note that firms that choose to exit a market affected by TBTs, as well as those that remain, experience favourable outcomes. Those that leave achieve larger export growth from reallocating to other markets, while those that remain achieve higher prices and higher quality by staying in the market and conforming to the new regulations. However, the effects on export flows are nuanced, with TBTs both reducing overall exports (Essaji 2008; Orefice 2017; Grundke and Moser 2019) and reducing the extensive margin – that is, decreasing the probability that a firm is likely to participate in international trade (Ali 2019; Fontagné and Orefice 2018). However, there are likely to be positive product-level effects such as improved quality.

Contingent trade-protective measures aim to offset the negative trade effects arising from perceived unfair foreign trade practices such as dumping or export subsidies that cause injury to a particular domestic industry. The measures available to address these challenges include anti-dumping duties, countervailing duties and safeguard measures. Edwards et al. (2022) evaluate the effects of these measures on consumer prices for specific goods in South Africa. They find that an increase in applied tariffs led to an increase in consumer prices in the poultry sector and a reduction in the welfare of households. Other studies report more varied results. For instance, Vandebussche and Zanardi (2010) find industry-specific effects, while Besedeš and Prusa (2013) find persistent effects on lowered trade flows, even after the measures are lifted.

1.2.3 Non-tariff measures and global supply chains

NTMs are also particularly important in terms of their impact on the GSC participation of countries since they are central to the regulation of cross-border production networks. Measures such as technical requirements, SPS measures, rules of origin and customs procedures are likely to determine the costs firms face in creating and operating production networks across countries. In other words, a higher level of tariffs and NTMs is likely to impede the access of domestic firms to foreign inputs. Consequently, greater participation in GSCs is likely to be associated with lower tariffs and fewer NTMs. Cadestin, Gourdon and Kowalski (2016) estimate that, for Latin American countries, the cost impact of NTMs on intermediate goods is roughly equivalent to a 15 per cent tariff. There is empirical evidence to suggest that both tariffs and NTMs have a negative impact on backwards GSC participation and that policies that reduce trade costs can promote GSC participation (Raimondi et al. 2023).

However, there is another perspective in the literature based on the advantages of NTMs. For example, Inui et al. (2021) find that harmonization of technical standards by a country makes it better able to integrate into GSCs. To this end, Kim (2021) provides a measure of NTMs called the Bilateral Regulatory Distance, which measures patterns of NTMs between a bilateral pair of countries and the impact of these NTMs on GSCs. He also shows that a country can enhance its participation in forward GSCs by utilizing international standards to harmonize its NTMs. Ghodsi and Stehrer (2016) provide a much more elaborate framework for evaluating the impacts of NTMs on GSCs and how the imposition of such measures affects labour market outcomes such as productivity. The findings reveal a fairly nuanced picture where the impact of NTMs on the labour market varies depending on the sector and the specific channel through which they are implemented.

Furthermore, NTMs are rarely used in isolation and are usually combined with changes in tariffs. In fact, much of the current trend of “deep trade agreements” combines the use of an extensive set of NTMs together with tariffs to achieve desired objectives. Studies that evaluate the effects of such combinations of measures usually look at aggregate outcomes in terms of economic growth and welfare. Examples of studies that evaluate the joint utilization of tariffs and NTMs are given in table AII.3 in Appendix II.

► 1.3 Decent work: Going beyond employment and wages

The previous section considered the differences between various trade measures and their effect on labour market outcomes, drawing on both theoretical frameworks and empirical findings. The literature on the labour market effects of trade primarily focuses on employment and wages because of the important role that job creation and improvement of living standards play as central objectives of trade policy. Other labour market concerns often lie beyond the purview of trade policy, and usually extend beyond the scope of neoclassical trade theory. Nevertheless, trade policy can potentially affect other aspects of the labour market. The rise of non-traditional work arrangements, such as short-term contracts and irregular working hours linked to export-oriented sectors, has been accompanied by a decline in overall working conditions (Ostry and Spiegel 2013; ILO 2015, 2016b, 2020).

This section will examine supplementary labour market indicators based on the framework developed in the ILO's *Trade and Decent Work: Indicator Guide* (ILO 2021b). The purpose of this framework is to offer a comprehensive view of the interaction between trade policy and domestic labour markets by considering the concept of decent work.¹⁸ The Guide includes 46 indicators based on 11 key aspects of decent work based on employment, labour relations, and working terms and conditions.

While employment and wages are commonly examined within the context of traditional trade theory frameworks, other aspects of decent work are often not included. This is due to the limitations of traditional trade theory models and a lack of available data. However, contemporary trade theories provide better frameworks for analysing the effects of trade policy, particularly related to working terms and conditions, such as informality, occupational safety and health (OSH) and working poverty, which are the focus of other chapters in this volume.¹⁹ Thus, the remainder of this section will shed light on two additional indicators related to working terms and conditions: the gender wage gap and social security, which have been under-studied in the literature.

¹⁸ Therefore, these indicators can prove valuable in assessing, benchmarking and monitoring progress towards the achievement of decent work in the context of trade.

¹⁹ For example, Ernst and Leung (Chapter 9) focus on trade and informality; Sekerler Richardi, Ghani and Pham (Chapter 6) study a broader range of working condition outcomes including informality, social security and health insurance; and Moreno-Brid et al. (Chapter 4) analyse working poverty, among other issues.

1.3.1 The gender wage gap

The gender wage gap is a commonly employed metric for measuring the disparity between men and women in the labour market. It is also a measure of progress towards achieving SDG 8.5, which aims to attain equal remuneration for work of equal value by the year 2030. The gender wage gap is calculated as the percentage difference between the average gross hourly earnings of men and women. According to the ILO's *Global Wage Report 2018/19* (ILO 2018), the global gender pay gap in 2016 was approximately 20 per cent, indicating that "on average, women are paid approximately 20 per cent less than men around the world" (p. 23). The estimates vary from a high of 34 per cent in Pakistan to a low of -10.3 per cent in the Philippines (where women earn more on average than men). This ILO study investigates, further, the underlying causes of the wage disparity between men and women and finds that it can be only partially explained by the differences in worker characteristics between men and women. Other factors, such as discrimination, the segregation of women into low-paying occupations and women's traditional role as caregivers, also contribute. According to the World Bank and the WTO (2020), it is evident that women who are engaged in formal employment within trade-related sectors tend to receive higher earnings compared with their counterparts in the informal economy. However, it is worth noting that these women often find themselves occupying positions situated at the lowest levels of the organizational structure.

According to neoclassical trade theory, specifically the Heckscher-Ohlin model, increased trade is expected to have the effect of reducing women's wages relative to men in advanced economies, while increasing them in developing economies where women make up a larger portion of the unskilled labour market. Empirical findings vary, however. The trade liberalization strategy, during the period of consolidation under NAFTA, appears to have increased the gender wage gap in Mexico (Domínguez-Villalobos and Brown-Grossman 2010), while trade reforms have reduced the gap in Bangladesh and Pakistan (Fontana 2007; Siddiqui 2009).

Recent models, such as that of Juhn, Ujhelyi and Villegas-Sanchez (2014), emphasize trade-induced technological upgrading, where tariff reductions increase productivity and processes that decrease reliance on physical tasks that favour men, thus increasing women's relative employment and wages in blue-collar jobs. Despite recent gains in female education, however, technological advances have tended to require skills that are more prevalent

in the male workforce (Berik 2000). Gender segregation in vocational education, largely due to gender norms, enhances this effect.

Additionally, models that underscore collective bargaining and power dynamics between workers and employers, as well as among (male and female) workers, are less optimistic about trade liberalization's abilities to close the wage gap. Although tariff liberalization could enhance women's real income more than their male counterparts' (Artuc et al. 2021), it could also undermine women's bargaining power through increasing foreign competition and the supply of low-skilled women for manufacturing (Berik 2011).

Consequently, governments have increasingly used NTMs, such as labour provisions in trade agreements, to enhance women's employment opportunities and advantages in export-oriented industries (der Boghossian, Volume 2). Approximately half of trade agreements containing labour provisions include references to gender issues, including the elimination of discrimination in respect of employment and occupation. López Mourelo and Samaan (2017) observe a statistically significant decrease in the gender wage gap in Cambodia's textile sector, which they attribute to the labour provisions outlined in the 1999 Bilateral Textile Agreement between Cambodia and the United States. According to UNCTAD (2020), trade policies that focus on products and services produced by women as employees or business owners can be designed to enhance equality between men and women through a combination of tariff reduction and NTMs.

1.3.2 Social security coverage

Social security encompasses the provision of benefits aimed at safeguarding individuals from various forms of economic vulnerability, including unemployment, limited access to affordable healthcare, inadequate family support, and overall poverty and social exclusion (ILO 2013, 169). The ILO's *Trade and Decent Work Indicator Guide* includes three major statistical indicators pertaining to social security: i) the share of the population above the statutory pensionable age benefiting from an old-age pension; ii) the percentage of GDP going to public social security expenditure; and iii) the share of the labour force contributing to a pension scheme (ILO 2021b, 68).²⁰ The provision of social protection coverage plays a significant role in advancing many of the goals under the SDG Agenda (ILO 2021b, 33).

²⁰ Additionally, the legal framework encompasses seven indicators that include unemployment insurance, maternal and parental leave, and safeguards relating to employment termination.

According to the ILO's *World Social Protection Report* (ILO 2021c), the average global public expenditure on social protection, excluding healthcare, amounts to 12.9 per cent of GDP. However, there is a significant disparity in the extent of coverage across different countries, with high-income countries spending an average of 16.4 per cent of GDP, while low-income countries spend an average of just 1.1 per cent. In addition, the report asserts that insufficient allocation of resources to social protection has resulted in significant disparities in coverage, thereby exacerbating the vulnerability of individuals, particularly those who are most disadvantaged. Thus, economies categorized as lower income, lower middle income and upper middle income would be required to allocate 15.9, 5.1 and 3.1 per cent, respectively, of their GDP to effectively address the existing gaps in coverage (ILO 2021c).

Trade liberalization may also have an effect on the provision of social protection. Theoretically, trade-induced growth and higher government revenue can lead to greater funding for social protection or more incentives to implement social security legislation. If, however, liberalization increases or shifts employment statuses and working patterns towards those associated with poor social protection coverage, the effect could be negative. Consequently, a country's social security programmes may be jeopardized by a shrinking tax base and declining government revenue (including from tariff revenue).

There is empirical support for both hypotheses. However, the studies on both sides do not identify specific trade policy measures, and instead focus on trade flow indicators. Positively, some analyses of advanced economies reveal a positive correlation between trade exposure and the growth of public transfers (Rodrik 1998a and 1998b, cited in Rodrik 2018). Another study by Avelino, Brown and Hunter (2005) of 19 Latin American countries finds a positive correlation between trade openness and social security expenditures.

Of the studies finding a negative correlation, the literature focuses primarily on advanced economies. According to Fischer and Somogyi (2009), globalization has resulted in weaker employment protection legislation for all employees in countries belonging to the OECD. Additionally, Olney (2013) suggests that certain OECD countries have also made concessions in their labour regulations to entice foreign direct investment. Based on an analysis of 90 countries, Häberli, Jansen and Monteiro (2012) revealed that countries with a higher proportion of trade within RTAs had lower levels of labour protection, a result wholly driven by high-income nations. According to Shaffer (2019, 23), social security programmes in the United States "have been compromised because of reduced tax receipts due to tax cuts and lower economic growth", partly as a result of technological progress and trade

liberalization. As a solution, the author proposes that trade liberalization should be contingent on NTMs, such as international tax agreements, and domestic safeguards, including the introduction of social programmes that provide basic healthcare, guaranteed income, housing, child support, public education and job training.

► 1.4 Conclusions

This chapter examines the effects of trade policy on the labour market using various types of trade and labour indicators. International trade is governed by national, bilateral, regional and multilateral trade policies that have shaped global labour markets. These policies consist of a variety of actions and instruments designed to stimulate economic growth and development, promote and protect domestic industries, increase domestic employment, enhance consumer welfare, and cooperate with trade partners to advance other domestic interests.

Theoretically, trade policy instruments affect the labour market by influencing trade flows, cost structures and market composition. These changes affect, among other things, prices, labour demand and supply, skills needed and employment contracts.

Several aspects of the labour market, including employment, wages and income inequality, have been extensively examined in the literature, and the empirical findings shed light on how trade policy affects these variables. The analysis reveals differential impacts of tariffs and NTMs by sector, geographical region, and individual firm and worker characteristics. Additionally, there are wide-ranging impacts of NTMs and the chapter delves into their role in addressing health, safety and environmental objectives in addition to economic ones. The role of NTMs in promoting social safeguards including international labour standards and improving GSC integration is also important.

Although there is less research on labour market dimensions beyond employment and wages, existing theoretical and empirical literature provides valuable insights. This literature sheds light on the challenges involved in analysing the transmission of trade policy effects on various aspects of employment, such as working arrangements, working conditions, and other qualitative factors that correspond with the concept of decent work.

This is especially important since the period after the global financial crisis of 2008–09 has been marked by a deceleration in the globalization process. Furthermore, certain economies are implementing trade policies that are more restrictive in nature, leading to a significant shift in the type and configuration of such policies. This aligns with the current patterns of declining global trade, reduced cross-border investments, and limited individual mobility.

There have also been notable shifts in the structure of trade, with a growing emphasis on services trade and the increasing prevalence of digitalization, as opposed to the traditional focus on physical goods.²¹ According to the WTO (2023), digitally delivered services exports have been outpacing both goods exports and other services exports. The persistent health and geopolitical crises have expedited certain trends, such as regionalization and localization, that have resulted in immediate and long-term effects on GSCs.

Thus, this review would aid in the consideration of an analytical framework for future trade and sustainable development analyses. In fact, a more inclusive conception of the labour market that focuses on decent work would contribute to trade policy not only promoting growth, but also improving the well-being and living standards of workers worldwide.

21 [World Bank World Development Indicators](#).

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► Appendix I. Tariffs

► **Table AI.1 Common types of tariff indicators**

Type	Definition	Source
Most favoured nation (MFN)	The normal non-discriminatory tariff charged by a country under WTO rules	WTO Tariff Analysis Online (TAO) facility
Preferential	Tariffs charged under free trade agreements	WTO TAO facility
Bound	The maximum MFN tariff level for a given commodity	WTO TAO facility
Applied	Tariffs actually charged on imports	WTO TAO facility
Simple average rate	Tariffs averaged across product lines	WTO TAO facility
Weighted average rate	Tariffs weighted by the value of imported goods	WTO TAO facility
Ad valorem	Tariff calculated as a fixed percentage of value of a good	WTO TAO facility
Specific	Tariff calculated as a fixed charge on a good	WTO TAO facility
Compound	Tariff with both an ad valorem and specific component	WTO TAO facility
Tariff quota	Two-tiered tariffs, with different rates for different quantities	WTO TAO facility

► **Table AI.2 Studies on the effects of tariffs on labour market outcomes**

Study	Results
Madanizadeh and Pilvar (2019)	10 per cent increase in weighted tariffs increased labour force participation rate (LFPR) by 4–6 per cent.
Pierce and Schott (2016)	Removal of tariff uncertainty by the United States on China led to a decrease in employment in the United States.
Kovak (2013)	Regions facing a larger liberalization-induced price decline faced larger declines in the wages of workers.
Amiti and Davis (2012)	A reduction in tariffs by 10 per cent led to a wage decrease for workers in domestic-focused companies, yet resulted in a wage increase for those in exporting companies.
McCaig (2011)	Tariff cuts contributed to a decline in poverty rates in certain regions of Viet Nam.
Stone and Cavazos Cepeda (2011)	Negative relationship between tariffs and wages.
Topalova (2010)	Relative poverty declined less in areas that had a higher concentration of industries losing tariff protection.
Attanasio, Goldberg and Pavcnik (2004)	Tariff reductions in Colombia led to skill-biased technical change.
Francois and Baughman (2003)	Tariffs in the steel industry contributed to a net job loss.
Reventa (1997)	Tariff reductions and subsequent trade liberalization led to wage decreases for manufacturing workers in Mexico.

► Appendix II. Non-tariff measures

► Table AII.1 Categorization of NTMs by UNCTAD

Technical measures	Sanitary and phytosanitary (SPS) measures
	Technical barriers to trade (TBTs)
	Pre-shipment inspection and other formalities
Non-technical measures	Contingent trade-protective measures
	Non-automatic import licensing, quotas, prohibitions, quantity control measures and other restrictions not including SPS measures or measures relating to TBTs
	Price control measures, including additional taxes and charges
	Finance measures
	Measures affecting competition
	Trade-related investment measures
	Distribution restrictions
	Restrictions on post-sales services
	Subsidies and other forms of support
	Government procurement restrictions
	Intellectual property
Rules of origin	
Exports	Export-related measures

Note: One of the main sources for the indicators related to these measures is available at [I-TIP](#).

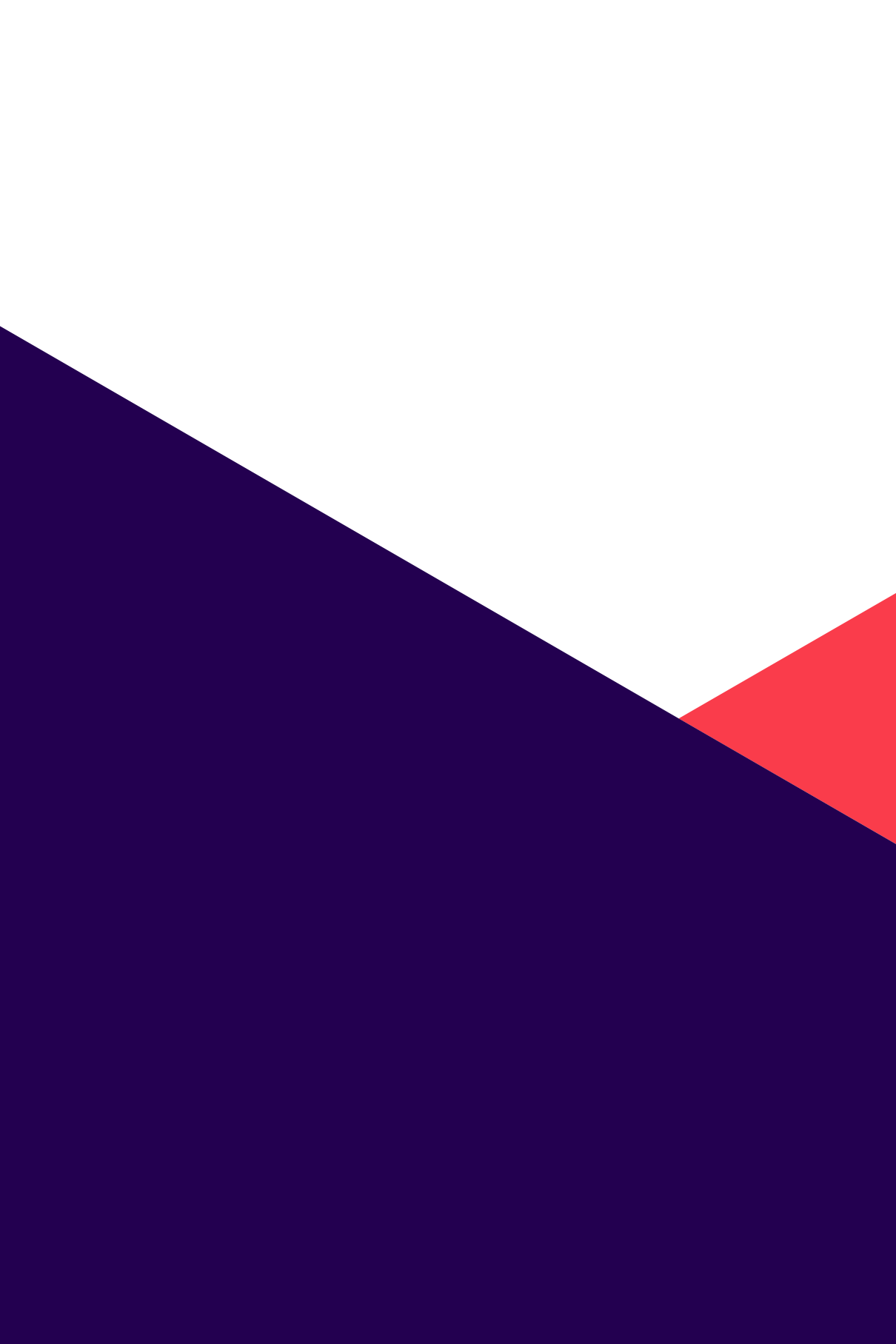
► **Table AII.2 Studies on the labour market effects of NTMs**

Study	Results
Leonardi and Maschi (2021)	NTMs alleviated the negative effects on employment of import competition and enhanced the wages of manufacturing workers.
Yew, Al-Amin and Devadason (2020)	A reduction in NTMs led to positive gains in employment in the short run. However, in the long run, there were wage losses for the unskilled group.
Porto (2018)	The effects of NTMs on the labour market depended on the structure of labour market adjustments.
Reza et al. (2016)	Reduction of NTMs due to the Transatlantic Trade and Investment Partnership (TTIP) could lead to diverging results, with positive income effects but negative real wage effects for low-skilled labour

► **Table AII.3 CGE studies that incorporate NTMs**

Study	Type	Model	Sectors	Results
Walmsley and Winters (2005)	Ex ante	GTAP	Increase in quotas for skilled and unskilled labour in developed countries	Overall increase in global welfare
Brown et al. (1996)	Ex ante	CGE	NTMs in services sector cut by 25 per cent; industrial and agricultural tariffs also cut	Positive effect on GDP
Francois, McDonald and Nordström (1996)	Ex ante	CGE; GTAP	Changes in the form of quotas	Positive effects on GDP and trade
Goldin and van der Mensbrugghe (1996)	Ex ante	CGE; RUNS	NTMS in agricultural sector	Positive effect on GDP
Harrison, Rutherford and Tarr (1996)	Ex ante	CGE; GTAP	Export subsidies	Positive effect on GDP
Hertel et al. (1996)	Ex ante	CGE; GTAP	MFA quotas	Positive effects on GDP and trade

CGE = computable general equilibrium; GTAP = Global Trade Analysis Project; RUNS = Rural/Urban-North/South (Burniaux and van der Mensbrugghe 1991).



Impacts of international trade on the labour market:

Common methodological approaches for macro- and meso-level assessments

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► Introduction

It is generally acknowledged that, by driving structural change as well as productivity, international trade influences the level of employment, income and other labour market outcomes (McMillan, Rodrik and Verduzco-Gallo 2014; UNCTAD 2013a). Given that GSCs have been operating for several decades,¹ it is not surprising that the effects of trade on labour markets have manifested themselves in countries of all income levels (Baldwin and Okubo 2019; Gereffi, Fernandez-Stark and Psilos 2011; Milberg 2004; UNCTAD 2013b). Excessive and increasing income inequality (ILO 2015, 2017a, 2019a; UNCTAD 2019d) within a context of hyperglobalization (Rodrik 2012; UNCTAD 2018b) has also raised concerns over the effects of trade on working conditions.

It is important to consider whether the tools used for evaluating the labour market impact of international trade are the most adequate, as such evaluations inform policy design. This chapter analyses methodological approaches for the empirical assessment of the labour market impact of international trade at the macro and meso levels.² It considers the underlying assumptions, data requirements and the advantages and limitations associated with each approach. A major takeaway is that the approaches commonly used for such assessments tend to focus on changes in the level of wages and employment, while paying less attention to job quality and to other working conditions associated with decent work. At the same time, it is worth noting that, despite these limitations, frameworks are continually adjusted to include new improvements.

The general equilibrium (GE) and partial equilibrium (PE) models covered in section 2.1 below are commonly employed for assessing the labour impact of trade at the macro and sectoral level of analysis, respectively.³ When

1 GSCs refer to production and related processes that take place across several countries. GSCs are also known as GVCs, or as “trade in value-added, production sharing, supply chains, outsourcing, offshoring, vertical integration, or fragmented production” (Elms and Low 2013, xv).

2 While the choice of methodology depends on the research question and the purpose of the study, rather than the other way round, it is also worth noting here that data availability and related constraints affect this choice.

3 GE is increasingly also being used at the micro level, using structural estimations based on micro-level data.

considering changes in trade policy,⁴ both types of models can be used to assess the impact of changes on the level of wages and employment. They can also be used to analyse the impact on informality; however, the impact on other labour conditions is more difficult to capture under these frameworks. Input–output (I–O) multiplier analysis is another common method for assessing the impact of trade on similar labour market outcomes, and it is particularly useful in the context of GSCs (ILO 2015). This framework is discussed in section 2.2.

Econometric techniques⁵ are also frequently used for the empirical assessment of the labour impact of trade at the macro and meso level of analysis. In general, econometrics offer a flexible framework that has been used to assess the impact of trade in relation to issues such as wage inequality, informality, wage growth and child labour. Although econometric techniques are not further discussed here, they are addressed in a different chapter of this compendium.⁶

Qualitative and mixed-methods approaches (see section 2.3) have also been used, albeit less frequently, to assess the labour impact of trade. Even though these approaches are context-specific and often require a substantial investment of time and financial resources to collect and analyse the information, they are able to provide a detailed account of how labour impacts are experienced by workers, including in dimensions of decent work. Another important aspect worth noticing is that the methodological approaches presented here can be, and are, normally combined to assess the labour impact of trade, as will be discussed in the following sections.

Finally, despite the improvement and evolution of the available frameworks, there is still a need for methodological approaches to take into account a broader set of questions and indicators of decent work. This is essential for future research and the adoption of appropriate policies. This discussion is presented in section 2.4, which is followed by the conclusion.

4 Trade policy is understood here as the regulations that govern exports and imports between countries. It includes both tariff measures (taxes on imports or exports) and NTMs, commonly defined as policy measures that can have an effect “on international trade in goods, changing quantities traded, or prices or both” (UNCTAD 2010a, xvi). Among other things, NTMs include TBTs, in addition to SPS measures (UNCTAD 2019a).

5 Such as instrumental variables, regression discontinuity and difference-in-difference, which are used in quasi-experimental studies.

6 See also Aleman-Castilla (2020) and Aleman-Castilla and Rodríguez-Pueblita in this volume, on the use of structural and quasi-experimental approaches, and Hernandez (2020), on econometric approaches and their use for the empirical assessment of the labour impact of international trade policy. The latter paper is a longer version of the present chapter.

► 2.1 General and partial equilibrium approaches

The most common methodological approaches for the ex ante assessment of the impact of trade policy changes are the GE and PE approaches, specifically the CGE and PE models (Cheong 2010a; François 2004; Plummer, Cheong and Hamanaka 2010). While GE is used for the study of impacts at the macro level, PE is used for assessments at the sectoral level of analysis.⁷ The underlying assumptions, data requirements, strengths and weaknesses of the two approaches are considered in this section.

2.1.1 General and partial equilibrium models for assessing the labour market impact of changes in trade policy

A characteristic of GE models is that they consider how policy changes affect not only the market in which the policy shock takes place, but also interrelated markets (such as markets of substitutes and complementary goods and input markets). An example of this type of model is computable general equilibrium (CGE) models, which are widely used for the analysis⁸ of the macroeconomic impact of changes in trade policy. These models can be defined as computer-based simulations that are able to run counterfactual scenarios.⁹ Notably, different CGE models have been developed to analyse the impact of trade policies, such as the GTAP model¹⁰ (and those based on the GTAP Data Base, such as the Modelling International Relationships in Applied General Equilibrium (MIRAGE) model), in addition to various toolboxes based on CGE models.¹¹

7 See Hernandez (2020) for more detail on both approaches. See also Cheong (2010a and 2010b), Cheong, Jansen and Peters (2013), WTO and UNCTAD (2012) and Yotov et al. (2016).

8 The analysis is commonly ex ante, but the framework can be used for ex post analysis too. It is worth noting that ex ante assessments tend to yield more optimistic results concerning the labour market impact of changes in trade policy than ex post assessments (see, for example, Grumiller (2014) and O'Leary, Eberts and Pittelko (2012), both of which examine NAFTA).

9 A counterfactual scenario refers to a hypothetical situation in which changes in policy have not occurred and which can therefore be compared with a situation in which the changes have already taken effect.

10 The latest version of the GTAP model is version 7 (for details, see GTAP (2019) and Corong et al. (2017)).

11 UNCTAD (2017), for example, has designed a trade and gender toolbox for assessing the impact of trade from a gender perspective based on a CGE model (see also UNCTAD (2019b)).

Table 2.1 shows a typical question, theoretical assumptions and an overview of the labour impact of trade based on a standard CGE model. Some examples of the use of CGE models for ex ante and ex post impact assessments can be found in the longer version of this chapter (Hernandez 2020) and in ILO (2021). It is important to note that many empirical studies are based on the GTAP model (Hertel 1997), which is a multiregional and multisectoral model (see Cheong, Jansen and Peters (2013) for examples). It incorporates a global banking sector and also takes into account international trade and transport margins. GTAP also includes a database (see Aguiar et al. (2019a)) on bilateral trade, production and consumption of final and intermediate goods and services.

It is also worth bearing in mind that trade and economic models in general (and the results obtained by using them) depend on economic theories, and, in that sense, they cannot be said to be ideologically neutral. As seen in table 2.1, standard CGE models, for instance, are grounded in neoclassical economic theories, as may be seen from their underlying assumptions.¹² In the most basic standard setting, when the overall economic impacts (on GDP and welfare) are considered, the labour market is represented in a way that treats the labour supply as fixed, while a uniform and flexible wage allows labour supply and demand to reach equilibrium. Neoclassical CGE models, which assume full employment, postulate that wages can fall until everyone who wants to work is employed. This assumption has been criticized severely for its lack of realism, as seen in section 2.1.2.

Structuralist CGE models share some of the underlying assumptions of neoclassical CGE models, but they differ in critical aspects.¹³ For instance, structuralist CGE models assume that competition is imperfect¹⁴ and that income and employment are determined by aggregate demand (see, for instance, Raza et al. (2016)). If an economy is demand-constrained, an increase in exports, independently of a rise in imports, will increase employment. The production technology in structuralist models features underutilized resources, while installed capital equipment features excess capacities. This means that, if aggregate demand increases, there will be an increase in the use of capital, which implies an increase in labour demand too. Despite these characteristics, structuralist CGE models do not overcome all the limitations of their neoclassical counterparts, as discussed in section 2.1.2.

12 For details, see Burfisher (2021).

13 See also Gibson and Van Seventer (2000) and Taylor (1990) for a discussion of the differences between neoclassical and structuralist CGE models.

14 For a critique of both the perfect and the imperfect competition assumption, see Shaikh (1980).

► **Table 2.1 Overview of the labour impact of trade in standard CGE models**

Typical question: What are the effects of a change in trade policy on real GDP, trade flows and aggregate employment?

Trade policy: Tariffs (e.g. ad valorem tariff or percentage of price); non-tariff measures (NTMs) (ad valorem equivalents (AVEs))¹

Typical theoretical assumptions:

- Perfect competition
- Optimizing economic agents
- Full employment
- Supply-constrained output and employment
- Flexible prices (including wages)
- Traded goods are imperfect substitutes (Armington assumption)
- Tariffs and NTMs treated as costs

Impact overview:

- The interdependence among sectors implies that a trade policy shock would be propagated throughout the economy, leading to a new equilibrium (a new level of GDP, trade flows and aggregate employment).
- In the model, the economy and the interactions among its sectors are represented by a system of equations. These equations are solved simultaneously to find the new equilibrium where, at a particular set of prices, supply and demand are equal in each sector.

Data and parameters: Trade flows; policy changes (e.g. ad valorem tariffs and AVEs); elasticities of substitution regarding goods and factors of production (typically based on previous studies); social accounting matrices for model calibration. The GTAP Data Base is a common source of data for CGE models. The World Integrated Trade Solution database can be used as a source of trade-related data, including tariffs. Common sources of NTMs are the I-TIP Goods database created by the WTO, the Trade Analysis Information System (TRAINS) database,² and the WTO Environmental Database of NTMs with environment-related objectives. The WTO also has two databases that focus on NTMs and specific trade concerns: the Technical Barriers to Trade Information Management System and the Sanitary and Phytosanitary Information Management System.

Note:

¹ Two methods used for the computation of AVEs are the direct method, based on prices, and the indirect method, based on quantities (see Disdier and Fugazza (2019)).

² The TRAINS portal includes data and interactive tools. It is available at: <https://trainsonline.unctad.org/home>.

Source:

Drawn up by the author on the basis of the sources listed in the table and in section 2.1.

It is important to note that a central premise of computable PE and GE models is the Armington assumption (Dixon, Jerie and Rimmer 2018), which emphasizes product heterogeneity by positing that the imported and the local good, albeit similar, are imperfect substitutes for each other. Under this assumption (which gives countries a degree of market power), even if one of the goods is cheaper, consumption is still based on both the imported and the domestic product. Consequently, the labour market impact of changes in trade policy (such as a tariff reduction) depends to a great extent on the value of the elasticity of substitution between the imported and the local good (the Armington elasticity).¹⁵

A high elasticity of substitution indicates that consumers are less attached to local production, meaning that large job losses may occur once trade is liberalized, as competitive imports (those competing with local production) may reduce local production and vice versa. This is not uncontroversial because the whole assessment of the labour market impact of trade hinges on the quality of the estimation of the elasticity of substitution, which is not always easy to achieve (Gibson 2011; Feenstra et al. 2018).

As seen in table 2.1, the impact of a trade policy change, such as changes in tariffs and NTMs, in the context of these equilibrium approaches is reflected in changes in prices and costs, trade flows (exports and imports of goods and services), tariff revenue and welfare (Van den Berg 2014; Krugman, Obstfeld and Melitz 2017; Plummer, Cheong and Hamanaka 2010). In theory, if a tariff is reduced or eliminated, for instance, the effect is a reduction in the price of the related imported good and an increase in overall welfare (Krugman, Obstfeld and Melitz 2017; Gandolfo 1994). Paradoxically, neoclassical economic theory considers that, while imports may lead to job losses, as noted in the last paragraph, prices for consumers are likely to decrease with trade deregulation, which puts consumers in a “better” position than when trade had not yet been liberalized.

It is important to note that, with the general reduction in tariff rates that has taken place in recent decades, the use of NTMs has been gaining importance in international trade policy. In CGE models, both tariffs and NTMs are important when assessing the overall impact of international trade. NTMs are not represented by a specific number (a percentage of price or amount per unit) as in the case of tariffs, but, in a CGE model, such policies are introduced in a similar way to tariff measures (for example, they are incorporated into

15 While less common, these models can also be used to assess the employment effects of export increases. As with imports, the elasticity of substitution plays a major part in determining such effects.

the model as AVEs of NTMs) and treated as a cost (Disdier and Fugazza 2019) (see table 2.1 for information on databases focused on NTMs).

Treating NTMs only as costs, however, and omitting their potential positive effects leads to an overestimation of the benefits of their elimination (Hernandez 2019). Such a view understates the role of NTMs in supporting national development strategies and even in achieving the SDGs.¹⁶ Among others, NTMs include measures designed to protect the environment and consumer health, in addition to measures that affect labour (such as those included in production or post-production requirements) (see UNCTAD (2018a) and (2019a)). Also, as demonstrated by UNFSS (2019), voluntary sustainability standards can be a catalyst for sustainable development, in particular in terms of decent work and responsible production and consumption (see also Disdier and Fugazza (2019) and Maertens and Swinnen (2008)).¹⁷ A more balanced account of NTMs in impact assessments is therefore necessary. Caution should also be exercised when considering what drives the usually positive economic impact of trade deregulation predicted by CGE models (see Hernandez (2019) and Raza et al. (2016)).¹⁸

Another important element for the implementation of CGE models generally is social accounting matrices, which represent the economy at a specific point in time and which include data on consumption, investment, government spending, exports and imports. Such matrices are used to calibrate the models, defining both the structural parameters and the baseline values of most of the endogenous variables.¹⁹ Once this step and a replication check have been concluded,²⁰ a simulation of the overall economic impact of changes in trade policy can be conducted. A change of policy will lead to a

16 See Kravchenko et al. (2019) for a consideration of a concordance matrix of NTMs with direct links to the SDGs.

17 Similarly, it is important to note that labour clauses in trade agreements do not necessarily have protectionist effects or are negatively correlated with international trade. Labour clauses do not necessarily decrease the exports of low- and middle-income countries towards high-income countries. Indeed, because of their effects on labour conditions, they have the potential to lead to more bilateral trade (Carrère, Olarreaga and Raess 2022). Labour clauses in trade agreements do not necessarily divert trade flows to non-members of the agreement (ILO 2016a).

18 See also the study by Porto (2018), who analyses the effect of the removal of NTMs on labour markets in Latin America using a different type of GE setting. The author finds that the reduction of NTMs leads to lower consumer prices but that the overall effect on social welfare depends on whether the impact on prices dominates the impact on nominal wages or the other way round.

19 Values for parameters may be calibrated, but they are commonly adopted from previous studies. It is worth noting that a wide variety of models can be calibrated using the same social accounting matrix (SAM).

20 A replication to verify that the equilibrium solution reproduces the matrix data for the baseline year (see Cheong (2010a)).

new equilibrium. If tariffs are already low, a further reduction may result in only small changes in employment, and vice versa.

It is important to emphasize that, when assessing the overall economic impact of changes in trade policy, CGE models consider only a basic version of the labour market. According to Boeters and Savard (2013), an important reason to go beyond a simple labour market setting is where a policy change does not originate in the labour market but triggers consequences that have a direct bearing on that market (for example, the labour impact of a trade policy).²¹ In this case, it is possible to use CGE models to look at the effects of trade deregulation on wages and employment, for example. Notably, CGE models are also useful for studying the impact of changes in trade policy on the informal sector (see Bautista, Lofgren and Thomas (1998) and Sinha (2011)).

At the macro level of analysis, an alternative to CGE models is available for assessing the labour impact of trade, namely the United Nations Global Policy Model (GPM),²² which is a dynamic macroeconomic model that has been used to analyse the impact of policies at the global level while considering global and regional interactions (Cripps and Izurieta 2014; Michell 2016). The GPM allows one to consider global international trade and its links with growth and income distribution (UNCTAD 2018b). Notably, and in contrast to other models with a global perspective, the GPM is distinguished by the fact that it allows for the possibility of persistent involuntary unemployment and for changes in income distribution.²³ Recent examples of the use of the GPM are provided by Kohler and Storm (2016), Capaldo (2015) and UNCTAD (2014, 2018b, 2019c).

In contrast to the above-mentioned models, the PE approach can be used to analyse the economic impact of policy changes at the meso level in the industry, market or sector that is directly affected.²⁴ When

21 Boeters and Savard also point out that, compared with other aspects related to the modelling of labour markets in CGE models, the labour demand offers the fewest conceptual choices. They have also developed a classification of typical CGE models with a labour market focus and have identified strands in the development of labour market modelling.

22 The GPM was developed by the United Nations Department of Economic and Social Affairs in 2007. Responsibility for its maintenance and further development was transferred to UNCTAD in 2013, with the ILO providing support. Technical documents on the GPM may be found at: <https://www.un.org/development/desa/dpad/publication/united-nations-global-policy-model/>.

23 In this sense, the GPM may be said to be demand-constrained. For further detail, see Onaran (2016). See also Lavoie (2016), who compares the GPM with other models, including structuralist CGE models.

24 The overall effects captured through the PE approach are disaggregated by bilateral trade flows effects (trade creation and diversion), tariff revenue effects and welfare effects.

considering the labour impact of trade, researchers can, for instance, consider the question of how much employment may be lost in a specific industry as import prices fall after a reduction in import tariffs. With the PE approach, it is possible to obtain detailed results on employment levels, labour force by group, and wages. It is important to note that, just as in the case of GE, ready-made models have been developed to simplify the process of implementing PE analysis. Examples include the Software for Market Analysis and Restrictions on Trade (SMART) model (see Cheong (2010a); Plummer, Cheong and Hamanaka (2010)), the Global Simulation Analysis of Industry-Level Trade Policy (GSIM) model, the Tariff Reform Impact Simulation Tool (TRIST) and the Agricultural Trade Policy Simulation Model (ATPSM) (see Cheong (2010a); WTO and UNCTAD (2012)). The Trade Intelligence and Negotiation Adviser (TINA) model was developed recently by the United Nations Economic and Social Commission for Asia and the Pacific as a tool for assessing the impact of the reduction of tariffs and NTMs in the context of trade negotiations using a PE approach.²⁵

When the labour market is made the focus of attention in assessing the impact of changes in trade policy through the PE approach, the interactions of the labour market with other markets and the non-economic aspects that may influence the sector are disregarded. This means that the PE approach is less complex in terms of data and processing requirements than the GE approach, in which all markets are considered.²⁶ The lack of interaction with other markets is one of its main limitations, however (see section 2.1.2). Accordingly, it is widely acknowledged that PE and GE approaches, while complementary, are not necessarily substitutes for each other. In fact, similarly to the rest of the frameworks presented in this chapter, these two approaches can be combined to assess the labour impact of trade (see, for example, Ahmed (2010, 2011)).

2.1.2 Strengths and weaknesses

Since the PE approach does not consider the whole economy, a drawback is that it may overestimate the negative impact of a policy change on employment (an increase in imports after trade deregulation may negatively affect local production, reducing the demand for labour and also wages), leading to an anti-trade bias or vice versa. Since it is not possible to take

²⁵ Available at: <https://tina.trade/>.

²⁶ The PE model can be extended to more complex versions that consider more than one market. Analysing more than one market should not be confused with a GE analysis, however, in which all markets in the economy are considered. In addition, the use of a PE approach does not preclude an analysis that takes into account GSCs (as in de Soyres et al. (2018) and Barbe and Riker (2017)).

into account other relevant inter-industry interactions and the net impact on labour, feedback effects among markets are also omitted (price reductions due to the removal of tariffs could prompt an increase in local production and in demand for inputs and labour in other sectors). In the case of GE models, these take into account prices, competition and interactions between sectors after policy changes have taken place, which makes them suitable for studying the macroeconomic impact of changes in trade policy. In contrast to PE, CGE models take feedback effects, in addition to interactions, into account and capture long-term effects.

The need of GE models for large and expensive datasets also imposes certain constraints on their use with respect to the labour market, limiting, for instance, the modelling of more complex structures (de Vet et al. 2010). In the case of PE models, because of their sectoral focus, they can be used to identify, relatively easily, which jobs are likely to be lost when a country opens to trade and starts deregulating imports (WTO 2017). This can help to provide guidance on the trade adjustment assistance measures that might need to be introduced, and also on job training and other forms of transfer from the public sector (Gibson 2011).

The reliance of these models on the Armington assumption has been criticized, as imperfect substitutability understates the possibility of trade diversion and of complete substitution of local production with imports. The use of this assumption in the GTAP model has also been criticized because it may create a bias in favour of particular trade policies, such as the adoption of free trade agreements (Cheong 2010a). Studies by Taylor and von Arnim (2006) and Hammouda and Osakwe (2008) have identified the vulnerabilities associated with the Armington function and its estimated elasticities, which are critical for the models' results.

The assumptions of full employment, optimizing agents and perfect competition are a limitation of standard CGE models and indicative of their lack of correspondence to the real world (Ackerman and Nadal 2004). Similarly, Hendy and Zaki (2013), Ackerman and Gallagher (2008) and other authors have pointed out that one major problem with CGE models is their dependence on the assumption that only free, self-regulated markets can lead to equilibrium, which is the "optimal" state. With such an unrealistic target, trade regulations can never be welfare-improving. Since regulations, including NTMs, are treated only as bearers of costs, reducing or eliminating them is essential to bring about economic benefits in this model (Burfisher 2021; Cadot, Munadi and Ing 2017; Raza et al. 2016; Disdier and Fugazza 2019; UNCTAD and World Bank 2018). However, as seen above, a more balanced account of NTMs in these models is necessary.

Even though fully fledged dynamic GE models do exist, some of the models used to evaluate the economic impact of changes in trade policy rely on a comparatively static framework that omits information on adjustment processes. Such information could be relevant for those negatively affected and is particularly important when assessing labour market outcomes in the context of decent work. The GE and PE approaches have, accordingly, been criticized for not anticipating job losses and the potential need for workers to change jobs after a trade shock has taken place (Ackerman and Nadal 2004). In addition, the focus of the PE and GE approaches is generally on how trade policy changes impact the level of wages and employment. Even though disaggregation by skill level and sex may be incorporated into the analysis, other worker characteristics are more difficult to represent using a supply-and-demand framework alone. The combination of PE and GE models with other approaches, such as I–O models and social accounting matrices (SAMs) models, as mentioned in the next section, may help overcome this limitation. Moreover, the availability of data plays a vital role in such analysis.²⁷

Lastly, it should be stressed that, in contrast to the limitations related to the theoretical assumptions at the core of CGE models (for example, a representative firm and household that respectively maximize profit and utility, thereby bringing the system into equilibrium in standard models) – which are, in this sense, difficult to dispense with if that model is to be used for the analysis – there are other types of limitations which tend to be overcome as new adjustments in theory and data are included in the framework. One example is the GTAP Firm Heterogeneity (GTAP-HET) model (Akgul, Villoria and Hertel 2016), where features of new trade theory (for example, firm heterogeneity) and firm-level data are also considered (Aguilar et al. 2019b; Akgul, Carrico and Tsigas 2021). In relation to this, Nilsson (2018) reflects on the advances in CGE modelling in adapting to modern trade theory, as well as some of its main criticisms (see also Dixon, Jerie and Rimmer (2018)), while Burfisher (2021) discusses the current frontiers and recent innovations in CGE modelling.

²⁷ For instance, data on formal and informal employment are not always available. In addition, while data on other aspects, such as age or region of employment, may be easier to obtain, those data may not always be compatible with the framework used.

► 2.2 Input–output models, social accounting matrices and multiplier analysis

I–O analysis is commonly used for the empirical assessment of the economic impact of changes in trade policy. A basic I–O model considers the interrelations between the sectors in an economic system and draws on the information provided in I–O tables and SAMs. A basic I–O table shows the inter-industry transactions between all sectors in the economy. SAMs build on I–O tables by also recording the non-market monetary transfers between sectors and institutions (household, companies and government), thereby factoring in distributional aspects (Miller and Blair 2009). Notably, regional I–O models link regional data.

I–O and related multiplier analysis can be used to estimate the impact of changes in final demand (private and public consumption, investment and net exports) on production levels. It is also useful for examining the employment effects of policy changes (for example, changes in trade policy). For instance, with this framework, it is possible to address the question of how much employment would be created or destroyed by a positive or negative shock in final demand due to changes in trade policy that affect a specific sector, and how the effect would be expanded to the remaining sectors in an economy. It is important to note that I–O models can also take into account the informal sector by treating it as operating alongside, and trading with, the formal sector (Gibson 2011). I–O models can also consider employment aspects such as gender and skill.

The direct effect and its expansion to all remaining sectors is captured by a multiplier effect. The next section of this chapter discusses the use of I–O models and multiplier analysis for assessing the labour impact of changes in trade policy. In such cases, the employment multiplier quantifies the total change in employment due to changes in final demand that result from changes in trade policy. The analysis can also be performed in the context of GSCs (see, for instance, Moreno-Brid et al. (2021)), and it can also be extended, for example, to consider the impact on skilled and unskilled workers.

Notably, I–O models (and SAMs models) and multiplier analysis have been applied in a way that takes into account workers' characteristics, such as their skill level, when considering the labour impact of trade. Nevertheless, these models are not commonly used to study the impact on other dimensions of

work, even though multiplier analysis allows for the consideration of decent work indicators (see, for example, Alarcón and Ernst (2017)).

2.2.1 Using multiplier analysis to study the labour impact of trade

In I–O models, factors of production such as labour and capital are represented by fixed coefficients under the assumption that their prices do not change. Table 2.2 lists these and other underlying assumptions, together with a typical research question that can be answered using this approach, a representation of the accounting equation of I–O analysis and the employment multiplier, and a summary of the steps and data requirements.

► Table 2.2 Labour impact of trade in input–output models

Typical question: What is the number of jobs created per sector (e.g. in the context of GSCs) as a result of changes in foreign final demand due to changes in trade policy?

I–O model basic theoretical assumptions:

- No factor substitution (inputs used in fixed proportions)¹
- Constant returns to scale
- Fixed prices (including wages)

Accounting equation: $x = Ax + f$

Where x is a column vector of total output, A is the technical coefficients matrix, and f is a column vector representing final demand

The I–O model can be written as $(I - A)^{-1} \cdot f$

Where $(I - A)^{-1}$ is the Leontief inverse matrix, which reflects the direct and indirect impact of changes in final demand (multiplier effect)²

Employment impact:

- Trade policy shock (change in trade policy) affects net exports
- Net exports vector affects production and employment through inter-industry relations

Calculation:

Employment effect: $EE = [L \cdot (I - A)^{-1}] \cdot s$

Where L is the matrix composed of employment–output ratios by sector,³ and s is a vector representing the shock to final demand

Data requirement:

- For a single country: I–O table or SAM and matching sectoral employment data⁴
- Sources of global I–O tables: Inter-Country Input–Output tables and Trade in Value-Added database produced by the OECD; the World Input–Output Database; Asian Development Bank multi-regional input–output (ADB-MRIO) tables; Eora multi-region I–O tables⁵

Note:

¹ In general, production functions reflect the maximum level of output that can be achieved with a given amount of inputs. Linear production functions combine inputs in a fixed proportion (these are also known as fixed-proportion, or Leontief, production functions).

² ILO (2019b) explains how to implement multiplier analysis using SAMs.

³ These are the number of workers per unit of output for a specific sector (L is a matrix that has the labour coefficients as diagonal entries and zeros elsewhere).

⁴ Employment data in satellite accounts (matrices containing the number of workers per sector, which are necessary to compute L).

⁵ An example of the use of the Eora I–O tables is the UNCTAD–Eora GVC database (see Casella et al. (2019)).

Source:

Drawn up by the author on the basis of the sources listed in the table and in this section.

One of the main characteristics of I–O multiplier analysis is that it allows for a multisector perspective so that interactions between sectors can be taken into consideration. This approach is useful for evaluating whether employment changes in one sector after a shock are offset by employment changes in other sectors. In general, the analysis of intersectoral effects is possible because I–O models are based on backward and forward linkages between each sector and the rest of the economy. In other words, they are suitable for examining the direct and indirect employment effects of changes in trade policy.²⁸

Indirect effects can be the result of either consumption linkages or production linkages. Consumption linkages are present if, as a result of the exogenous shock, changes in production affect factor income, which translates into changes in household revenue that trigger other changes in private consumption. These linkages are determined by the distribution of income and by household consumption patterns. Production linkages can be divided into backward and forward linkages. Backward linkages arise from the use that the shock-receiving sector makes of the inputs produced in other sectors. They capture the effect of the shock on final demand in the affected sector. Forward linkages, on the other hand, originate in the distribution of the output generated by the shock-receiving sector to other sectors, which use it as an input in their own production processes.

As seen in table 2.2, to obtain the employment effect (EE) of a particular shock on final demand, it is necessary to first multiply the Leontief inverse matrix by the matrix of labour coefficients (L) composed of the employment–output ratios by sector. The resultant matrix is then multiplied by a vector representing the shock to final demand (s).

An example of the use of an I–O approach is the study by Kucera, Roncolato and von Uexkull (2010), who carried out an ex post evaluation of the labour and distributive impact of trade contraction in India and South Africa during 2008/09.²⁹ The authors use data from SAMs in a Leontief multiplier model to look at aggregate and industry-level employment while also taking into account differences between workers (for example, gender and skill level). Two types of multipliers are considered in this study: Type I multipliers, which

²⁸ The impact of an exogenous shock on final demand (for example, on export demand) can be direct (the effect on the sector where the shock takes place) or indirect (the effect on the rest of the sectors in the economy). The sum of both impacts defines the total multiplier effect, which reflects the extent to which the direct effect is amplified by the endogenous interlinkages between sectors.

²⁹ It is worth noting that this methodology can be used for both ex ante and ex post analysis (Wixted, Yamano and Webb 2006). See also Alarcón and Ernst (2017) for an example of an ex ante study that considers the impact of key public policies on quantitative and qualitative aspects of the labour market.

address the direct effects of trade contraction on incomes and employment and the indirect effects stemming from forward and backward production (I-O) linkages; and Type II multipliers, which, in addition to these direct and indirect effects, include the income-induced effects resulting from changes in household expenditures.³⁰ In this way, the authors show how a shock taking place in one sector can have significant effects in other sectors.

By using global I-O tables, it is possible to estimate the number of sectoral jobs created in different countries as a result of changes in foreign final demand. This application of the I-O approach is very important, given that internationally linked-up production through GSCs has been taking place for more than four decades now (Amador and Cabral 2016; Gereffi, Fernandez-Stark and Psilos 2011; Milberg and Winkler 2013; UNCTAD 2013b). Significantly, the use of global I-O tables also makes it possible to take into account the type of employment (skilled or unskilled) used in the production process. A relevant example is the study by Timmer et al. (2014), who used the 2013 version of the World Input-Output Database (WIOD) to track the flow of products across industries and countries and, consequently, measure the value added in GSCs.³¹ In an earlier study by the same group of authors, Timmer et al. (2013) looked at the changes in the number and skill level of jobs and the distributional effects arising from the internationalization of production.³²

Notably, this approach is used in combination with other approaches. For example, an I-O model can be combined with PE to complete the analysis of the labour impact of trade: a PE model is used to simulate trade policy changes and calculate their net effect on trade, which is necessary to implement multiplier analysis and to compute employment effects. The toolkit developed by the ILO (2019b) provides a step-by-step explanation and hands-on exercises on how to use both approaches together. See also Ernst and Peters (2012) for a study of the employment impact on Indonesia of the free trade agreement between the Association of Southeast Asian Nations (ASEAN) and China; this study combines the SMART model, introduced in section 2.1, with SAMs.

30 This study uses only exports in constructing the demand vector, while other studies have used net exports relative to domestic production for a more precise analysis (see, for example, Kucera and Milberg (2003)).

31 The most recent release of the WIOD database is the 2016 version. See www.wiod.org. It is important to take into account that the database does not include many developing countries. Another example of a global I-O database is the Inter-Country Input-Output Database developed by the OECD. See www.oecd.org/sti/ind/inter-country-input-output-tables.htm.

32 An aspect worth considering in this type of analysis is the actual extent of “global” chains and the implications for the labour market. See Johnson and Noguera (2012) and Los, Timmer and de Vries (2015).

2.2.2 Strengths and weaknesses

I–O and multiplier analysis have the advantage of being a multisector framework, which allows for a comprehensive analysis of the labour market impact of trade. This is a major strength, as interactions at local and international levels, especially as part of GSCs, are a distinguishing feature of real economies. In connection to this, another advantage has to do with the databases used, which include national and global data. In addition, given the assumption of a linear production function, the general I–O model is considered relatively easy to use, since the processing requirements are less demanding than those of models with more complex specifications.

The weaknesses associated with this approach are mainly related to the framework's simplifying assumptions. The assumption that factor content remains fixed over a long period of time, for example, limits the realism of the framework, since it makes factors almost immune to changes in policy (Gibson 2011). Similarly, since productivity is exogenously determined, it is treated as if it were not affected by relative price variations due to changes in trade policy. In a real economy, however, changes in trade policy can influence the organization of production and productivity. In addition, as pointed out by Gretton (2013), multiplier analysis does not consider other types of interaction that are relevant in a real economy. For example, competition for factors of production is generally omitted in the analysis.

► 2.3 Qualitative and mixed-methods approaches

This section looks at some of the most common, albeit underused (Gibson 2011; Shaffer 2018), approaches that have been used to analyse the labour impact of trade, such as qualitative and mixed-methods approaches. In general, these approaches are well known for facilitating an in-depth understanding and interpretation of the underlying motivations behind the processes being studied. In contrast to the methods discussed in sections 2.1 and 2.2, these approaches entail a more intensive data collection process, which makes it possible to capture a large quantity of detailed information from a usually small number of participants. In that sense, the use of qualitative and mixed-methods studies allows for the consideration of questions that go beyond the effect of a change in trade policy on the level of employment. For instance, with these approaches, we can also consider aspects of decent work such as equitable treatment; working time;

combining work, family and personal life; safe working environment; and stability and security of work. This is of critical importance, as their inclusion allows for the consideration of potential trade-offs (Shaffer 2018) between measures of what traditionally constitutes a positive impact (more jobs) and the detriment to labour conditions (regarding workers' safety, excessive working hours and bargaining power, for example).

These frameworks therefore allow for the consideration of accounts of lived experiences regarding decent work. The data can be gathered from different sources and in different ways,³³ such as through observation, unstructured interviews, analysis of public and private documents, and official questionnaires. Because of the complexity of the information thus obtained, it cannot be interpreted without reference to the context in which it originated. When it comes to the labour market impact of trade, it is important to consider the shared meaning of "work" or "employment", for instance, along with the social customs and gender roles in the specific context being analysed, in order to understand how the effects of a change in trade policy are perceived by those who experience the impact. Quantitative data and statistics may also be used for the analysis in such studies, but they tend to play a secondary role.

Shaffer (2018) has identified a non-exhaustive list of potential contributions to impact assessments of policies and programmes by these approaches,³⁴ which he groups into the following four categories according to their value-added in impact assessments: incorporating locally meaningful impact measures and weights; providing estimates of the magnitude of impact; unpacking and integrating processes and mechanisms; and informing model specification. In providing estimates of the magnitude of the impact of trade policy on employment, a central approach is the use of counterfactual thought experiments. These make use of subjunctive conditional ("if/then") questions about a hypothesized link between trade and employment. Accordingly, it is possible to incorporate questions about potential changes in economic activity for ex ante assessments, for instance. In ex post assessments, questions refer to what respondents would have done in the absence of the policy change. Questions can be posed to the participants during household surveys, focus group discussions and

33 Sampling is carried out in different ways too, such as through purposeful sampling, quota sampling and "snowball" sampling.

34 Some of these assessments have been focused on analysing the impact of policy changes on poverty (see Shaffer (2013); Bourguignon and Pereira da Silva (2003)), but in principle, the same methodological approaches can be used to analyse the impact of trade policy changes that affect the labour market (Shaffer 2018).

semi-structured interviews.³⁵ Notably, as pointed out by the same author, counterfactual thought experiments can inform possible mitigation measures since they can give an indication of the magnitude of likely problems stemming from the failure to adjust to changes in trade policy, and they can also point to the reasons for such lack of adjustment.

2.3.1 Case studies

Case studies³⁶ refer to the in-depth examination of a single case or group of cases – for example, a person, the members of a family or a community – who are likely to be affected by the implementation of a trade policy (Creswell and Poth 2017; Jupp 2006; Yin 2017). Case studies may be conducted using various tools, including observation, unstructured interviews (as in Harrison et al. (2019); Tanwir and Sidebottom (2019)), and official and “informal” documents, such as diaries (see Ruwanpura (2016)). The ILO (2016a, 2017b) provides case studies of labour provisions in trade and investment arrangements. Hernandez (2020) provides other relevant examples of the use of case studies in this area. These case studies considered substantive elements of decent work, such as employment opportunities, equal opportunity and treatment in employment, freedom of association, safe work environment, work that should be abolished, and decent working hours.

A qualitative research technique commonly used with case studies is in-depth interviews, which can be divided into one-to-one interviews (also referred to as unstructured interviews) and focus group discussions. In contrast to traditional structured interviews, in which the participants are all asked the same set of predetermined questions in the same order, an unstructured interview does not follow a specific order of questions. Rather, it is a conversational form of interview, in which open questions play an important role in helping to gather detailed information on the participants' unique experiences (see, for example, ILO (2014)). In this sense, unstructured interviews are a more flexible tool for capturing information. In the context of assessments of the labour market impact of trade, the participants of such interviews may talk in detail about how a change in policy (such as the

³⁵ An example of the use of counterfactual thought experiments is provided in Shaffer (2008).

³⁶ It is important to note that case studies are not always subsumed under qualitative research and that different disciplines may treat this issue differently (Yin 2017).

importing of a specific input) has affected their working conditions in various dimensions.

Focus group discussions are based around a specific matter that affects a set of participants, all of whom are interviewed at the same time. The main task of the interviewer is to ensure interaction among the participants and to guide the conversation so that it does not stray from the main topic. As with unstructured individual interviews, focus groups also allow one to capture detailed information and obtain a richer account of the situation and of the way in which the participants as a group have experienced it (ILO 2014; Krueger and Casey 2014). In assessments of the labour market impact of trade, producers of a specific good may, during a focus group discussion, talk about whether and how the introduction of a free trade agreement (with its concomitant deregulation and impact on prices) has displaced them from their traditional roles.

2.3.2 Mixed-methods

Mixed-methods research seeks to combine qualitative approaches with some of the approaches presented in sections 2.1 and 2.2 (such as CGE models) in order to offer a broader perspective of the topic being studied.³⁷ The point of this approach is to draw on a wide array of available quantitative and qualitative methods, where the results obtained through each method can be integrated in order to gain additional insights (Creswell 2014). For example, the results of an econometric study may be supplemented with in-depth interviews in which key stakeholders are asked for their views on the impact of a change in trade policy on work conditions, working time and freedom of association, among other factors.

Different methods can be combined to generate, analyse and interpret the information. When evaluating the labour market impact of trade, data from a survey on the effect of a reduction in tariffs in a region where producers are directly affected by the entry of new imports could be combined with qualitative data obtained from a focus group discussion with some of those producers. In mixed-methods research, the results obtained with one method can also be used to improve the research tools implemented with another method. In that same example, unstructured interviews could be used to capture the individual experiences of those producers, which could

³⁷ As noted by Shaffer (2018), using a mix of approaches that includes CGE models requires specialized knowledge; in that sense, it may be less applicable than when a mix of simpler approaches is used.

then feed into the development of a detailed quantitative survey (Hulme 2007; Shaffer 2018; White 2009; Bamberger 2015).

An interesting example along these lines is found in a study by the United States International Trade Commission (USITC 1993), which combined PE and CGE models with interviews and qualitative analysis to examine the impact of NAFTA on employment and job skills requirements. As pointed out in the report, the qualitative analysis helped with the assessment of sectors for which models could not capture the implications of NAFTA. Interviews with experts and oral testimony were part of the qualitative tools used to capture relevant information for the assessment.³⁸ Shaffer (2018) and Gibson (2011) both provide several examples which illustrate the use of mixed methods to study the relationship between trade and labour market outcomes (see also Hesse-Biber and Johnson (2015); Jefferson et al. (2014)).

2.3.3 Strengths and weaknesses

One major advantage of case studies is that they provide a large amount of detailed information, thereby yielding insights that can stimulate and inform future research. Case studies are also known for providing a basis for analytic generalization, that is, they are generalizable to theoretical propositions, although not to populations or universes (Yin 2017). However, they are also known to be time-consuming, difficult to replicate and liable to interference from the analysts' subjective beliefs. These and other concerns have been addressed by Yin.

The flexibility afforded by qualitative research techniques associated with case studies, such as in-depth interviews, makes it possible to capture comprehensive information. The conversational nature of one-on-one interviews and focus group discussions facilitates understanding of the participants' perceptions regarding the impact of the policies being evaluated. Another advantage of in-depth interviews is that they offer a "second chance" to request clarification on the answers provided by the participants, which also ensures a certain degree of validation of the information. The disadvantages include the length of time it may take to complete the interview and to systematize and analyse the information collected. Developing the necessary skills for conducting such interviews can also be time-consuming and expensive. In the case of focus groups,

38 A more recent example of the use of a mixed-methods approach to evaluate a free trade agreement may be found in Civic Consulting and Ifo Institute (2018), which includes an in-depth analysis of elements of decent work such as freedom of association, working conditions and equal treatment.

obtaining legitimate consent from participants and addressing issues of confidentiality have been singled out as critical ethical challenges (Sim and Waterfield 2019). Participants may also be influenced by the presence and answers of other participants. Additionally, a drawback common to in-depth interviews in general is the possibility of “interviewer effects”; that is, the influence which interviewers may inadvertently have on interviewees as a result of such factors as gender and age.

An advantage of mixing tools and approaches is the potential for complementarity, which helps to mitigate the weaknesses inherent in each approach. In that sense, a mixed-methods approach allows researchers to collect comprehensive information and to attain a broad perspective of the issue being analysed. Additionally, since conclusions are based on results obtained using different types of methods, they may offer more solid evidence than is the case when only one type of method is used. For this reason, it is often argued that the conclusions from mixed-methods studies are, to a certain degree, validated internally as part of the analysis. Another advantage of combining methods is that it can help to reduce the analysts’ biases, while making it possible to produce reports that appeal to a wider audience. The main disadvantage of a mixed-methods approach is that more time and financial resources need to be invested in order to collect the information. Additionally, a greater range of skills are required to work with tools based on different approaches, which may call for a larger number of researchers to be involved in a given study.

► 2.4 Future avenues of research

As mentioned at the beginning of this chapter, the research question and the main purpose of the study should guide the choice of methodological approach used for the assessment of the labour impact of trade. In some cases, using one of the approaches presented above may be appropriate. In other cases, a mixed-methods approach may be regarded as a superior option as it guides the collection, analysis and interpretation of more comprehensive information. It is, in this sense, a promising option for future research, as it can help to bring to light substantial and detailed information for robust analysis. Moreover, when qualitative research techniques, such as in-depth interviews, are used to generate data that can be combined with quantitative data, their integration can enrich the analysis by bringing new insights and, in that way, provide a better understanding of the implications

for those directly affected by changes in trade policy. Some of the examples of studies that use a mixed-methods approach cited in section 2.3 highlight a further advantage of the approach, namely its ability to take into account a greater range of labour market considerations associated with decent work. This is particularly important given that even the approaches with the most complex “structure” (such as CGE models) focus on changes in the level of employment while disregarding the quality of the jobs concerned.

As mentioned in the introduction, the complex intertwining of international production and globalization in general have had an impact on labour market outcomes in countries of all income levels. Understanding how the populations of countries at different levels of development are affected is another reason why it is essential to extend the analysis to take into account changes not only in the level of employment but also in terms of decent work.

Extending the type of indicators used in the analysis is also important for that purpose. Conventional indicators of labour market outcomes based on employment and wages become less informative if other labour conditions are not considered in the analysis. In general, it is important to undertake studies that create a bridge between trade policy and status in employment, trade union density, hours of work, social security and other labour market outcomes disaggregated by sex, age and other characteristics. Some of these indicators are already available for many countries (see, for instance, ILO (2016b) and the ILOSTAT database³⁹). Such studies may be relatively easy to conduct where sufficient good-quality data for different years are also available. However, obtaining good-quality data is a challenge in itself. The inclusion of more indicators should be explored on a case-by-case basis.

Improving the methodological frameworks that are already available for the analysis of the labour market impact of trade is also important. A relevant step in this regard would be to consider a more balanced account of NTMs in economic models. CGE models, in particular, treat NTMs only as costs. Omitting their potential positive effects overlooks their social role and leads to incomplete and inaccurate conclusions.

Another relevant step towards the improvement of methodological frameworks would be the development of a time dimension in economic models. As noted in section 2.1, analyses of the labour impact of trade have been criticized for not specifying a time dimension during which adjustments in the labour market can take place following a trade shock. Since trade policy is not neutral, it can result in gains for some sectors and for the workers tied to those sectors, while having the opposite effect in other sectors,

39 <https://ilostat.ilo.org/>.

where workers may face job losses or detrimental working conditions. The existing models used to assess the labour market impact of trade provide an estimate of employment gains and losses, but they do not indicate when those changes are likely to take place. Consequently, the incorporation of a time dimension into economic models could help to identify the most appropriate moment for implementing response measures and also to clarify which sectors would benefit most from such measures. Governments would thereby be able to improve their economic and social policy response, particularly for the sectors and workers most negatively affected by changes in trade policy.

► 2.5 Conclusion

The purpose of this chapter was to assess some of the most common methodological approaches used in the empirical assessment of the labour market impact of trade, particularly at the macro and meso level of analysis. The chapter considered a range of approaches, some of which have been used in combination, as well as separately for the same purpose.

Both PE and GE approaches have been extensively used for such assessments. In view of the advantages and limitations of the two approaches – with PE focusing on only one sector and GE on the economy as a whole – it has been argued that combining both types of method can give the most satisfactory results. This, however, depends on the research question. Some serious limitations of these methods are linked to their underlying assumptions, such as optimizing economic agents, the Armington assumption and the full-employment assumption, particularly in the case of neoclassical CGE models. A further limitation, when it comes to the analysis of the labour market impact of trade, is that their focus is on changes in the level of employment and wages; other labour market outcomes are more difficult to capture using a supply-and-demand framework. However, as mentioned, the latter point might be overcome by combining them with other approaches, such as I–O or SAMs models and qualitative methods.

I–O models and multiplier analysis are also widely used to assess the labour market impact of trade. This approach allows researchers to study both the direct effects of trade shocks on employment and the indirect effects, given that it considers the endogenous interlinkages between sectors. This approach can also be used to take into account elements of decent work. As seen in section 2.3, qualitative and mixed-methods approaches are

particularly appropriate when considering various aspects related to working conditions and decent work in assessments of the labour market impact of trade.

All in all, the decision as to which aspects are to be evaluated, and how, will ultimately depend on the research question, the purpose of the study and the availability of data. A shortage of good-quality data, in particular, may influence the selection of the methods used for the analysis.

One of the main criticisms of most of the methodological approaches examined in this chapter is the lack of realism in some of their underlying assumptions, which presents a further argument in favour of including more indicators of decent work in the analysis. Moreover, the use of mixed-methods approaches is desirable because the integration of quantitative and qualitative data allows researchers to gain additional insights into decent work and to validate the results to a certain extent.

Nonetheless, the need for additional time and financial resources can deter analysts from using mixed methods. Depending on the research question, the purpose of the study and the potential data constraints, it may not always be possible to use a combination of methods. In such cases, any one of the main approaches presented in this chapter could be used on its own; it is critical, however, to include an analysis of some of the indicators of decent work, in particular if the study is concerned with the impact of trade policy in low- and middle-income countries.

Lastly, improving economic models so that they are able to consider the positive role of NTMs is critical for creating a balanced account of these measures. Specifying the timeframe between trade shocks and potential changes in the labour market is also a key challenge that needs to be met in economic models. This would strengthen the necessary policy responses, especially those directed at the sectors and workers most negatively affected by changes in trade policy.

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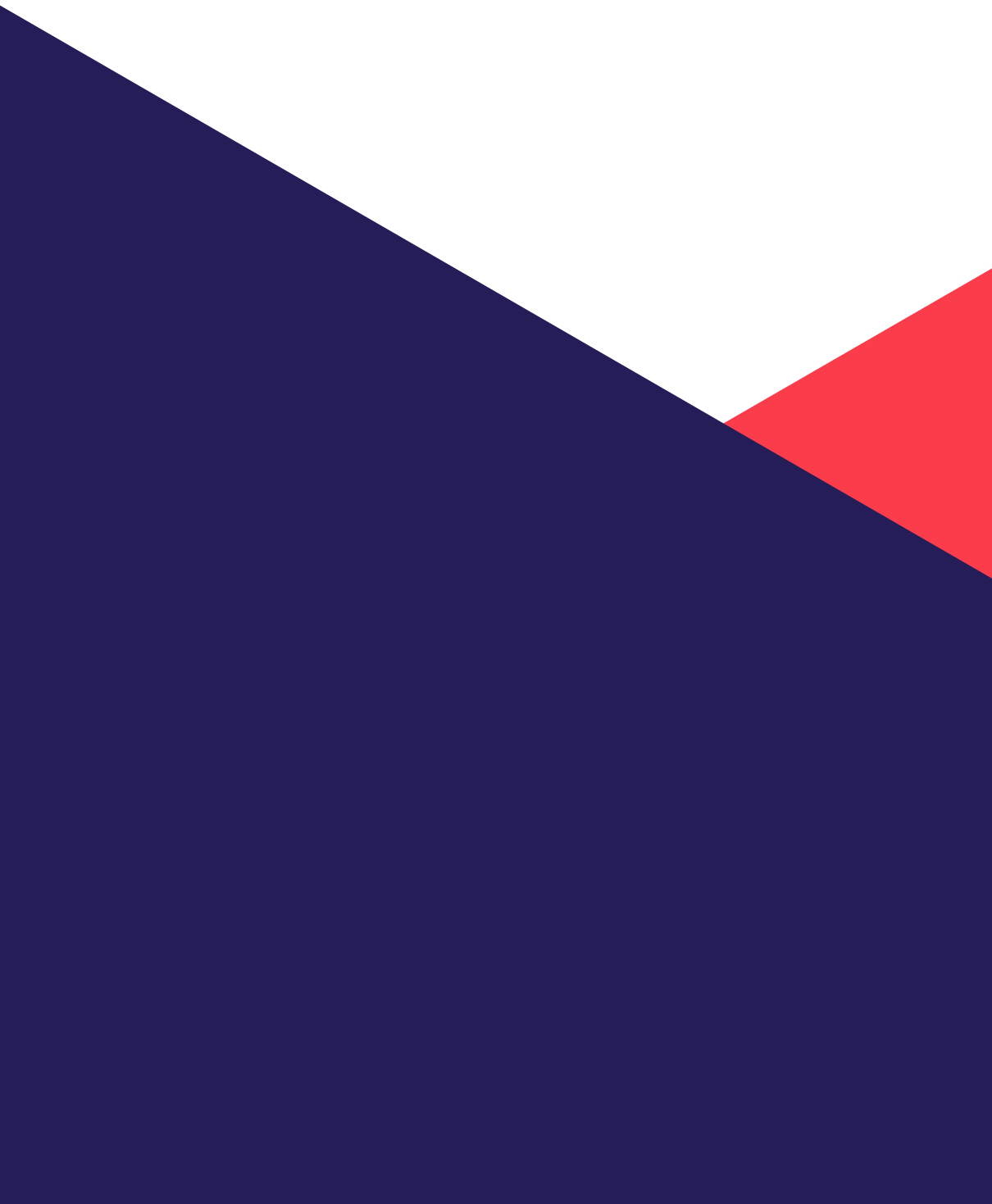
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Trade and labour market outcomes:

A summary of the main theories and evidence at the firm and worker levels

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► Introduction

The literature addressing the impact of trade on labour markets has evolved significantly over the last four decades. Beginning with country-level frameworks founded on oversimplified assumptions, it has proceeded to develop models accounting for the heterogeneity that exists among firms and workers and better explaining actual patterns of trade and the implications for the labour market. Concurrently, a combination of more and better longitudinal and cross-sectional databases, enhanced computational capabilities and improved quantitative tools has resulted in a surge of empirical studies. Their findings have provided valuable insights into the effects of trade on a number of labour market indicators, many of which are important when evaluating trade policies in relation to decent work.

The aim of this chapter is to give a short summary of the extensive literature on the impact of international trade on enterprises and workers.¹ On the theoretical side, the chapter briefly reviews the evolution of trade theory, from the neoclassical concept of comparative advantage to the so-called “new-new trade theory” and its account of heterogeneous firms and workers, in order to better understand the intra-industry and intra-firm consequences of trade. On the empirical side, it reviews recent literature on trade and labour market outcomes with respect to both the structural and quasi-experimental approaches. In so doing, this chapter acknowledges the progress to date in assessing the impact of trade on the labour market, but highlights the challenges and limitations still to be overcome. Prominent among these are the collection of more targeted data – for example, linked employer–employee datasets (LEEDs) – and the need for new statistical indicators that better capture all the dimensions of decent work.

The chapter is structured as follows: section 3.1 reviews the theoretical frameworks supporting the primary theories of trade and discusses the implications for the labour market; section 3.2 presents the main empirical approaches to the study of the effect trade has on the labour market; section 3.3 briefly considers the theoretical and methodological advances made in this field, along with what needs to be considered in future studies; and section 3.4 ends the chapter with some concluding remarks.

1 For a more detailed and extensive survey of the literature, see Aleman-Castilla (2020). See also Hernandez (2020) and Hernandez in this volume on macro and meso approaches and their use.

► 3.1 Theories of trade and labour market outcomes

Up until the 1980s, conventional explanations of international trade relied on the Heckscher–Ohlin (H–O) framework (Ohlin 1933), emphasizing the *comparative advantage theory* first put forward by Ricardo (1817) and Torrens (1815).² The original version of the H–O model supposes a world comprising two countries, two commodities and two homogeneous factors of production, for example, labour and capital or skilled and unskilled labour. Each country has the same production technology with constant returns to scale and perfect competition in every market. There is mobility for the factors of production within, but not between, countries. It is also assumed that goods vary in terms of the mix of factors required in their production, and that different countries have different factor endowments.

The H–O model's simple specification yields four fundamental results: (i) a country exports those goods whose production makes the most use of its abundant factors, and imports those goods whose production requires those factors it has the least of; (ii) trade tends to equalize the real prices of factors of production between countries, thereby acting as a substitute for international migration; (iii) a rise in the relative price of a good increases the return to the factor used most intensively in its production, and conversely reduces the return to the scarcely used factor; and (iv) an increase in the endowment of a factor of production will increase the production of the good that uses that factor intensively and reduce the production of the one that does not. The implication of the H–O model for the labour market is that trade can be expected to increase the demand for labour in countries where labour is abundant, and that real wages should tend to equalize between trading partners.

The specific-factors model is a variant of the comparative advantage model first discussed by Jacob Viner (1892–1970) and later developed by Samuelson (1971) and Jones (1971). Known as the Ricardo–Viner (R–V) model, it departs from the comparative advantage theory by recognizing, first, that factors of production cannot move immediately and freely between industries and, second, that industries differ in terms of the factors of production they require, so that a shift in the mix of goods a country produces has a long-run

² According to comparative advantage theory, international trade and its benefits are a consequence of the differences between countries with regards to the opportunity costs of producing the same goods. Countries would necessarily have different relative opportunity costs if their factor endowments or technologies differ.

effect on the relative demand for certain factors of production. This implies that, even though international trade may be generally of benefit at the national level, it could nonetheless have a negative effect on certain areas or population groups.

Krugman, Obstfeld and Melitz (2014) note that, according to the R-V model, trade will damage the factors of production in the import-competing industries that are most immobile. This applies not only to capital and land, but also to those members of the labour force unable to relocate easily to other sectors, who experience prolonged periods of unemployment as a consequence.

By the mid-1970s, comparative advantage theory was no longer applicable to patterns of trade, which were by then characterized by (a) a high degree of exchange between economies possessing similar factor endowments; (b) production concentrated in large domestic markets; and (c) the export of goods with high transport costs. Incorporating assumptions more nearly reflecting trade as it actually was – namely, economies of scale, product differentiation and imperfect competition – Krugman (1979, 1980) developed a *new trade theory* to explain differences in technology and factor endowments in order to account for international specialization and trade.

Krugman's most complete model supposes a world comprising two countries, each with two industries.³ These two countries may differ in size, trade with each other and face positive "iceberg" transport costs.⁴ There are many goods in demand from similar consumers that can potentially be produced. Labour is the sole factor of production, and homogenous firms seek to maximize profits in a monopolistically competitive environment with free entry and exit.⁵ Under these assumptions, there are welfare gains to be had from trade, because the world produces and consumes a greater diversity of goods as a result; wages are higher in the larger country; and each country specializes in the industry with the largest home market, thereby realizing economies of scale and minimizing transport costs.

The availability of more frequent, extensive and detailed data provided empiricists with comprehensive evidence of productivity differences

3 The model propounded in Krugman (1979) is extended gradually. Krugman based his first model on a single-industry economy with no transport costs. He then introduced transport costs of the "iceberg" type, before finally considering a two-industry economy with "iceberg" transport costs (the version referred to here).

4 According to the "iceberg" transport cost model, only a fraction of an exported good reaches its destination, the rest having "melted away" in transit.

5 There are many producers offering differentiated goods that are not perfect substitutes; each firm takes as given the prices asked by other firms and ignores any possible influence its own pricing decisions may have on those of its competitors.

between firms in the same industry. From this it became clear that the more productive firms were the ones most likely to engage in trade and benefit from within-industry resource reallocations. Given that this could not be explained by the theories then current, all of which assumed firm *homogeneity*, Melitz (2003) developed instead a novel dynamic industry framework allowing for firm *heterogeneity* in order to study the possible *intra*-industry consequences of trade.

In this groundbreaking model, trade is seen to induce the most productive firms to export, while others continue to serve the domestic market only, and the least productive are forced to exit the industry altogether. As an industry's exposure to trade increases, resources are reallocated towards the more productive firms, which in turn augments productivity and contributes to welfare gains. New opportunities to profit from foreign markets are also created, thereby encouraging new firms to enter the industry. Together, these two effects increase labour demand and boost real wages.

Melitz went on to stress the importance of firm heterogeneity in determining the economic impact of globalization within an industry in any particular country. His model sparked a whole new trade theory, as subsequent studies expanded on its applications by incorporating additional features that included worker heterogeneity, labour market frictions and the international fragmentation of production.

3.1.1 Worker and wage heterogeneity

Yeaple (2005) constructed a GE framework incorporating both technological variety and heterogeneous workers to explain why firms producing similar products can vary considerably in terms of size, productivity, wages paid and engagement in export-related activities. In this model, firms that are identical at the outset are free to produce goods using different technologies and differently skilled workers in a competitive labour market – precisely the conditions, coupled with different trade costs, that give rise to firm heterogeneity.

The model supposes there are two countries and that each consumes and produces (a) homogeneous, non-traded services in a competitive sector and (b) differentiated manufactured goods in a monopolistically competitive sector. Both sectors use only the labour provided by a continuum of workers with differing skills. Firms can freely enter either sector, but in order to produce a variety of manufactured goods they must first pay a fixed cost according to the technology employed.

Trade is also costly, attracting both fixed and variable “iceberg” transport costs. There is a single technology with which to produce the homogeneous, non-traded services, whereas two alternative technologies exist with which to produce the manufactured goods. Workers are paid a technology-specific efficiency wage, and firms minimize costs subject to their technology and the wage distribution. The effect of trade on the four key decisions that firms have to make is analysed within this framework: namely, (i) whether to enter a particular industry; (ii) the choice of technology to use; (iii) whether to engage in export activities; and (iv) the selection of workers.

A combination of trade costs, the characteristics of alternative technologies and the availability of skilled workers goes towards explaining why exporting firms are larger, adopt more advanced technology, pay better wages and are more productive than non-exporting firms. More specifically, lower transport costs increase the size of the labour force working with the advanced technology, as well as the wages earned by the most highly skilled workers, but negatively affect the wages of the less skilled.

Ben Yahmed (2012) proposed a framework utilizing statistical discrimination (Lazear and Rosen 1990), technological variety, heterogeneous workers and monopolistic competition between heterogeneous firms to explain why trade affects the gender wage gap differently according to skill level. In this model, the skills and job commitment of men and women are different (i.e. the availability and willingness to maintain a long and continuous working life).

Unlike skills distribution, which is common and perfectly apparent, job commitment cannot be observed by an employer. This leads to statistical discrimination against women due to a perceived weaker attachment to the labour market. Employers pay worker-specific wages, allowing them to hire women at lower wages to compensate for lower commitment. Firms decide on technology investment and hiring at the same time, calculating the expected productivity of workers according to their skills and expected commitment. Workers that are highly skilled and committed are more productive, particularly in high-technology firms.

This model therefore predicts that skilled workers will be employed in high-technology firms, where the rewards for skills and expected commitment are higher, and that in order to compensate for a perceived lower level of job commitment, women employed in these firms need to have a higher skill level than men. The consequence of this is a widening of the gender wage gap at the upper end of the skill and wage distributions. In this model, international trade takes place between two countries producing

different varieties of a differentiated good. Lower trade costs induce firms to adopt high technology and export, thereby increasing the demand for skilled and committed workers, so further extending the gender gap at the top end of the wage distribution.

3.1.2 Labour market frictions

Felbermayr, Prat and Schmerer (2011) integrated the Melitz (2003) framework discussed above with the Pissarides (2000) model of equilibrium unemployment to account for workers who lose their jobs having to go through a period of active searching in order to find new employment opportunities due to trade liberalization. The framework they constructed supposes a world comprising symmetrical countries that interact in product markets. There is a single final good, manufactured under perfect competition from domestically produced or imported intermediate inputs that are supplied by monopolistically competitive firms.

Labour is the sole factor of production, inelastically supplied by households. Market access costs for input producers wishing to enter any of the symmetric export markets are fixed, and international trade exhibits variable “iceberg” trade costs. Lastly, the labour market is imperfectly competitive due to search-and-matching frictions, which lead to intra-firm bargaining. The Felbermayr, Prat and Schmerer model predicts that a reduction in variable trade costs or an increase in the number of trading partners will have a positive effect on both wages and employment; that is, unemployment decreases with trade liberalization while wages increase whenever aggregate productivity net of transport costs grows.

Davidson, Matusz and Shevchenko (2008) offer an alternative model that includes search-and-matching frictions and heterogeneity among firms as well as workers in order to explain: (a) why exporting firms are larger and pay better wages (Bernard and Jensen 1999); (b) why a firm’s decision on whether to export is not strictly persistent over time (Roberts and Tybout 1997); and (c) how trade liberalization serves to widen the skill wage gap (Hanson and Harrison 1999).

Here the product market is perfectly competitive, but the “labor market is characterized by frictions in that it takes time for unemployed managers and firms with vacancies to find each other”, where manager is interpreted as “all workers that cannot be found without search” (p. 297). Low- and highly skilled workers search for a job, while firms decide whether to enter the industry and choose between adopting a basic or an advanced technology (Albrecht and Vroman 2002).

Both capital and labour go into the production of a homogeneous good, and each firm requires a single manager to coordinate production. Under these conditions, some firms choose a basic technology, hire unskilled workers and pay low wages; others opt for advanced technology and hire highly skilled workers at high wages. Underemployment comes about when highly skilled workers are matched with low-tech firms. Larger and more productive firms pay better wages and engage in the export trade, but the decision to export is imperfectly persistent, in that firms will only continue to do so for as long as they are matched with highly skilled workers.

3.1.3 Informality

Another aspect of the labour market receiving greater attention is the informal economy.⁶ Aleman-Castilla (2006) is perhaps the first attempt to use a dynamic industry model with firm heterogeneity to describe the ways in which trade liberalization affects informality. Following Roberts (1989), in this framework, the informal sector is defined as a set of economic activities carried out either by small firms or the self-employed that do not abide by legislative requirements such as registration, the payment of taxes and social security provision.

It adds to the Melitz (2003) model the decision made by firms as to whether to be formal or informal. Although formality implies higher labour costs, it is also an opportunity to achieve greater productivity and gain access to foreign markets. Informality, on the other hand, exposes firms to the risk of being apprehended by the government and having to pay part of their profit as a fine. Within this context, reductions to import and export tariffs force the least productive informal firms to exit the industry and increase market share and profits for those formal firms that already export, thereby contributing to an increase in aggregate productivity.

Greater exposure to trade affords new profit opportunities, prompting the entry of new firms and increasing labour demand and real wages. This in turn raises the costs of formality, which pushes firms at the margin into informality. Reductions to import and export tariffs thus have an ambiguous effect on the informality rate, squeezing out the least productive informal

⁶ The ILO defines the “informal economy” as encompassing all economic activities performed by workers and economic units that are not covered, or only insufficiently covered, either in law or in practice, by formal arrangements. Jobs are considered to be informal if the employment relationship is subject to neither national labour legislation, income taxation, social protection nor entitlement to employment benefits. Informality does not cover illicit activities, and is to be found across all economic sectors. It is estimated that, globally, more than 60 per cent of workers are in informal employment (ILO 2018).

firms, while at the same time increasing informality within the formal economy.

Paz (2014) has also examined the impact of trade liberalization on informality, focusing in this case on a small open economy in which changes to trade policy affect a firm's decision whether to offer either formal or informal jobs (the latter defined as when an employer does not comply with payroll tax regulations).

Similarly, the formality decision is embedded in the Davis and Harrigan (2011) model of trade, together with firm heterogeneity and efficiency wages (Shapiro and Stiglitz 1984), allowing for worker heterogeneity through different levels of effort, so that among firms with the same level of employment, some choose to hire formal and others informal workers. This model predicts that, whereas a reduction in domestic import tariffs will *decrease* the average formal wage and have an ambiguous effect on the share of informal workers, a reduction in export tariffs (i.e. trading partner import tariffs) will *increase* the average formal wage and reduce the share of informal employment in the economy.

A recent contribution by Dix-Carneiro et al. (2021) develops a model of trade in a small open economy with search-and-matching frictions and collective bargaining, in which heterogeneous firms decide whether to operate formally or informally. Formal firms comply with minimum-wage regulations, pay dismissal costs and taxes, but imperfect enforcement by the government gives rise to informality.

The presence of labour market frictions and hiring costs implies that there is unemployment in equilibrium. In the product market, there is a tradable and a non-tradable sector, each producing differentiated goods in a monopolistically competitive environment where there are formal and informal firms. In each period, incumbent firms establish a new productivity level and decide whether to exit the industry, or adjust their labour force and become formal.

Hiring costs are greater for larger firms, while dismissal costs are only paid by formal firms. Potential entrants observe a productivity signal based on forecasts and decide whether to enter and, if so, whether as a formal or an informal firm. If they do decide to enter, they then monitor actual productivity. Lastly, firms in the tradable sector can export, but face fixed costs, tariffs levied on imports and "iceberg" trade costs. The Dix-Carneiro et al. model predicts that trade will result in workers being reallocated towards larger and more productive firms, thereby reducing informality in the tradable sector, but with an ambiguous effect on aggregate informality.

3.1.4 Global value chains: International outsourcing and offshoring

Lastly, we come to GVCs. According to Inomata (2017), classical trade theory has undergone three waves of reconstruction. The first was new trade theory, which brought into question the premises of perfect competition and constant returns to scale. The second was new-new trade theory, which reconsidered the assumption that producers are homogeneous. The literature on GVCs represents a third wave, one that challenges the neoclassical premise that countries trade only final products, and that each product is made using domestic factors of production. Thanks to remarkable advances in transport and in information and communication technology (ICT), production can now be broken down into several sequential tasks, each of which can be reallocated geographically so as to maximize efficiency.

Among the theoretical frameworks on GVCs and their labour market implications that first appeared in the 1990s, the one contributed by Antràs and Helpman (2004) is perhaps key, as it integrates increasing returns to scale and firm heterogeneity into a North–South model based on contract theory in order to study the choices between (a) outsourcing versus vertical integration and (b) domestic versus foreign production. In this model, labour is the sole factor of production, and wages are higher in the North than the South.

The production of differentiated final goods requires northern headquarter services and southern manufactured intermediates. Final-good producers supply the former, and operators of manufacturing plants the latter. International fragmentation of production is allowed, so that a final-good producer may choose between having a northern or a southern manufacturing partner. Coordination with a foreign manufacturer is more costly, and relationship-specific investments are governed by imperfect contracts.

When in equilibrium, highly productive firms acquire southern inputs, while low-productivity firms acquire northern ones. Among firms that choose not to outsource abroad, the more productive tend to vertically integrate. Additionally, in sectors with little need for headquarter services there is no vertical integration; instead, less productive firms outsource domestically, while the more productive outsource abroad. Finally, either widening the North–South wage divide or reducing the trading costs of intermediate inputs serves to increase the proportion of firms importing intermediate inputs and outsourcing.

In summary, the several theories reviewed in this section make a number of predictions about the likely effects of trade on labour market outcomes. First, exporting firms are likely to be larger, technologically superior, more productive and to pay better wages. Second, the reduction of tariffs on final products will (a) reduce wages in firms either oriented towards the domestic market or that do not import inputs and (b) raise wages in those firms that export and those that import inputs. Third, trade increases wage inequality, as well as unemployment and labour turnover, thereby having an ambiguous impact on workers' welfare.

Fourth, the demand for skilled and committed workers is likely to grow with trade openness, as is the wage gap between skilled and unskilled workers. Fifth, while the demand for women workers increases with trade openness, its effect on the gender wage gap is ambiguous. Sixth, trade liberalization is likely to reduce informality in tradable sectors, but to have an ambiguous effect on informality overall. Seventh, trade liberalization and the widening of the wage gap between developed and developing countries will lead to greater outsourcing. Eighth, and finally, reducing offshore production costs for basic activities is likely to boost productivity and benefit the most skilled workers.

► 3.2 Evidence on trade and its implications for the labour market

There is a variety of complementary empirical methods available to researchers to use when studying the impacts of trade on labour markets (Goldberg and Pavcnik 2016); choosing between them depends on the specific research question that wants answering and the characteristics of the data at hand. This section reviews a sample of studies that have adopted either (a) a structural or (b) a quasi-experimental approach when analysing the effects trade has on labour market outcomes.⁷

The structural approach evaluates the effects of policies through the estimation of key parameters or reduced-form equations derived from

7 The assorted empirical strategies can be grouped into three broad categories: (i) the structural approach, (ii) the quasi-experimental approach and (iii) randomized controlled trials. Carrying out randomized controlled trials for trade policies at a national level is almost impossible, which is why there is no empirical research on trade that has used this approach.

an underlying theoretical framework.⁸ This approach is also useful for identifying the mechanisms underlying observed economic behaviour and policy counterfactuals (Blundell 2017). Its efficacy is nonetheless subject to the consistency of estimators, as well as to the assumptions and constraints adopted in the underlying theory. Structural methods of estimation have been used to evaluate the effects of trade on labour market outcomes, including on employment, wages and informality.

The quasi-experimental approach, like the structural approach, uses economic theory to guide empirical work, but seeks to differentiate causal effects from specific events or situations (Angrist and Krueger 1999). Quasi-experimental studies provide evidence about causal effects by controlling for observable differences between groups, comparing the same units of observation at different points in time in order to reduce biases, or using instrumental variables as a source of external variation (Angrist and Pischke 2010). In the case of changes to trade policy, because the identification of the causal effects depends less on specific functional-form assumptions, quasi-experimental studies are unsuitable for evaluating welfare or general effects (Goldberg and Pavcnik 2016). Nonetheless, the quasi-experimental approach has provided a large amount of evidence on the ways in which trade affects a range of labour market outcomes.⁹

3.2.1 Employment and wages

There has been a considerable number of studies undertaken on the impact of trade on employment and wages. Among recent studies, Coşar, Guner and Tybout (2016) explored what would be the combined effects on firm dynamics, job turnover and wages in Colombia of reductions in (a) trade frictions, (b) tariffs and (c) dismissal costs. To do this, they developed a GE model linking globalization and labour regulations to wages, job flows and unemployment.

The model was set up so as to extend previous models of dynamic matching (Bertola and Caballero 1994; Bertola and Garibaldi 2001) and search frictions in the context of heterogeneous multiple-worker firms, “to include fully articulated product markets, international trade, serially correlated productivity shocks, intermediate inputs and endogenous firm entry and exit” (Koeniger and Prat 2007, 627). Their model is fitted using the method of

8 A reduced-form equation is the expression obtained from solving the equilibrium or first-order conditions in a model for all its endogenous variables, where these are expressed as functions of the existing exogenous variables.

9 See Sekerler Richiardi, Ghani and Pham in this volume for an example of a quasi-experimental approach applied to SMEs in Viet Nam.

simulated moments (Gouriéroux and Monfort 1996) based on establishment-level data from 1981 to 1990.

Results indicate that reductions in import tariffs and labour market reforms were jointly responsible for a significant part of the increase in inequality experienced over the course of the decade, but that they are unlikely to have been the reason for the increase in job turnover and unemployment observed. Reductions in trade frictions intensified the outcomes of the labour reforms and partially explain the rise in unemployment. The authors concluded that labour reforms ameliorated the possible negative effects of trade reforms.

Helpman et al. (2017) developed a heterogeneous-firm model with search-and-matching frictions in order to study the effects of trade on wage inequality in Brazil. In this model, firms do not observe workers' abilities, but they can invest in the screening of workers and are heterogeneous as regards export market entry costs and screening efficiency.

The framework features (a) what is termed a "selection effect", whereby highly productive firms hire more workers, are more likely to export and pay better wages; and (b) what is termed a "market access" effect, whereby serving foreign markets requires production on a larger scale, which is complementary to greater selectivity in the labour market. The result is that exporters have more skilled workers and pay better wages.

The econometric model is then estimated using maximum likelihood, the generalized method of moments, and a semi-parametric selection model (Powell 1994) on data from a 1986–98 LEED for the manufacturing sector extracted from Brazil's Annual Social Information Report (RAIS) and trade transactions data from the Secretariat of Foreign Trade of the Ministry of the Economy (SECEX/ME). The authors found that trade had a significant impact on wage inequality, with the opening up of "trade raising the standard deviation of log worker wages by around 10%" (Helpman et al. 2017, 393).

Amiti and Davis (2012) have likewise studied the relationship between wages and trade, analysing how reducing tariffs on final products and also on inputs affects a firm's involvement in trade. Using a GE model that incorporates firm heterogeneity, trade in inputs and final products, plus firm-specific wages, they predict that a reduction in output tariffs is likely to lower the wages paid by import-competing firms but raise them at exporting firms, and that a reduction in input tariffs will increase wages at importing firms.

To test this, the authors estimated a firm-level equation of average wages on industry-level output tariffs, firm-level weighted average input tariffs, exporter/importer indicators, firm fixed effects, location-year effects and other firm characteristics. The authors used 1991–2000 firm-level data

from an annual survey of large and medium-sized manufacturing firms in Indonesia.

To determine a firm's market orientation, the authors referred to firm-level information derived from a census of importers and exporters on the value of exports, imported inputs and domestically purchased inputs for each plant. To differentiate the effects on wages from input as opposed to output tariffs, they referred to a list specifying the amount spent on intermediate inputs by each firm that was included in a 1998 manufacturing survey provided by Statistics Indonesia. The results supported the predictions made by the theoretical model.

Finally, three papers by Krishna, Poole and Senses (2011, 2012, 2014) used linked employer–employee data from Brazil to examine the impact of trade reforms during the 1990s on the wages earned by workers employed at heterogeneous firms, allowing for the non-random assignment of workers to firms.¹⁰ The authors found that trade liberalization had a differential and positive effect on wages paid by exporting firms.

However, after controlling for worker and firm characteristics, and using firm–worker match-specific effects to account for the endogenous mobility of workers, they went on to find that this effect was not a significant one, but that workforce composition improved in exporting firms in terms of skills and the quality of matches. The authors also found that the effects of trade reforms on wage inequality differed between groups of workers. Wage dispersion was greatest among more educated workers, with university-educated workers employed by exporting firms paid better than their counterparts at non-exporting firms.

3.2.2 Gender wage gap

International trade can also impact the gender wage gap. Ben Yahmed (2017) recently investigated this using a model economy characterized by an international Cournot oligopoly where two countries produce and trade a homogeneous good. Employers are assumed to care about the gender composition of the workforce and pay men a wage premium. This prejudice against women in terms of wages generates firm heterogeneity with regards to labour costs.

International trade has a pro-competitive effect on gender wage that means discriminatory firms fare less well, because they are less productive due

¹⁰ To allow for the fact that a worker's assignment to a firm may not be independent of time-invariant, match-specific productivity, worker–firm match effects (or job-spell effects) are included in the fitted wage equations.

to discrimination being more costly. Import penetration forces down the demand for costlier male labour among discriminatory firms, thus reducing the gender wage gap. Moreover, a market-sized effect arises due to new opportunities to export abroad being only open to the most competitive firms, and this narrows the gender wage gap as a consequence.

The validity of these predictions was tested against the results of the economic liberalization of Uruguay in 1991, using data from a 1983–2003 longitudinal household survey, the 1988–96 Annual Survey of Industry, the 1997 Economic Census, the 1998–2003 Survey of Economic Activity, and trade data from the CEPII TradeProd database (Mayer, Paillacar and Zignago 2008). Analysis found that foreign competition does indeed reduce the gender wage gap, but that opportunities to profit from exporting widen the gap when production concentration is high (i.e. domestic competition within a sector is low).

The number of studies on this topic has grown significantly in recent years.¹¹ Juhn, Ujhelyi and Villegas-Sanchez (2013), for instance, used firm-level data from the 1992–2001 Mexican National Survey of Employment, Wages, Technology and Training to look at how NAFTA has affected gender inequality within industries and firms in Mexico. They found that, although a reduction in tariffs raised women's share of wages in blue-collar jobs, there was little evidence of it doing the same for white-collar occupations.

A study by Hakobyan and McLaren (2017) explored instead the impact NAFTA has had in the United States, using an empirical approach based on local labour markets and data from censuses conducted in 1990 and 2000. The authors found a negative effect on wage growth specific to blue-collar married women.

Lastly, Bøler, Javorcik and Ulltveit-Moe (2015) investigated the difference in the gender wage gap between exporting and non-exporting manufacturing firms in Norway, using linked employer–employee data from various sources collected by Statistics Norway between 1996 and 2010. By controlling for unobservable heterogeneity, the authors found that the gender wage gap was greater for exporting compared with non-exporting firms.

3.2.3 Informality

One of the earliest studies to examine the effect of trade liberalization on informality is that by Goldberg and Pavcnik (2003), which defined the informal sector as one that fails to comply with labour market legislation and does not

¹¹ Aguayo-Tellez (2012) and Papyrakis, Covarrubias and Verschoor (2012) provide comprehensive literature reviews.

provide workers with benefits. Using 1980s and 1990s data from Brazil and Colombia, the authors looked at whether increased foreign competition due to trade reforms forced formalized firms to reduce labour costs by either cutting employee benefits, hiring temporary workers or subcontracting work to informal firms.

The study measured trade liberalization according to changes to import tariffs, which varied between sectors. This variation was used to identify the effects on informality by relating it to changes in the likely prevalence of informal employment in each sector through a two-step estimation approach. For Colombia, tariff data were sourced from the National Planning Department and labour force data were sourced from the National Household Survey conducted twice a year between 1986 and 1998. For Brazil, the source of trade data was Muendler (2004), with the labour force data sourced from the Monthly Employment Survey conducted between 1987 and 1998. The study found no evidence that trade reforms increased informality in either country. Similar methodological strategies have been used in other studies, with mixed results for different developing countries.

Aleman-Castilla (2006) looked at the impact of NAFTA on informality in Mexico and found reductions in Mexican import tariffs were associated with reductions in the incidence of informality in tradable industries, while reductions in the US tariffs on Mexican exports helped reduce informality in those industries that were relatively more export-oriented. Likewise, Paz (2014) assessed the effects of trade liberalization in Brazil during the 1989–2001 period, finding that a reduction in import tariffs slightly increased both informality and the average informal wage but reduced the average formal wage, whereas cutting foreign tariffs had the opposite effect.

On the structural approach side, Dix-Carneiro et al. (2021) estimated an equilibrium model with heterogeneous firms in order to study the relationship between trade and informality in a small open economy with labour market frictions and imperfectly enforced regulations. The study uses seven datasets with information on formal and informal firms and their workers.¹² The authors first fixed some of the parameters in the model by combining aggregate data, estimates from previous papers and the statutory value of institutional parameters (for example, taxes). The

12 These include RAIS; the Annual Surveys of Industry, Trade and Services, which collect detailed information on the inputs, outputs and revenues of firms; customs data from the Secretariat of Foreign Trade; the Urban Informal Economy Survey, which is a linked employer–employee survey conducted in 1997 and 2003; and the Monthly Employment Survey.

remaining parameters were then obtained using an indirect inference estimator with equilibrium constraints.¹³

The authors ran counterfactual experiments to assess the effects of trade shocks on an economy with a large informal sector. There were four main results. First, trade openness decreased informality in the tradable sector, but had ambiguous effects on informality overall. Second, trade openness resulted in large welfare gains due to increased productivity, even when informality was suppressed. Third, the inclusion of the informal sector in trade evaluations reversed predictions as to how trade was likely to impact inequality driven by firm heterogeneity, in the sense that trade liberalization now had the effect of reducing wage inequality. Fourth, and last, the informal sector worked as an “unemployment” – but not a “welfare” – buffer in the event of negative shocks.

3.2.4 Local labour market outcomes

Finally, there is the growing body of empirical literature documenting the ways in which trade policies affect local and regional labour markets differently, depending on the industry mix. A relevant study in this area is by Topalova (2010), measuring the impact of trade liberalization on poverty in India during the 1990s. The study adopted a difference-in-differences estimation strategy to examine (a) the variation in sectoral composition across districts and (b) the intensity of the liberalization across production sectors.

It found that in rural districts, where the production sectors most exposed to liberalization were concentrated, poverty declined more slowly and consumption did not grow as much. In addition, the negative impact of liberalization was felt most strongly by the least geographically mobile people at the bottom of the income distribution.

Two related studies are those by Kovak (2013), which investigated the effect on wages of trade liberalization in Brazil during the 1990s, and Autor, Dorn and Hanson (2013), which analysed what effect rising Chinese import competition during the 1997–2007 period had on local US labour markets. A consistent finding from this type of study is that the cost–benefit of

¹³ See, for example, Gouriéroux and Monfort (1996) and Smith (2008). Indirect inference is a simulation method for estimating the parameters of economic models when the likelihood function is analytically intractable.

international trade is unevenly distributed, not only geographically, but also across industries and skill groups.

In conclusion, the main findings of the empirical literature can be summarized as follows. First, trade has contributed to an increase in wage inequality in several countries. Second, trade liberalization affects regions, sectors and population groups in different ways, and the type of liberalizing reform (import-oriented, export-oriented, or both) is important. Third, trade leads to a gradual relocation of displaced workers and to lower wages in most of the affected sectors, but also to enhanced welfare due to more and better work alternatives becoming available in the labour market. Fourth, trade liberalization reduces informality in tradable sectors, but may increase it in non-tradable sectors. Fifth, and lastly, exporting firms employ more workers and pay better wages.

► **3.3 Trade and decent work: The road ahead**

The surge in new and extended theoretical frameworks seeking to explain the impacts of trade on labour markets has by no means receded. Recent studies have variously sought to construct frameworks that incorporate economies of scale, product varieties and monopolistic competition; reconcile firm heterogeneity and imperfect competition with the neoclassical theory of comparative advantage; or else highlight the importance of rigidities in local labour markets.

Moreover, the slow but persistent trend towards deglobalization since the Great Recession of 2008–09 needs to be acknowledged, as this has seen a decline or, at best, a stagnation in the export and import of goods and services as a share of global GDP. This trend – given added impetus by the recent trade war between China and the United States, and expected to intensify further due to the detrimental effect the COVID-19 crisis has had on GVCs – may yet induce a profound shift in the way international trade is modelled and studied.

Furthermore, a majority of the conceptual dimensions of decent work are still to be incorporated into a formal theoretical approach. The ILO has declared the promotion of “opportunities for women and men to obtain decent and productive work in conditions of freedom, equity, security and human dignity” to be its primary goal, emphasizing that “decent work is the converging focus of all its four strategic objectives: the promotion of rights at work; employment; social protection; and social dialogue” (ILO 1999, 3). The ILO’s Decent Work Indicators (ILO 2013), particularly those relevant to trade policy analysis (ILO 2021), are a set of alternative labour market metrics that should be considered for use in future research.¹⁴

After convening an international Tripartite Meeting of Experts on the Measurement of Decent Work in September 2008, the ILO adopted the Framework on the Measurement of Decent Work. This covers ten substantive elements: (i) employment opportunities; (ii) adequate earnings and productive work; (iii) decent working time; (iv) combining work, family and personal life; (v) work that should be abolished; (vi) stability and security of work; (vii) equal opportunity and treatment in employment; (viii) a safe work environment; (ix) social security; and (x) social dialogue plus employers’ and workers’ representation. These elements constitute the structural dimensions of the decent work measurement framework under which both statistical and legal framework indicators are organized and classified.

To date, the theoretical frameworks modelling trade and labour market outcomes have focused primarily on the effects of trade on wages, employment, informality and gender discrimination. There is, however, clearly a need to develop new frameworks for measuring the impact of international trade and globalization on other substantive elements of decent and productive work.¹⁵

Furthermore, the COVID-19 pandemic has set new parameters in terms of labour and trade topics. It has revolutionized both the concept and the conditions of work to varying degrees, depending on the sector and the

14 The *Handbook on Measuring Quality of Employment: A Statistical Framework* (UNECE 2015), prepared by the Expert Group on Measuring Quality of Employment, also provides a coherent framework on this aspect.

15 Understanding the implications of trade for decent work becomes even more relevant in view of growing evidence as to the positive effect that better working conditions have on a firm’s performance. See, for example, Brown, Dehejia and Robertson (2018), who assess the impact of the Better Work programme (a joint programme between the ILO and the International Finance Corporation) on firms in Indonesia, Jordan and Viet Nam; or Robinson, Perryman and Hayday (2004), who argue that employees with a positive attitude towards the firm they work for – driven by an involvement in decision-making, career development opportunities and the attention paid to employee well-being – perform better.

profession. For example, the resultant widespread use of technological tools and the adoption of novel practices such as home-office or hybrid schemes have clearly shown geographical location to be less relevant than previously thought for certain types of workers. This has created a new reality that needs to be accounted for.

Along the same line of technology-driven change, the so-called Fourth Industrial Revolution represents a fundamental transformation in the way people work and trade, with large benefits as well as risks. Modern theory coupled with quantitative analysis leveraging high-frequency and detailed data should aim to incorporate these factors.

Similarly, the empirical literature is not exempt from the need to look beyond the traditional metrics of the world of work.¹⁶ In this respect, consider for example the concept of decent working time. The ILO's main statistical indicator for decent working time is *employment in excessive working time* (EEWT), defined as the percentage of the employed population who work more than 48 hours per week (ILO 2013).¹⁷ It is a measure of exposure to overwork; that is, of people working longer hours than the threshold beyond which negative effects become observable. Among other negative consequences, a high EEWT value upsets the work-life balance and increases the risk of injury at work. It may also indicate inequitable remuneration and can reduce productivity. As an indicator, it can be readily constructed from labour force surveys in countries that meet ILO standards.

Furthermore, EEWT is a relevant statistical indicator for evaluating decent work in the context of international trade, particularly in settings that involve multinational enterprises (Galhardi 2018). However, although several studies have assessed a change in working hours as a possible margin of adjustment to international trade (Feliciano 2001; Autor, Dorn and Hanson 2013; Kim and Vogel 2018), its impact in terms of excessive working time has been largely unexplored.

16 Anker et al. (2002) is one of the earliest papers to propose viable statistical indicators for measuring the dimensions of decent work. See also Burchell et al. (2014) for a review of the development of concepts relating to the quality of employment and the ILO's Decent Work Agenda.

17 The employed population comprises working-age persons who were either in paid employment or self-employed during the reference period.

▶ 3.4 Concluding remarks

The theoretical literature on trade has undergone a significant evolution over recent decades. It has moved away from the neoclassical model of comparative advantage and towards new-new trade theory and its near family of dynamic industry models incorporating heterogeneous firms and workers, labour market frictions, GVCs and other more realistic and modern features of the product and labour markets.

However, even though novel theoretical frameworks have been developed to assess the impact of trade on various labour market outcomes, most of the structural dimensions of decent work, such as work–life balance or decent working time, have not yet been considered. Moreover, new models will need to incorporate the two phenomena that have deeply impacted international trade and the labour markets: first, the COVID-19 pandemic, which has led to the widespread adoption of new technologies and practices that are changing the notion and importance of location with regards to work; and second, the new digital era, also known as the Fourth Industrial Revolution, which is changing the way people behave and make decisions, including within the domain of trade and labour, generating large benefits as well as risks in the process.

The growing availability of more and better data, plus improved computational and econometric tools, is creating a significant body of research on the effects of trade on labour markets that provides valuable feedback for the recursive improvement of the underlying theoretical frameworks. In this respect, LEEDs obtained from surveys and administrative data, as well as large, high-frequency and detailed datasets, have become particularly relevant. This is because they allow researchers to (a) distinguish between the effects of decisions taken at the firm level and those taken at the worker level; (b) conduct equilibrium analyses of labour market outcomes; and (c) investigate the combined effects of worker and firm heterogeneity.

There are nonetheless some important challenges facing researchers. First, allowance needs to be made for certain recurring methodological issues, including measurement errors, aggregation problems and the endogeneity of policy variables.

Second, despite progress, there is still room for improvement in the coverage and the quality of data. It would be very useful to have a greater number of LEEDs, particularly for developing countries; and what is more, datasets that contain more complete information on the nature and characteristics of firms so as to obtain a better understanding of the trade-related decisions

that are taken, for example, with regards to outsourcing and offshoring. Combining administrative records, such as those held by tax authorities, with data from social security institutions would constitute a very promising source of worker- and firm-level data in this respect, making it possible to study the impact of trade policies on labour market outcomes not adequately covered by traditional establishment or household surveys.

Third, and finally, it will be necessary to widen the scope of analyses on the effects of trade by using alternative statistical indicators like the ILO's EEWT metric, if research is to capture more fully all the dimensions of decent work.

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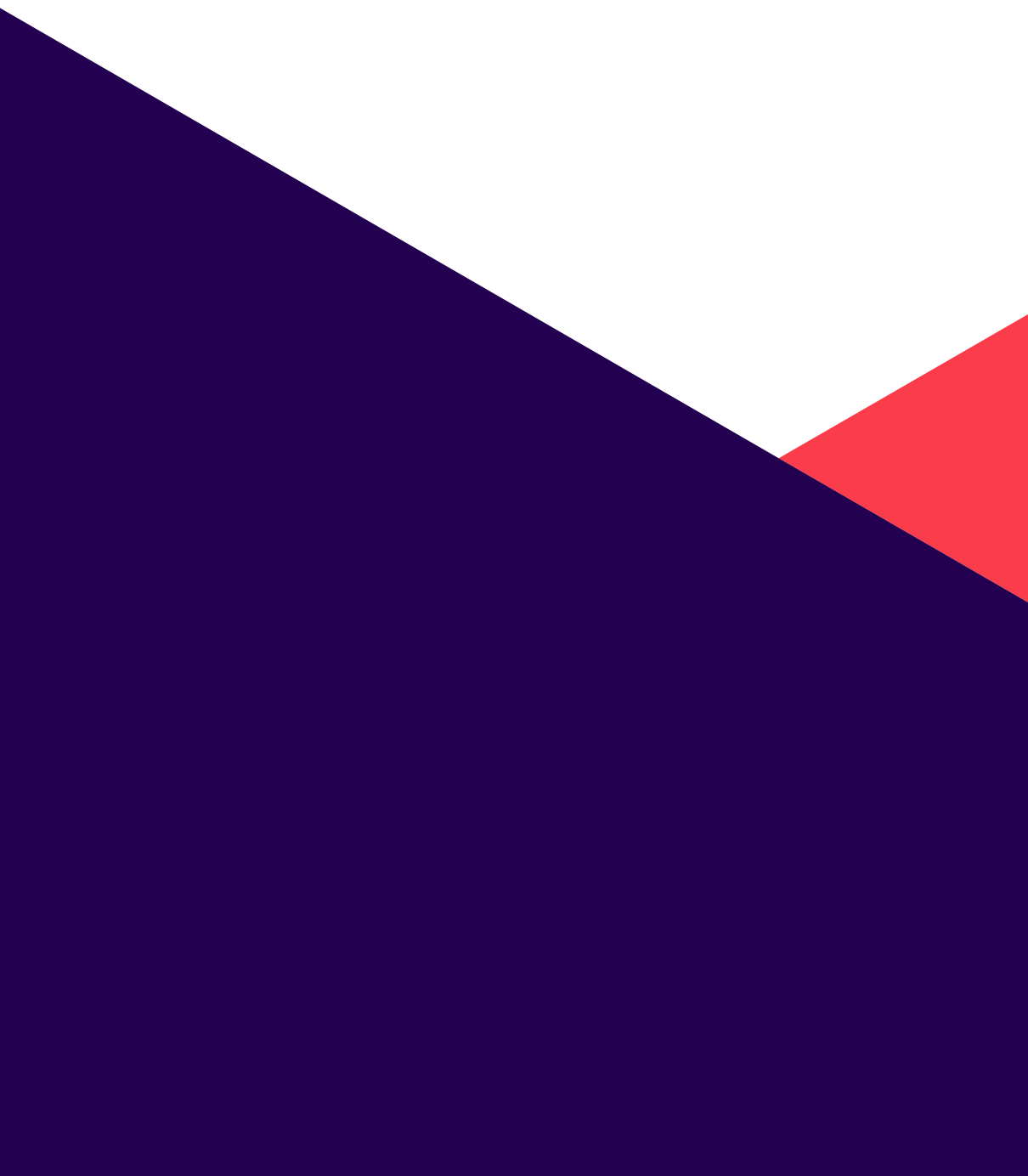
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Part 2

**Understanding the labour
market impact of trade:
Country case studies**

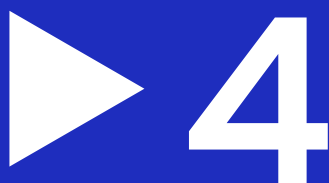


Trade and decent work in Mexico's automobile sector:

The road travelled and the uncharted territory ahead

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► Introduction

Given the globalized market system, the creation of decent jobs depends on the vitality of international trade, in particular, the extent to which productive activities participate in GVCs with robust forward and backward linkages, and generate competitive advantages grounded in innovation rather than low wages. The present case study focuses on Mexico, a country highly integrated into international trade and GVCs. The objective of the study is to analyse the links between the country's export success and its employment performance, specifically in the automotive industry. To carry out the analysis, this study differentiates exports associated with GVCs and more traditional exports not associated with GVCs, with a specific emphasis on gender and skills.

The analysis sheds light on the quantitative as well as qualitative aspects of employment, such as wages and security, that are used to measure the evolution of decent work as highlighted in ILO (2013, 2021a, 2021b). It is based on a previous study of Mexico's textile and automotive industries (Moreno-Brid et al. 2021).

This article considers some possible implications of the USMCA. In addition, it reviews the lessons learned in terms of the necessary data collection requirements for a more detailed and comprehensive picture of the evolution of the indicators of quantitative and qualitative aspects of employment under the trade agreement.

The chapter is organized as follows. Section 4.1 discusses the anticipated transformations and challenges of Mexico's automobile sector, particularly in relation to the USMCA. For this section exclusively, the automobile industry is understood to comprise four economic activities, according to the North American Industry Classification System (NAICS): 3361 "Motor Vehicle Manufacturing"; 3362 "Motor Body and Trailer Manufacturing"; 3363 "Motor Vehicle Parts Manufacturing"; and 3369 "Other Transportation Equipment Manufacturing". It also describes trends in decent work in the sector based on data especially constructed by the authors using the National Survey of Occupation and Employment (ENOE) of the Mexican National Institute for Statistics and Geography (INEGI), and data from the Mexican Institute for Social Security (IMSS). Section 4.2 discusses the main results of the analysis of trade and decent work in Mexico's transport equipment industry (which includes the automotive sector) using input-output methodologies centred on specific characteristics of exports, as mentioned above. In section 4.3, the GVC analysis further examines employment and its dynamics by

gender, status and years of schooling. Transport equipment data are used in sections 4.2 and 4.3 because available input-output tables do not include finer disaggregation to analyse the automotive industry separately. Finally, section 4.4 presents conclusions from the study, including the lessons learned to overcome data limitations.

► 4.1 Mexico's automotive industry: labour market reforms and trends

The automotive industry is, by far, Mexico's most successful industry and it plays an important role in GVCs.¹ Its success is the result of two factors. On the one hand, an active industrial policy in the late 1970s brought a profound structural transformation that overhauled and modernized all the automotive manufacturing plants. On the other hand, the shift towards trade liberalization with NAFTA in the 1990s pushed the industry to adopt a more outward-oriented strategy. Indeed, the Mexican automotive industry is a unique platform for exports to North America, especially to the United States.

From a macro perspective, the industry holds an important position as a source of foreign exchange, given its spectacular performance in generating net exports and in attracting foreign direct investment. For example, in its reports on economic perspectives, the Bank of Mexico's assessment of the balance of payments has included, since 2018, a special table on Mexico's trade balance both with and without the automotive industry. However, as concluded in Moreno-Brid et al. (2021), the automotive industry's performance in terms of employment and other aspects of decent work falls short. It has major limitations, rooted in its weak domestic (internal) backward and forward linkages to other industries. Its activity primarily involves assembling value-added generated abroad. Consequently, the multiplier effect of the sector on domestic output and employment is low, compared with its impact on the country's balance of payments and commercial accounts. Thus, it is necessary to rebalance and strengthen the industry's impact on economic activity and the labour market through

1 The detailed list of indicators utilized to define the sector can be found in Appendix II.

a combination of active industrial and labour market policies, framed in a new agenda for inclusive and sustainable development.²

The objective of this section is to identify the opportunities that can lead the Mexican automotive industry towards a robust, sustainable development path, considering the USMCA. The challenges are also identified through an overview of the trends in the labour market.

4.1.1 Mexico's automotive industry and changes under the USMCA

The ratification of the USMCA trade agreement, the successor to NAFTA, in December 2019 removed the uncertainty that clouded the investment climate during the two years of negotiations, and which threatened to end Mexico's special commercial relations with the United States and Canada.

This relationship, granted by NAFTA, had been the lynchpin of Mexico's market reforms and development agenda for close to three decades. To boost the renegotiations, Mexico's Congress accelerated the approval and enactment of a new federal labour law on 20 April 2021, published in the Federation Official Diary on 23 April, which drastically changed the role of the State in the labour market, and brought about a fairer, more levelled field in negotiations between workers and employers. This new legal framework was fully consistent with the conditions set by the United States and Canada for Mexico's labour regulations during the trade renegotiations.³ The framework now welcomed workers' freedom of association, with room to create new independent trade unions and labour organizations. It also introduced elements to warrant the election of union leaders via universal, confidential and direct voting, and transformed legal processes to solve labour disputes, moving all of them to the judiciary (USTR 2020, Annex 31-A). Additionally, in 2021, an important modification to the labour law was approved, which limited subcontracting in Mexico, forcefully arguing that it was traditionally used to "dispossess workers of their legal entitlements and defund the IMSS" (González Jiménez 2021).

² See, for instance, the numerous contributions of Universidad Nacional Autónoma de México's Grupo Nuevo Curso de Desarrollo for forceful arguments to rebuild the social pact and centre it on a new agenda for development in Mexico.

³ For a detailed account of the swift and major changes in Mexico's labour legislation, the modification of Article 123 of the Federal Constitution, and their links to the negotiation of the Transpacific Partnership and of NAFTA/USMCA, see Moreno-Brid et al. (2021), Bensusán and Briseño (2022) and Bensusán in Volume 2.

Thus, the USMCA has had some positive effects for strengthening the automotive sector's continued development and growth.⁴ Consolidating Mexico's unique position as a production site to manufacture exports to North America, with the benefit of lower tariffs and trade restrictions, is a strong incentive to attract foreign direct investment to Mexico's automotive industry, and manufacturing in general. Such an incentive has special significance in the current post-pandemic international context, where solid and persistent recovery of the Mexican economy is still more a hope than a reality. Although the Mexican economy grew by 5 per cent in 2021, this was far from compensating for the 8 per cent collapse in 2020. According to the most recent survey of experts' opinions (Banxico 2022), the annual average growth for the next ten years will not exceed 2 per cent. Added to this are long-term issues, such as the possible structural transformation of the automotive industry itself, owing to increased regionalization of supply chains and the increased production of electric and autonomously driven vehicles, led by "regions and players outside the traditional automotive clusters" (Simonazzi, Sanginés and Russo 2020).⁵

There are certainly also challenges presented by the renegotiated trade agreement. Most notably, these are the explicit new rule on value-added that 40 to 45 per cent of an automobile's content must be manufactured in a plant physically located in North America (rule of origin), and the requirement that workers in the industry can earn on average no less than US\$16 per hour by July 2023 (USTR 2020). These two conditions are substantial challenges for the Mexican automotive industry if they are not to become major trade restrictions.⁶

The rule on specific percentages of regionally generated value-added is an important issue. Over a three-year period, the USMCA raises the threshold required for passenger vehicles and trucks to be granted tariff-free trade

4 There is no official study published by the Mexican Government on the expected impacts of the USMCA, either on the Mexican economy as a whole, or specifically on the automotive industry. This is in contrast to the United States, where the USTR published a full study on its estimated impacts on the automotive sector in the country; see USTR (2019).

5 Mexico has complained that a recent initiative by the United States, which includes an incentive of between US\$7,500 and US\$12,500 for buyers of an electric car with 50 per cent of components manufactured in the United States violates the rules agreed in the USMCA.

6 In addition, it should be stressed that, in case the vehicles produced in Mexico do not comply with the USMCA rules and thus are not granted the benefit of tariff-free exports to the rest of North America, manufacturers will have to pay a tariff of 2.5 per cent, that of the WTO's "most favoured nation" (see Serrano 2020; Rosenzweig, Spak and Bond 2021).

from NAFTA's 62.5 per cent of net cost to 75 per cent by 1 July 2023.⁷ However, the effects of the COVID-19 pandemic may help to stimulate "US, Canadian, and Mexican trade and investment ... within North America in the future and reduce the region's imports from elsewhere" (Gantz 2020).

Additionally, the wage the USMCA aims to implement is well above the US\$6.65 per hour average for auto manufacturing workers, and US\$3.98 average in the automobile parts manufacturing sector, in Mexico (García, Carrillo and Bensusán 2021). It is unlikely that such a large wage gap can be closed in the foreseeable future, given the production and employment structure of the sector. Moreover, the target wage rate is set in US dollars, so the gap is affected by the exchange rate and will automatically widen with any depreciation of the Mexican peso vis-à-vis the US dollar.⁸

Nevertheless, the two recent policy changes in Mexico's labour market could support a move in the direction of complying with wage increases. First, the new federal labour law, coupled with the threat of USMCA sanctions, may lead to the emergence of new independent trade unions in the industry. Second, the López Obrador administration authorized in 2018 an annual increase in the federal minimum wage well above inflation (as measured by the variation of the consumer price index).⁹

However, it should be noted that the extent to which a rise in the federal minimum wage induces a significant rise in average wages in the automotive sector could be limited, given the large difference between them.¹⁰ Yet, this may change in the future as the difference between the minimum wage and the median wage in the industry is narrowing. In 1994 the average wage of the automobile sector was US\$1.90 per hour; between 2016 and 2018 it increased to US\$2.30, and in 2019 it reached US\$4.00 per hour (Covarrubias 2020; Bensusán and Briseño 2022). Thus, the wages of the automobile industry have increased by around 50 per cent in more than 20 years, while the national minimum wage has doubled in less than a decade.

The next section provides an analysis of labour conditions in the automotive sector. It provides more details on employment, wages and other labour

7 Under the transaction value method, the percentage lies between 75 and 85 per cent. The discussions on the RVC were perhaps the most contentious ones in the USMCA negotiations. (For a detailed analysis, see Rosenzweig, Spak and Bond (2021) and Nuñez (2021)).

8 However, on this matter Jesús Seade – once Chief Negotiator of the USMCA – stated that this requirement "can be met in Mexico through the salaries of engineers and administrative staff" with no need for shop floor wages to rise (González Jiménez 2021).

9 The increase was formally approved by Congress in 2020.

10 For an empirical analysis of the impact of the minimum wage on median and average wages in the case of Mexico, see Mexico, Comisión Nacional de los Salarios Mínimos (2016).

market trends, taking into account disaggregated information by key variables like gender. Together, these variables help to provide a picture of decent work in the industry.

4.1.2 Decent work in Mexico's automotive industry: 2005–19

The Mexican automotive industry has created formal jobs in a country where nearly half of the employed population works in informal conditions. In 2019 employment in the automotive industry increased to reach almost 1.4 million, up from about 636,800 in 2011, and 540,800 in 2009 (table 4.1).¹¹ During the same period (2009 to 2019), informality in the industry fell from an already low percentage of 4.0 per cent to 2.1 per cent.¹² Furthermore, the automotive industry has a much lower level of informality compared with the national average (the national informality rate was 56.5 per cent in 2019 compared with 2.1 per cent in the automotive sector), according to INEGI (2019a).

Along with the increase in employment, the percentage of women employed in the industry also increased: from 34.8 per cent in 2005 to 36.9 per cent in 2019. This figure is low, however, compared with the national increase of over 15 percentage points in women's employment in the last 10 years (INEGI 2019a). In addition, about one out of five positions in senior and middle management is held by a woman, a share that has remained consistent over the past decade.¹³

► **Table 4.1 Employment in Mexico's automotive industry, selected indicators (2005, 2011 and 2019)**

Indicator		2005	2011	2019
Employment	Total (persons)	540 762	636 788	1 333 970
	Informal employment rate	4.0	3.4	2.1
	Percentage of women among total employed population	34.8	32.5	36.9

¹¹ A substantial part of employment in 2019 was associated with the BMW automobile company beginning operations in San Luis Potosí, generating about 3,000 direct jobs and close to 30,000 indirect jobs.

¹² Source: INEGI, ENOE.

¹³ According to the 2011 SINCO (INEGI 2011), "senior" and "middle" refer to persons that carry out managerial, administrative, regulatory, planning and coordination activities in private companies and organizations.

Indicator		2005	2011	2019
Female share of employment in senior and middle management	Percentage ¹	n/a	21.5	21.3
Permanent workers as a percentage of total employed population	Total	74.0	71.7	65.9
	Men	74.6	70.3	64.3
	Women	72.8	74.6	68.8

Note: n/a = not available.

¹ Female share of employment in senior and middle management indicator for 2011 corresponds to 2012, year in which INEGI incorporated more variables into the National Employment and Occupation Survey.

Source: INEGI, ENOE and IMSS.

The percentage of permanent workers in the automotive industry fell from 74 per cent of the total employed population in the automotive industry in 2005 to 65.9 per cent by 2019. There was a similar decline in the share of both men and women with permanent contracts, even though the decline in the case of women was noticeably less steep. Besides, by 2019, the share of women with permanent contracts was higher than that of men. This drop in permanent contracts may stem from a combination of several factors. It may reflect a change in the composition of firms in the industry, such as an increase in SMEs, which tend to hire fewer workers on permanent contracts. It may indicate changes in the industry's outsourcing patterns to incorporate more workers in scantily qualified tasks which, from the firm's viewpoint, need not be covered by a permanent contract. But it may also illustrate, as the ILO has stressed, the tendency towards increased flexibility and reduced protection that has marked the evolution of labour markets across many countries in recent years (ILO 2022).

Nonetheless, it is important to underline that the automotive industry has one of the highest rates of permanent workers in the Mexican industrial complex due to the more specialized nature of work in the industry, the presence of large multinational companies and the positive correlation between formality and open-ended contracts. Indeed, at the national level, the rate of permanent workers is around 30 per cent, which is less than half of that in the automotive industry (IMSS 2019).

Employees in the automotive industry are also characterized by higher wages compared with the rest of the manufacturing sector, and considerably higher wages than the national average (US\$3.50 per hour in the manufacturing sector and US\$2.00 at the national level, compared with US\$6.00 in the automotive industry). It means that, on average, the automotive industry offers substantially better wages than other manufacturing industries (almost twice as high), and over three times as high as the average of the

rest of the economy. However, an analysis of data disaggregated by sex is important to take into account the large and persistent gaps in terms of female labour force participation, as well as income.

The ratio of the gender pay scale, which measures the proportion of women earning more than three times the minimum wage compared with the number of men in the same category,¹⁴ increased from 0.15 in 2005 to 0.26 in 2019 (table 4.2). It means that, in 2019, for every 100 men earning three times the minimum wage, so did 26 women; while in 2005, it was only 15 women. However, additional data reveal that the improvement in the gap is accompanied by a deterioration of the wage scale composition of employment for both men and women. Thus, there are increasing proportions of both men and women in jobs paid at relatively low scales in terms of multiples of the minimum wage.

Between 2005 and 2019, indicators showed a deterioration in wages most probably associated with a series of global challenges to the automotive industry. Indeed, in 2019, prior to the COVID-19 outbreak, global demand for automobiles had already fallen and overall production contracted by 5.2 per cent. In the case of Mexico, production fell by 2.8 per cent in the context of the beginning of an economic recession. Yet employment remained stable, perhaps due to a reduction in wages and working hours instead of job cuts. Indeed, the percentage of workers who worked more than 40 hours a week plummeted from 94.4 per cent in 2005 to 68.3 in 2019, while the percentage of workers with incomes equal to or below the minimum wage increased from 0.9 per cent of workers in the industry in 2011 to 7.3 per cent in 2019. It is necessary to emphasise that, prior to 2019, the minimum wage in Mexico was below the poverty line. This implies that, prior to the increase decreed by the López Obrador administration, a small share of workers in the automotive industry received insufficient income to meet their basic needs. Additionally, the share of workers earning less than two thirds of the median wage increased from 64.2 to 74.8 per cent over the same period.

¹⁴ In Mexico's official statistical information, workers' and employees' earnings are usually reported in multiples of the minimum wage. See INEGI's ENOE.

► **Table 4.2 Wages and working poverty rates in Mexico's automotive industry, selected indicators (2005, 2011 and 2019)**

Indicator		2005	2011	2019
Gender pay scale	Ratio (wages of women/ wages of men)	0.15	0.18	0.26
Working poverty rate	Percentage of workers earning the minimum wage	1.7	0.9	7.3
Employees with low pay rate	Percentage of workers' wages less than two thirds of median wage	64.2	64.1	74.8

Source: INEGI, ENOE and the National Council for the Evaluation of Social Development Policy (CONEVAL).

► 4.2 Mexico's transport equipment integration in global value chains

This study relies on the information from the ADB-MRIO to calculate – for any given country – the value-added incorporated in its exports for the transport equipment industry, which includes the automotive industry. As the most recent input-output database released, the multi-regional input-output tables cross-analyse the information from 62 countries in 35 sectors (following the International Standard Industrial Classification of all Economic Activities Revision 3 (ISIC Rev.3)) from 2000 to 2020.¹⁵ Of these 35 sectors, 14 belong to manufacturing.

Compared with an earlier study (Moreno-Brid et al. 2021), which also included the textile industry, the focus of this study is solely on the transport equipment sector as defined in ISIC Rev.3 and the analysis is extended to 2019 (as opposed to 2011 in the previous study). In the ISIC Rev.3 statistical classification, transport equipment covers other industries besides the automotive industry, including other types of transport vehicles (see Appendix I). While this study focuses on the automotive industry, the input-output tables available do not present data disaggregated for this

¹⁵ We used annual input-output tables for the year 2000 and from 2007 to 2019.

industry. However, the sheer weight of the automotive industry in the transport equipment sector makes it safe to use the data for the former as a proxy. Indeed, the automotive sector represents, on average, 93 per cent of the total GDP of the transport equipment sector in the period of study. Moreover, according to data on firms that are mainly exporters, the value-added in the automotive industry represented, on average, 98 per cent of the total value-added in the transport equipment sector between 2005 and 2019 (INEGI 2019a). Our study also incorporates a gender and skills perspective in the employment analysis.

The input-output methodology decomposes the total value of gross exports into four categories: (i) domestic value-added (DVA); (ii) foreign value-added (FVA); (iii) value-added re-exported to the home country;¹⁶ and (iv) pure double counting (Wang et al. 2017). DVA corresponds to the value generated in the country of analysis (in this case, Mexico), and it can refer to final or intermediate goods further processed in destination countries. It measures the country's participation as a "supplier" of value-added in international export markets. FVA captures the country's position as "user" of value-added incorporated by and from other countries. It captures the contribution of value-added originated in other countries, but used as inputs in the exports of the country of analysis. Similar to DVA, FVA can refer to final and intermediate goods. However, this study focuses on inputs contained in exports, so it is not necessary to make the distinction.

The last two categories account for less than 5 per cent of total exports, so we focus on the first two categories, DVA and FVA. The first empirical analysis is carried out from a global network perspective. This is done by examining the bilateral flows of value-added between a pair of countries as obtained by Wang et al.'s decomposition.

The network graph in figure 4.1 depicts the interchange of DVA among pairs of countries as well as the relative importance of individual countries in the global exchange of DVA in the transport equipment industry. Each country, or group of countries (EU-15 and EU-13), is represented as a node or circle in the graph. The DVA exported from country i to country j (w_{ij}) is shown by the line linking both countries. Note that if country B receives DVA from country A, from the perspective of country B this would be equivalent to FVA and vice versa. Thus, all DVA sent from a specific country can be analysed as FVA from the perspective of recipient countries.

16 In GVC accounting, intermediate goods may return to their country of origin for further manufacturing. For instance, in selected literature, we have found that automobiles and aerospace structures cross the border between Mexico and the United States more than once during the production process of cars and aircraft.

The resulting network is directionally marked and weighted to easily depict the direction and the intensity of commercial relations between countries. For the sake of simplicity, if w_{ij} is smaller than 0.01 per cent of the total DVA in exports, it is not shown in the graph. The size of the nodes represents the weighted so-called “out-degree”; that is, the sum of DVA that the country exports to other countries. The colour of the nodes shows the weighted “in-degree”; that is, the sum of DVA received from other countries, which can also be understood as FVA as explained before. Finally, the thickness of the lines captures the magnitude of DVA exchanged between two countries. In the case of Mexico, the outgoing lines are green, and the incoming lines are blue. For the sake of simplicity, the figure does not differentiate between incoming and outgoing lines for the other countries.

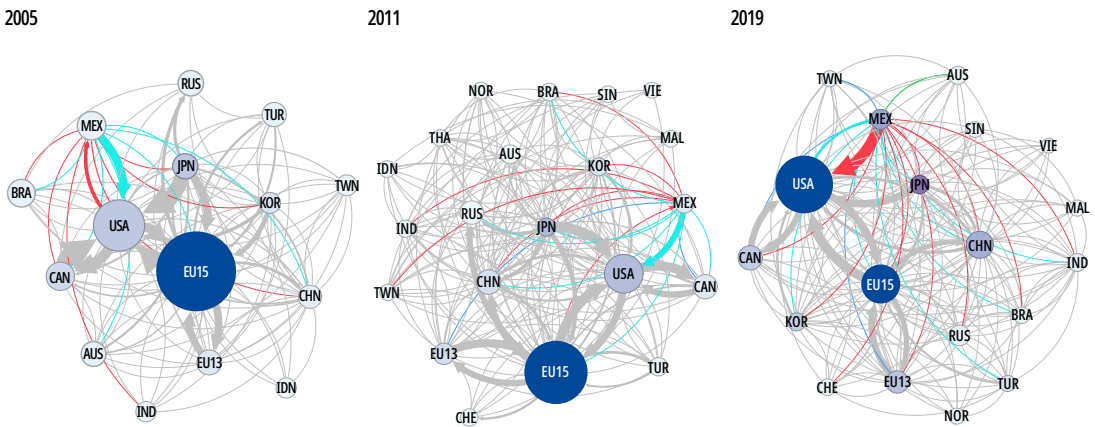
Figure 4.1 shows the global network for DVA in transport equipment for three years: 2005, 2011 and 2019. In 2005, the most significant node in the network in terms of incoming and outgoing value-added was the EU-15. The second most relevant was the United States, as it traded with all other countries in the graph, especially with Canada, Japan, the EU-15 and Mexico. In the case of Mexico, not surprisingly, its leading trade partner was the United States, as the thicker green and blue lines reveal. Mexico exports DVA to the EU-15 and Canada, and receives it through imports mainly from Brazil, Canada and Japan.

By 2011, the most relevant change in the network was that trade exchanges of the EU-15 and the United States were more diversified in terms of trade partners than in 2005. For example, the exchange of DVA between the EU-15 and China was more noticeable in 2011 than in 2005. In the case of Mexico, exchanges with the United States continued to be the most relevant. However, the addition of new green lines shows that Mexico started exporting to new countries, including China and Brazil. The links also indicate that Mexico began importing value-added from more countries (in particular, the Republic of Korea, Taiwan, China, the Russian Federation and China) along with its previous partners (Canada, Japan and Brazil).

Finally, the graph for 2019, the year before the COVID-19 pandemic, shows a few interesting changes. First, the United States consolidated its position as the leading exporter of DVA, dwarfing the EU-15 group. The greater relevance of the United States automatically increased Mexico's presence in the network. This is due to the trade agreements between Mexico and its northern neighbour, and more precisely the cross-border activities of American automotive firms with facilities in both countries. These changes are noticeable in the size and colour of the node, and the thickening of the lines indicating DVA exchanges with the United States and other countries. Another salient point is that, although Mexico exported more DVA to the United States than it received from it in the three years analysed, the exports

(green line) increased substantially in 2019. Finally, another important aspect is that Mexico continuously diversified its export destinations for DVA between 2005 and 2019, including to Australia, India, Switzerland and the EU-13. The country also began importing value-added from Thailand, India and Türkiye. In 2019, Mexico was importing value-added from a wider range of countries than in 2005.

► **Figure 4.1** DVA in the global export network for transport equipment, 2005, 2011 and 2019



Note: AUS = Australia; BRA = Brazil; CAN = Canada; CHE = Switzerland; CHN = China; EU-13 = 13 countries joining the EU in 2004 and 2007 (Bulgaria, Croatia, Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Romania, Slovakia and Slovenia); EU-15 = the first countries joining the EU (Belgium, Denmark, Germany, Finland, France, Greece, Ireland, Italy, Luxembourg, Netherlands, Austria, Portugal, Spain, United Kingdom and Sweden); IDN = Indonesia; IND = India; JPN = Japan; KOR = Republic of Korea; MAL = Malaysia; MEX = Mexico; NOR = Norway; RUS = Russian Federation; SIN = Singapore; THA = Thailand; TUR = Türkiye; TWN = Taiwan, China; USA = United States; VIE = Viet Nam.

The size of the nodes represents the weighted out-degree. The intensity of the purple colour in the nodes shows the weighted in-degree. In the case of Mexico, the lines of DVA sent (outgoing) are green, and the DVA lines from other countries (incoming or FVA from Mexico's perspective) are blue.

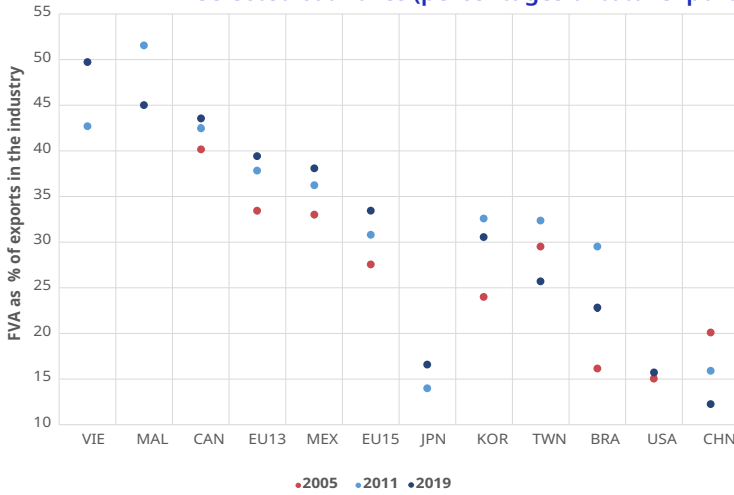
Source: Authors' elaboration based on the ADB-MRIO database.

However, trade diversification may not continue at this pace in the near future, considering the stricter regulations on rules of origin under the USMCA regarding the regional content of value-added required to benefit from tariff preferences in exports to North America. The USMCA tightened some regional value content rules, in particular for the automotive sector (Okabe 2019). The new measures imply that a certain percentage of the primary and complementary parts necessary to manufacture an automobile must be produced in the United States, Mexico or Canada. However, as explained above, Mexico's transport equipment industry incorporates imported value-added that originates in countries outside the region (such as Thailand, India and Türkiye).

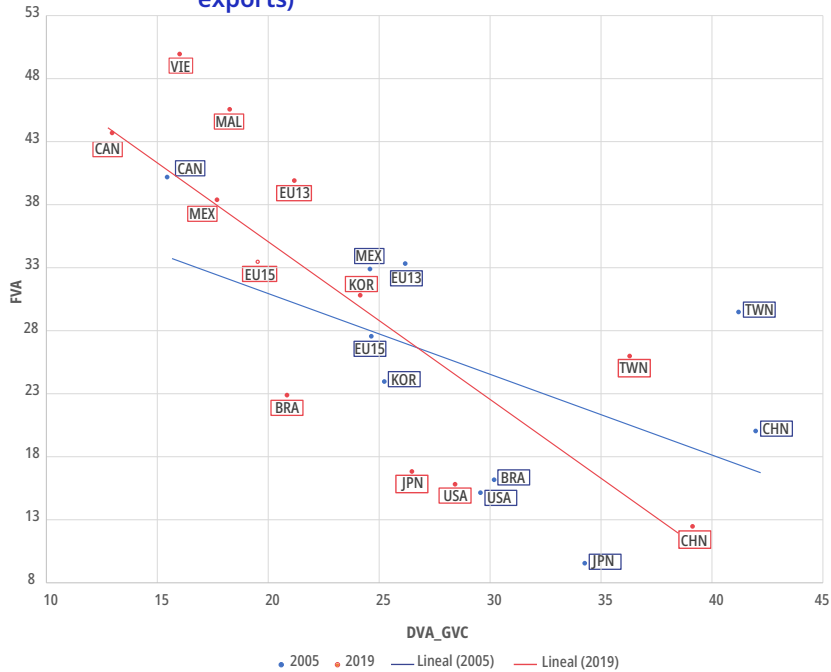
Thus, it is essential to analyse both the FVA and DVA trends as a percentage of total exports that account for Mexico's changing participation in the GVC of transport equipment. Such an analysis can provide insight into the quantity of value-added, on average, generated in the country, and the quantity that needs to be imported to allow exports. Plotting FVA as a proportion of each country's gross exports, as in figure 4.2.a, reveals interesting patterns. Mexico shows a high proportion of FVA in gross exports (almost 20 percentage points), almost twice as much as Brazil and 10 percentage points above the Republic of Korea. Nonetheless, Mexico's figures for the transport industry are around the mid-range of the economies shown in the figure.

The portion of DVA that corresponds to intermediate exports of country i used to produce exports in the importing country j (DVA_{GVC}) is of particular interest. In line with Wang et al. (2013), this concept can be used to measure precisely the participation of a country in a GVC characterized by the production of goods in several stages across several countries (since the added value crossed at least two borders: from country i to country j , and then from country j to country z). In general, however, it should be noted that the automotive industry is characterized by a higher level of FVA and a lower level of DVA_{GVC} compared with industries with less embedded technology or natural resource-based industries. Moreover, production involves multiple steps that include the manufacturing processes of intermediate inputs. Thus, in almost all countries, the proportion of FVA in gross exports increased between 2005 and 2019, except in Taiwan, China, the Republic of Korea, Brazil and Malaysia (which had higher values in 2011). China experienced a reduction in the ratio of FVA in gross exports over the period. Indeed, both China and Taiwan, China have made efforts to produce more intermediate goods domestically. This means that they include more DVA and consequently rely less on imported goods to produce exports.

► **Figure 4.2.a** FVA in the transport equipment industries, 2005–19, selected countries (percentages of total exports)



► **Figure 4.2.b** Transport equipment: Participation in GVC by FVA and DVA_{GVC} , selected countries, 2005 and 19 (percentage of exports)



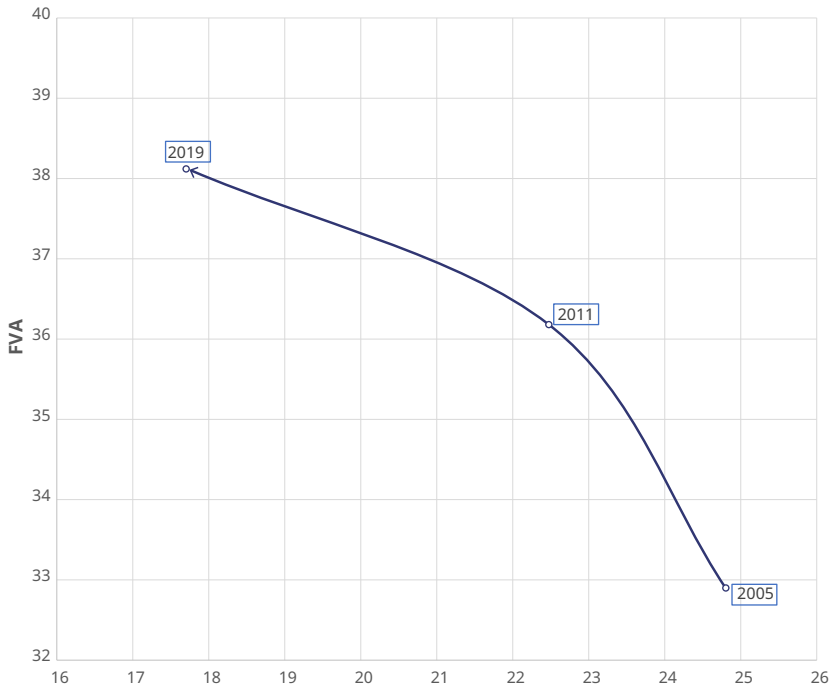
Source: Authors' elaboration based on ADB-MRIO data.

Figure 4.2.b reports on both FVA and DVA_{GVC} as a percentage of exports. Countries with high FVA tend to register a lower level of DVA_{GVC} , for example Viet Nam, Malaysia, Canada and Mexico. These countries participate mainly in the assembly portion of the transport equipment GVCs. By contrast, countries with lower FVA tend to register a higher level of DVA_{GVC} . Yet there are some exceptions. For example, Taiwan, China has a high level of DVA_{GVC} for the transport equipment industry, but its level of FVA is not significantly low. Conversely, Brazil has a low level of DVA_{GVC} , but also a relatively low FVA. It may be important to note that both countries have a relatively minor presence in the relevant network. Figure 4.2.b also indicates that the United States and Japan, countries with major global automotive manufacturers, register relatively low levels of FVA and, simultaneously, some of the highest levels of DVA_{GVC} . One reason behind this is that automobile companies in these countries own the intellectual property and brand names and, thus, can collect higher portions of DVA along with the GVC.

Finally, figure 4.2.b shows that the linear trend of 2019 has a steeper slope than the corresponding one of 2005. This suggests that the values of FVA were generally higher in 2019 than in 2005, and conversely, that the values of DVA_{GVC} were lower for all countries.

Figure 4.3 shows the evolution of Mexico's participation in GVCs, which has shifted to the upper left of the graph, indicating more reliance on foreign inputs. Thus, even though Mexico's participation in the automotive network has increased, as demonstrated previously, it has caused the country to reduce DVA and increase FVA. The DVA in exports decreased by seven percentage points (from 25 to 18 per cent) between 2005 and 2019, and the proportion of intermediates imported from other countries increased by five percentage points (from 33 to 38 per cent).

► **Figure 4.3** Mexico's participation in the transport equipment GVC, 2005–19 (percentage of exports)



Source: Authors' elaboration based on ADB-MRIO data.

In conclusion, over the 15 years between 2005 and 2019, the role of Mexico as an essential link in the transport equipment GVC, particularly in relation to the United States, was consolidated.¹⁷ In comparison, from 2011 onwards, the relative importance of the United States grew in the global automotive network, and so did Mexico's opportunity to increase its number of trade partners in this industry. However, this has meant an increasing proportion of foreign inputs in Mexico's exports (FVA), but not an increase in the value-added that Mexico incorporates in other countries' exports (DVA). Thus, Mexico has not yet taken the opportunity to incorporate more value-added into this GVC by taking advantage of the interconnection inherent to being one of the leading trading partners of the United States in the transport equipment industry. Moreover, as the USMCA has tightened the regional value content rules, the high reliance of Mexico's exports on imported

¹⁷ This trend was already identified in Moreno-Brid et al. (2021), although for a different period (1996–2011).

components might imply that many firms supplying Mexico from outside the region may cease to benefit from the USMCA in the not-too-distant future. This, in turn, may decrease Mexico's appeal as a destination for foreign investment.

► 4.3 Jobs in Mexico's automotive industry

One of the main objectives of the present study is to examine the relation between Mexico's improved export performance, increased participation in the automotive GVC, and decent job creation. The focus on jobs includes the qualitative aspects of employment, with an emphasis on characteristics such as gender and skills.

This section begins with a discussion about the evolution of employment in the transport equipment sector. After explaining the methodology, section 4.3.1 examines the jobs associated with activities for the domestic market, on the one hand, and on the other hand, the jobs producing the final and intermediate exports. Section 4.3.2 then analyses Mexico's employment statistics for the transport equipment sector, disaggregated by gender and skills (level of schooling). Lastly, section 4.3.3 studies the gender wage gap.

In the three selected years (2005, 2011 and 2019), employment in manufacturing represented, on average, 16.7 per cent of total employment in the Mexican economy. Nonetheless, in 2005, manufacturing represented 59 per cent of the DVA exported by Mexico. By 2019, this share had increased to 75 per cent, suggesting a higher labour productivity compared with the services and primary sectors.

Employment in the transport equipment industry represented less than 8 per cent of the total employment in manufacturing in 2005. However, by 2019, its share had almost doubled to 14.6 per cent, making it the second most important employer in manufacturing, just behind the food, beverages and tobacco industry (table 4.3). However, in terms of DVA generation, transport equipment remained the most important industry for the Mexican economy and its share increased by 13 percentage points, from 28.4 to 41.0 per cent, between 2005 and 2019. There is no other industry in the Mexican economy that experienced such a dynamic export performance during this period.

► **Table 4.3 Mexico: Employment and DVA by manufacturing industry, 2005, 2011 and 2019 (share of total percentage)**

Industry	Employment (%)			DVA ¹ (%)		
	2005	2011	2019	2005	2011	2019
Food, beverages and tobacco	23.5	24.3	25.2	4.5	7.4	7.0
Transport equipment	7.7	7.8	14.6	28.4	21.3	41.0
Textiles and textile products	19.4	17.4	12.6	7.2	4.1	2.5
Manufacturing, n.e.c.; recycling	9.7	10.1	9.2	5.6	5.2	4.6
Basic metals and fabricated metal	9.1	9.1	9.1	9.4	14.3	7.0
Electrical and optical equipment	6.6	6.3	6.2	25.3	20.9	20.9
Rubber and plastics	3.4	3.8	4.8	3.5	2.5	1.9
Other non-metallic mineral	5.0	5.3	4.0	2.2	1.9	1.3
Other industries	15.6	15.9	14.2	13.8	22.5	13.8
Total manufacturing industries	100.0	100.0	100.0	100.0	100.0	100.0

Note: n.e.c. = not elsewhere classified.

¹ DVA: Domestic value-added incorporated in exports.

Source: Authors' elaboration based on ADB-MRIO data.

4.3.1 Jobs related to trade

In line with Moreno-Brid et al. (2021), the classification by Wang et al. (2017) of domestic productive activities is used to categorize employment activities related to: (i) domestic production, (ii) final (traditional) exports, and (iii) intermediate exports (GVC production). For methodological clarification, and following standard practice in the input-output analysis, the calculation of the number of jobs involved in selected activities from a source country

directly or indirectly involved in the final production in each sector is expressed as:

$$\hat{E}B\hat{Y} = \hat{E}L\hat{Y}^D + \hat{E}L\hat{Y}^F + \hat{E}LA^FB\hat{Y}.^{18}$$

The term $\hat{E}L\hat{Y}^D$ represents employment associated with domestic activities using the local Leontief inverse matrix and a vector of final domestic demand. $\hat{E}L\hat{Y}^F$ shows employment related to exports of final goods or “traditional” exports. The last term, $\hat{E}LA^FB\hat{Y}$, uses both inverse matrices, local and global, and a matrix of imported coefficients, which shows employment included in exports/imports of intermediate goods and services. These jobs are part of the exchange of production between countries or GVC activities. As in the previous section, the ADB-MRIO database is used to calculate the matrices B , L , \hat{Y} , \hat{Y}^D , \hat{Y}^F and A^F , while \hat{E} is obtained from data from INEGI and the Mexican Ministry of Labour (Mexico, STPS, n.d.). To account for the number of people engaged in each type of activity, the sum of each row of the resulting matrices is used. For the domestic and final exports activities, an assessment is made of whether those jobs correspond to the industry under analysis, or relate to inputs from other industries, making them indirect jobs. In the case of the third term, GVC trade, it is not possible to differentiate between jobs generated “inside” and “outside” each industry. The available data include jobs pertaining to inputs that originated in the country of analysis as well as jobs from other countries, embedded in intermediate imports.

Table 4.4 shows the results for the transport equipment industry and the manufacturing sector. In the case of the former, there was a stark increase in the number of jobs associated with traditional trade and GVC activities between 2005 and 2019. Conversely, over the same period, the share of employment related to domestic production in total employment decreased. The transport equipment industry employment shares in 2011 differed significantly from those presented for the same year in Moreno-Brid et al. (2021), where GVC activities in transport equipment accounted for only around 30 per cent of total employment. In Moreno-Brid et al. (2021), the corresponding share is significantly larger (by a margin of ten percentage points). The cause of this difference may be rooted in a revision of the statistics used. Indeed, the WIOD tables (used in our previous study) were released in 2013, while the ADB-MRIO tables were published in 2021. However, the trend is similar in

18 Where \hat{E} is a diagonalized vector of employment coefficients, it can represent total employment or remunerations for different types of employees as, in the next section, B is the global inverse Leontief matrix, L is the local inverse Leontief matrix, \hat{Y}^D represents a diagonal matrix with information on final production for domestic absorption, $\hat{Y}^F = \hat{Y} - \hat{Y}^D$ is the diagonal matrix of final product exports, and $A^F = A - A^D$ is an off-diagonal block matrix of imported input coefficients.

both studies, and points to a decline in employment related to production for the domestic market. In any case, GVC activities account for one third of the employment by transport equipment and a quarter of that of total manufacturing.

► **Table 4.4 Mexico: Jobs associated with domestic production, traditional trade and GVC trade as a percentage of total jobs, 2005–19**

Industry	Year	Domestic	Traditional trade	GVC trade	Total industry
Transport equipment	2005	37.8	36.6	25.6	100.0
	2011	32.5	27.0	40.5	100.0
	2019	11.0	60.5	28.5	100.0
Manufacturing	2005	59.6	21.6	18.8	100.0
	2011	33.8	22.1	44.1	100.0
	2019	40.7	33.5	25.8	100.0

Source: Authors' elaboration based on ADB-MRIO data.

Another major difference with our previous study is that, unlike WIOD, the ADB-MRIO database does not consider socio-economic accounts. Thus, we rely on official statistics from Mexico's INEGI, and from the databases of the ILO and the OECD (ILOSTAT and OECDSTAN) for the other countries included in the analysis. Table 4.5 shows the number of jobs, according to production destination, that are created directly within the transport equipment sector (inside jobs) and the number of jobs generated indirectly as a result of the demand of other inputs from the rest of the economy (outside jobs). It is evident that the linkages to outside jobs are almost nil in this industry in both domestic and export production. The data indicate a reduction in the number of jobs created within the sector and linked to domestic production, from 185,800 in 2005 to 128,300 in 2019. This reduction is, however, more than compensated for by the exponential rise in the number of jobs in traditional exports (quadruple) and GVC activities (tripling). Thus, in total there was a net creation of almost 800,000 jobs.

► **Table 4.5 Mexico: Number of jobs generated within or outside the transport equipment industry according to production destination, 2005, 2011 and 2019 (thousands)**

		2005	2011	2019	Difference 2019-05
Domestic	Within	185.8	163.0	128.3	-57.5
	Outside	18.1	22.6	18.9	0.8
	Total	204	185.6	147.3	-56.7
Traditional exports	Within	195	151.6	803.4	608.4
	Outside	2.8	2.7	3.0	0.3
	Total	197.8	154.3	806.5	608.6
GVC trade		137.8	231.1	380.2	242.4
Total industry		540.8	571.0	1 333.9	793.1

Source: Authors' elaboration based on ADB-MRIO data.

4.3.2 Jobs in Mexico's transport equipment sector: By gender and skill level

In recent years, Mexico has begun to enact policies aimed at empowering women. However, persistent gender gaps remain in the labour market, and it is generally more difficult for women to find a job than it is for men. Moreover, when women are employed, they tend to be concentrated in sectors with low-quality jobs, resulting in lower wages, less security and conditions of violence and harassment (ILO 2017). Thus, identifying gender gaps in Mexico's transport sector and their evolution may help to explain how broad-based employment growth related to exports and GVCs has affected women.

An analysis of the gaps in employment, hours worked and remuneration in the transport equipment industry by skill level was carried out to assess their evolution in relation to the manufacturing sector. In the case of Mexico, data on employment in manufacturing show a high

concentration of women compared with other economic activities, though they are concentrated in sectors of low technological intensity (ECLAC 2019), where they earn 89.5 Mexican pesos for every 100 earned by men. Nevertheless, it is a well-known fact that the gap between the wages of men and women also widens as the technological intensity of the industry increases. Thus, in high-tech sectors women earn 70.2 Mexican pesos for every 100 earned by men (ECLAC 2019, 59). More generally, however, lower gender wage gaps tend to exist at higher levels of education (Lugo, Reynoso and Oztuca 2015). In that sense, we would expect to confirm which tendency prevails when comparing the transport equipment remunerations gap (higher technology sector) with that of other manufacturing industries. Another important aspect of employment is the hours worked, given that in many jobs, the pay is non-linear in hours worked. This payment structure tends to affect women disproportionately and influence their occupational choices (Canon, Golan and Smith 2021). The difference in wages can therefore be partially explained by the number of hours worked.

Table 4.6 shows the female share of the total manufacturing and transport sector employment, disaggregated by level of schooling.¹⁹ Mexico's manufacturing sector has a smaller share of female employment than the total economy: 37.3 per cent compared with 39.1 per cent in 2019, respectively. The share of female employment is even lower in the transport equipment industry at 36.9 per cent, but there was a slight increase of 2.1 percentage points between 2005 and 2019.

In the transport sector, the share of female employment was the highest for women with low and medium levels of schooling. Women with, at most, a "basic primary education" accounted for almost half of the total of women in the sector, 47.9 per cent in 2019, which was around 12 percentage points higher than the share in the total economy, and three points higher than in manufacturing. This figure could help to explain the persistent low wages of the industry, as women with low education tend to be hired because of their acceptance of low pay.

The female share of employment in the transport equipment sector increased for the three levels of schooling (low, medium and high) over the period, with the figure for the high level of schooling having increased the most. Women with a medium level of schooling in the transport sector had an employment share comparable to the total economy (38.1 per cent in 2019) and two percentage points higher than in manufacturing. The share of women

19 Given the limited official data in Mexico, we had to derive skills from the level of schooling. "Low level of schooling" considers employees with, at most, complete primary education. "Medium level" comprises employees with secondary education up to high school. "High level" includes employees with higher education degrees and postgraduate education.

with a high level of education (higher education degree and postgraduate education) was much higher in the total economy (45.0 per cent in 2019) than in the transport equipment industry (27.2 per cent).

To a certain extent, these differences in the transport equipment industry might be a reflection of patterns associated with the educational bias against women in science, technology, engineering and mathematics (STEM). Women still tend to be systematically interrupted in their STEM education, which limits their future training and job options in industries with higher skills requirements (Hill et al. 2010).

► **Table 4.6 Mexico: Female share of employment by schooling, 2005, 2011 and 2019 (percentage of total labour force)**

Level of schooling		2005	2011	2019	Change (percentage points)
All levels	Total economy	36.6	37.7	39.1	2.5
	Manufacturing	38.7	36.6	37.3	-1.4
	Transport equipment	34.8	32.5	36.9	2.1
Low	Total economy	33.9	34.5	35.4	1.5
	Manufacturing	45.1	43.1	44.1	-1.0
	Transport equipment	41.8	43.2	47.9	6.1
Medium	Total economy	38.8	38.6	38.6	-0.3
	Manufacturing	35.8	34.0	35.9	0.1
	Transport equipment	35.9	32.3	38.1	2.2
High	Total economy	38.5	41.7	45.0	6.5
	Manufacturing	25.9	30.7	33.1	7.2
	Transport equipment	18.3	24.3	27.2	8.9

Note: "Low level of schooling" considers employees with, at most, complete primary education. "Medium level" comprises employees with secondary education up to high school. "High level" includes employees with higher education degrees and postgraduate education.

Source: Authors' elaboration based on INEGI (2019a) and Mexico, STPS.

Table 4.7 presents the share of remunerations and hours worked by gender and level of schooling. The first salient feature is that the share of women in total remunerations was much larger in the transport equipment industry than in the manufacturing sector. By 2019, the gender wage gap in the manufacturing sector had shrunk from 44.5 to 38 percentage points. But, for the transport equipment industry, the trend went in the opposite direction. By 2019, the gap was slightly larger (27.8 percentage points) than in 2005 (25.5 percentage points). This confirms the idea found in the literature that wage gaps in Mexico are wider in high-tech sectors. The gender gap in hours worked measures the contributions by gender to the total amount of hours worked. In manufacturing, it is smaller than the gender gap in total remunerations, suggesting that the ratio of average remunerations per employed person is to the detriment of women.

In the case of the transport equipment industry, the share of hours worked was nearly the same for both men and women, which confirms again the substantial gap in average remunerations by gender, in favour of men. Some studies suggest that women's wages are largely penalized by their working fewer hours per week (Canon, Golan and Smith 2021; Goldin 2015). Reasons range from dedicating more time to unpaid domestic work (like childcare, other care responsibilities and housework) to working part-time and/or interrupting their career for domestic reasons, resulting in wider remuneration gaps. Furthermore, the gender wage gap may be a consequence of the high share of females with a low level of schooling in the sector, as discussed previously, or of their being contained in the lower-paid occupations in the manufacturing sector and transport equipment industry.

► **Table 4.7 Mexico: Share of remunerations, hours worked and gender gap by gender and level of schooling, 2005, 2011 and 2019 (percentages)**

	Total remunerations			Hours worked		
	2005	2011	2019	2005	2011	2019
Manufacturing						
Men's share	72.3	71.1	69.1	69.6	68.6	66.8
High	16.9	14.8	12.3	8.5	8.6	7.5
Medium	43.8	46.2	47.5	36.4	37.2	38.2
Low	11.6	10.1	9.4	24.6	22.8	21.1
Women's share	27.7	28.9	30.9	30.4	31.4	33.2

	Total remunerations			Hours worked		
	2005	2011	2019	2005	2011	2019
High	5.3	4.8	4.3	2.9	2.9	2.7
Medium	16.8	19.1	21.5	15.0	17.2	18.9
Low	5.6	5.0	5.0	12.6	11.3	11.6
Gender gap in percentage points	44.5	42.1	38.2	39.2	37.2	33.6
Transport equipment industry						
Men's share	62.8	64.1	63.9	60.4	51.4	50.8
High	7.2	7.1	7.1	4.9	35.5	35.6
Medium	48.8	51.8	51.7	41.9	35.5	35.6
Low	6.7	5.2	5.1	13.6	11.5	11.4
Women's share	37.2	35.9	36.1	39.6	48.6	49.2
High	4.4	4.3	3.8	3.0	3.2	2.8
Medium	26.5	26.9	27.6	23.0	30.6	31.4
Low	6.3	4.7	4.7	13.6	14.8	15.0
Gender gap in percentage points	25.5	28.2	27.8	20.8	2.9	1.7

Note: The gender gap is calculated by the difference between the respective shares of men and women.

Source: Authors' elaboration based on INEGI (2014 and 2021).

This argument is evidenced by an increasing share of men with medium-level education in remunerations and hours worked in the manufacturing and transport equipment sector, which grew faster than the reduction in the share of men with a low education level. Thus, even though the share of women with a medium level of education increased in the transport equipment sector, the gender remuneration gap widened much more for this group than for women with other levels of education.

These results confirm the hypothesis of a widening gender wage gap in the transport equipment industry. There is certainly more scope to incorporate women in the industrial labour force in terms of hours worked, as they now account for only 33 per cent of the total. But the pressing challenge is to include them in jobs in which their remunerations are on a par with the remunerations of men with similar skills and training. Certainly, more in-depth analysis is needed to understand better the determining factors of

the gender wage gap and of the impacts that trade may have on its evolution, per level of schooling, as well as on the status of employment in different industries. The vast amount of literature on this topic has not yet reached a consensus on the nature and significance of such effects, if any.²⁰

4.3.3 Gender wage gap in export-oriented sectors and global supply chains

This section identifies differences in the gender wage gap in domestic production vis-à-vis traditional trade (final exports) and trade in GVCs. Our results are based on Wang et al.'s (2017) equation $\hat{E}Y = \hat{E}L^D + \hat{E}L^F + \hat{E}LA^F \hat{B}Y$, where \hat{E} represents the total earnings for women and men for each level of schooling. Usually, the gender wage gap is calculated based on data on the average remunerations of permanent workers. Owing to lack of data, average hourly remunerations are used, and it is not possible to distinguish between full-time jobs, half-day jobs, and other part-time or hourly jobs. Besides, the calculations do not make any inference on the evolution or levels of remunerations in real terms.

Estimates (see table 4.8) find that the gender remuneration gap has widened in the transport equipment industry over the period. In 2005, on average women received 89 per cent of the remunerations of men, while this ratio fell to 65 per cent in 2019. This is the opposite of what happened in Mexico's manufacturing sector, where on average the gap narrowed considerably, from 88 to 95 per cent. Although the analysis does not address the composition effects, the data show that even though more women entered the transport equipment industry, and increased their hours worked, remunerations did not increase at the same pace to explain the strong change in the indicator.

20 Some of the studies in this area include Rocha and Winkler (2019), Sauré and Zoabi (2014), Juhn, Ujhelyi and Villegas-Sanchez (2014) and Oostendorp (2009). Rocha and Winkler (2019) used the Enterprise Surveys Global Database, covering information at firm level in 140 countries for the period 2006–17, to compare female labour share in trading (exporters, importers, GVC participants and foreign direct investment firms) and in non-trading firms. They found higher female labour shares in certain types of trading firms versus non-trading ones. Sauré and Zoabi (2014) focused on state-level variations in the manufacturing sector's "exposure" to NAFTA, and concluded that such trade has tended to reduce female participation in the labour force, as well as women's relative wages in the United States. Juhn, Ujhelyi and Villegas-Sanchez (2014), starting from a "female labour to capital" complementarity assumption, showed that the gender gap in the labour market has declined in Mexico since the introduction of NAFTA. The reason behind this effect, they concluded, is that firms' response to favourable demand shocks has been to invest more in technology; an investment that, in their perspective, tends to be associated with a higher proportion of female employment. By contrast, Oostendorp (2009) conducted a cross-country study of the impact of globalization on gender wage inequality. His findings suggest that the occupational gender wage gap declined with trade liberalization in high-income countries, but he found no such relation in low-income ones.

► **Table 4.8 Women's remuneration as a proportion of men's remunerations in Mexico's manufacturing and transport equipment industries, by schooling levels, 2005, 2011 and 2019 (percentage)**

Year	Production activities	Transport equipment industry				Manufacturing industry			
		Average (%)	High education level (%)	Medium education level (%)	Low education level (%)	Average (%)	High education level (%)	Medium education level (%)	Low education level (%)
2005	Domestic	90	100	99	93	93	96	96	107
	Traditional exports	88	92	99	84	84	79	93	99
	GVC trade	88	114	99	71	87	101	94	70
	Total	89	100	99	84	88	93	93	95
2011	Domestic	68	85	70	75	87	96	86	95
	Traditional exports	66	83	66	70	90	99	91	103
	GVC trade	65	83	67	68	91	98	90	106
	Total	67	83	67	71	89	97	90	100
2019	Domestic	64	75	65	70	96	98	93	100
	Traditional exports	69	77	69	75	92	95	87	94
	GVC trade	65	76	66	75	94	96	92	94
	Total	65	75	66	72	95	98	91	98

Note: The average hourly remuneration is used in each schooling category. 100% means the remunerations of women and men are equal.

Source: Authors' elaboration based on ADB-MRIO data and INEGI (2014 and 2021).

Another important finding is that the smallest remuneration gap (represented by the highest percentages in table 4.8) appears in the highest schooling level in each of the three years analysed, and increased in the period. Additionally, in both the transport equipment industry and in manufacturing as a whole, on average women with a medium level of schooling, which is the category with a more significant share of hours worked (according to table 4.7), registered the widest margins of gender gap in terms of remunerations. This goes against our initial assumption that the gender wage gap would be wider for women with low education. However,

this may indicate that the gap at lower levels of education is partly offset by the effects of minimum wage policies applying to both men and women. Yet this explanation may not apply for the transport equipment industry, to the extent that the industry tends to pay higher wages, on average, than the overall manufacturing sector.

While these results cannot be attributed to a specific cause (as we are not controlling for individual characteristics), they still suggest that, even though more women increased their hours of work, their remunerations did not grow at the same pace. As already noted, one factor may be that more women than men work part-time to balance domestic work with their employment. Another factor could be that the transport equipment industry may require workers with training or education in fields that women pursue less than men.

Comparing gender gaps by production activities (domestic production, traditional exports and GVC trade), the average remunerations in the domestic production activities of the transport equipment industry and manufacturing sector registered the smallest gap both in 2005 and in 2011. This does not, however, apply to women with the highest level of schooling, whose remunerations were higher than men's in GVC production activities. Given that a large proportion of the companies contributing to GVC trade are foreign or multinational firms with higher productivity and wages than national firms, offering women higher salaries would be a means to attract them to the industry and, thus, compensate for the gap in women's employment. However, the year 2019 presented a different panorama, and traditional exports' production registered the lowest gender remuneration gap for the transport equipment industry (showing an improvement compared with the other two years), while it remained the same as 2011 for GVC production activities. Moreover, contrary to the previous years, domestic activities showed the smallest gender remuneration gap in the manufacturing sector. The gender remuneration gap in the transport equipment industry was largest, on average, in GVC activities both in 2011 and in 2019. This supports literature positing that this type of production tends to be labour-intensive in developing and emerging economies, which compete internationally through their lower wages. Therefore, as Mexico's transport equipment industry increased its participation in GVCs, the remuneration gap widened.

► 4.4 Conclusions and suggestions for monitoring decent work

This analysis of Mexico's automotive sector has contributed to a better understanding of the relations between trade and decent work in a successful industry in GVCs in a semi-industrialized economy. The results, based on available data up to 2019, confirm some general conclusions argued in Moreno-Brid et al. (2021), in which we found that Mexico's automotive and transport equipment industry had not been especially relevant in generating jobs. By 2019, it had become the second main employer in manufacturing, but still generated few indirect jobs outside the industry. Another conclusion corroborated in this present work is the importance of GVC and final exports activities to generate employment in this industry, over domestic activities.

For a long time, trade liberalization in Mexico was dissociated from promoting decent work. Traditionally, before and after the country signed NAFTA, labour policy was aimed at maintaining low wages with the purpose of controlling inflation and competing globally. In fact, discussions on labour issues were almost non-existent during the NAFTA negotiations. The situation changed dramatically some years later. In 2016, with the USMCA negotiation, the labour chapter became the centre of the discussion. The ratification of the USCMA was conditioned to the approval of a new labour reform in Mexico which proposed, among other things, to strengthen social dialogue by guaranteeing free elections of union leaders through secret ballots, and implementing a new labour justice system. In particular, for the automotive industry, the USMCA established salary goals with the purpose of reducing regional gaps.

Such obligations are an opportunity to press partners to systematically collect data on relevant indicators for trade, wages and value-added, with the aim of building detailed indicators of decent work at the level of plants per industrial activity, and measuring progress in terms of the rules/conditions agreed by all parties in the USMCA. An indicator of the percentage of workers in the automotive industry that earn at least US\$16 per hour is sorely missed. In this regard, in response to a petition by the United States Trade Commissioner, the Facility-Specific Rapid-Response Labor Mechanism (a mechanism in the agreement to address labour complaints between the United States and Mexico) was used for the first time against a facility in Silao, Mexico. In this case, the mechanism ruled in favour of the workers, who also obtained a wage increase of 8.5 per cent.

Although INEGI has made great efforts to consider data that serve as indicators of decent work in its employment and occupation surveys, much more information on the different aspects of decent work is needed. For example, there is considerable scope for progress in data collection that allows the building of decent work indicators with the same sectoral classification as in the input-output matrix. In addition, though the ILO's Manual on decent work indicators suggests measuring the gender wage gap based on differences in average earnings for women and men, data limitations impede such calculations.

An additional consideration would be to put more effort into collecting data linked to the heterogeneity of firms in the economy, a severe analytical limitation considering all the different characteristics. For example, improved data collection is needed on a regular basis on firms that engage in exports and imports versus firms dedicated more to domestic production. Such data should focus on their size and their capital's country of origin, as well as employees' remunerations (identifying age, sex and ethnic background), hours worked and access to social security, among other things. In Mexico, the data collected on ethnicity, trade and labour are scarce.

On policy matters, the promotion of decent work should be a key priority of the government, independently of USMCA pressure – current or future. This includes the strengthening of the institutional capacities of labour inspection of the Mexican Ministry of Labour (STPS) to enforce compliance with decent labour standards. At the same time, the STPS should have a major and more dynamic role in raising awareness in the business community, in workers' organizations and broader civil society of the enormous social, economic and political benefits of having sustainable working conditions, in the spirit of decent work, as defined by the ILO.

However, for this labour policy to carry weight and serve to move Mexico's international competitiveness away from low wages, the government needs to implement an ambitious industrial policy aimed at strengthening the Mexican economy's innovation and development capacities, compatible with the creation of decent jobs. Trade liberalization by itself is dramatically insufficient to shift a semi-industrialized economy's competitiveness away from cheap labour and scant value-added aggregation. As has happened in other countries, a key element would be a joint commitment of the government, the business community and workers to push for responsible business practices, in which decent jobs are a key pillar. The pressure of civil society to hold accountable companies that do not promote decent work and environmental sustainability would certainly be a powerful political and economic tool to begin closing the decent work gap in domestic production processes and in suppliers within GVCs.

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► Appendix I

Correspondence in transport equipment sector and automotive industry

Section 1. Input-output methodology Transport equipment in ADB-MRIO	Section 2. Decent work indicators Automotive industry NAICS
3410 "Manufacture of motor vehicles"	3361 "Motor vehicle manufacturing"
3420 "Manufacture of bodies (coachwork) for motor vehicles; manufacture of trailers and semi-trailers"	3362 "Motor body and trailer manufacturing"
3430 "Manufacture of parts and accessories for motor vehicles and their engines"	3363 "Motor vehicle parts manufacturing"
3511 "Building and repairing of ships"	
3512 "Building and repairing of pleasure and sporting boats"	
3520 "Manufacture of railway and tramway locomotives and rolling stock"	
3530 "Manufacture of aircraft and spacecraft"	
3591 "Manufacture of motorcycles"	
3592 "Manufacture of bicycles and invalid carriages"	
3599 "Manufacture of other transport equipment n.e.c."	3369 "Other transportation equipment manufacturing"

ADB-MRIO = Asian Development Bank multi-regional input-output; NAICS = North American Industry Classification System; n.e.c. = not elsewhere classified.

► Appendix II

Indicators: Mexico's automotive industry (2005-19)

Following Moreno-Brid et al. (2021), the automotive industry is defined as the set of economic activities dedicated to the manufacture of cars, buses, heavy and light trucks, and auto parts. In this set, the most relevant one, and the largest one in terms of output and total exports, is the final assembly of vehicles. Perhaps needless to say, such auto assembly is just the tip of the iceberg of a series of industries and activities that manufacture a vast amount of intermediate goods and services for car production. The indicators cover the manufacturing sector, the transport equipment subsector and its components (including motor vehicle manufacturing).²¹

The measurement and method of computation are extracted from *Decent Work Indicators: Guidelines for Producers and Users of Statistical and Legal Framework Indicators* (ILO 2013).

The data to construct these indicators were generously made available by Mexico's Secretary of Labour by granting virtually unrestricted access to the Labour Statistical Information System (LAIS). A time series of indicators was built based on LAIS and additional information systematically collected by INEGI in the ENOE. Data from the IMSS helped to construct indicators of employment security. The indicators cover the 2005 to 2019 period.²² Many of the data series are collected and updated on a quarterly basis, but for consistency purposes, the research on the trends, structures and patterns revealed is by annual data.

21 The detailed list of indicators utilized for these axes can be found in Moreno-Brid et al. (2021). In terms of Mexico's formal statistical taxonomy, i.e. NAICS, all of them are grouped at the subsector level defined as "336 transportation equipment manufacturing". This subsector is, in turn, composed of "3361 motor vehicle manufacturing", "3362 motor body and trailer manufacturing", "3363 motor vehicle parts manufacturing" and "3369 other transportation equipment manufacturing".

22 Although data were available, the analysis was not extended to 2020 because of the "outlier" character of this year in terms of the labour market and foreign trade performance due to the pandemic and its devastating impact on commerce, productive activity and employment. However, an additional reason was that, due to the pandemic, the National Statistical Institute stopped its surveys; more precisely, it changed their data collection methodology. It ceased carrying out door-to-door, in-person interviews and moved to doing them by telephone and other electronic means of communication. This change affected a fortiori the comparability of the data series, as the pre-pandemic results are not necessarily consistent with those collected in more recent and troubled times.

Informal employment rate

Measurement objective: Informal employment is a job-based concept which encompasses those jobs that generally lack basic social or legal protections or employment benefits, and may be found in the formal sector, informal sector or households. The informal employment rate (IER) is defined as the percentage of persons in total employment who are in informal employment.

Data sources: INEGI (National Survey of Employment and ENOE).

Method of computation:

$$IER(\%) = \frac{\text{Number of employed persons in informal employment}}{\text{Total number of employed persons}} \times 100$$

Female share of employment

Measurement objective: This indicator provides information on the tendency for men and women to work in different occupations where an occupation refers to a set of jobs whose main tasks and duties are characterized by a high degree of similarity. In this way, the indicator sheds light on the extent to which women and men benefit from different opportunities and treatment in work life.

Data sources: INEGI (National Survey of Employment and ENOE).

Method of computation:

$$GWG = \frac{\text{Women earning more than 3 minimum wages}}{\text{Men earning more than 3 minimum wages}}$$

Permanent workers as a percentage of the employed population

Measurement objective: This indicator represents the percentage of permanent workers registered with the IMSS, with respect to the employed population.

Data sources: STPS and IMSS.

Method of computation:

$$PW(\%) = \frac{\text{Number of permanent workers insured in IMSS}}{\text{Employed population}} \times 100$$

Gender wage gap

Measurement objective: This indicator represents the percentage of employed women with three or more minimum wages, with respect to the number of employed men with three or more minimum wages.

Data sources: INEGI (National Survey of Employment and ENOE).

Method of computation:

$$GWG = \frac{\text{Women earning more than 3 minimum wages}}{\text{Men earning more than 3 minimum wages}}$$

Working poverty rate

Measurement objective: This indicator is to measure the proportion of workers with income equal to or less than the minimum wage in the automotive industry.

Data sources: INEGI (National Survey of Employment and ENOE).

$$PER = \frac{\text{Number of workers earning the minimum wage or less}}{\text{Employed population}} \times 100$$

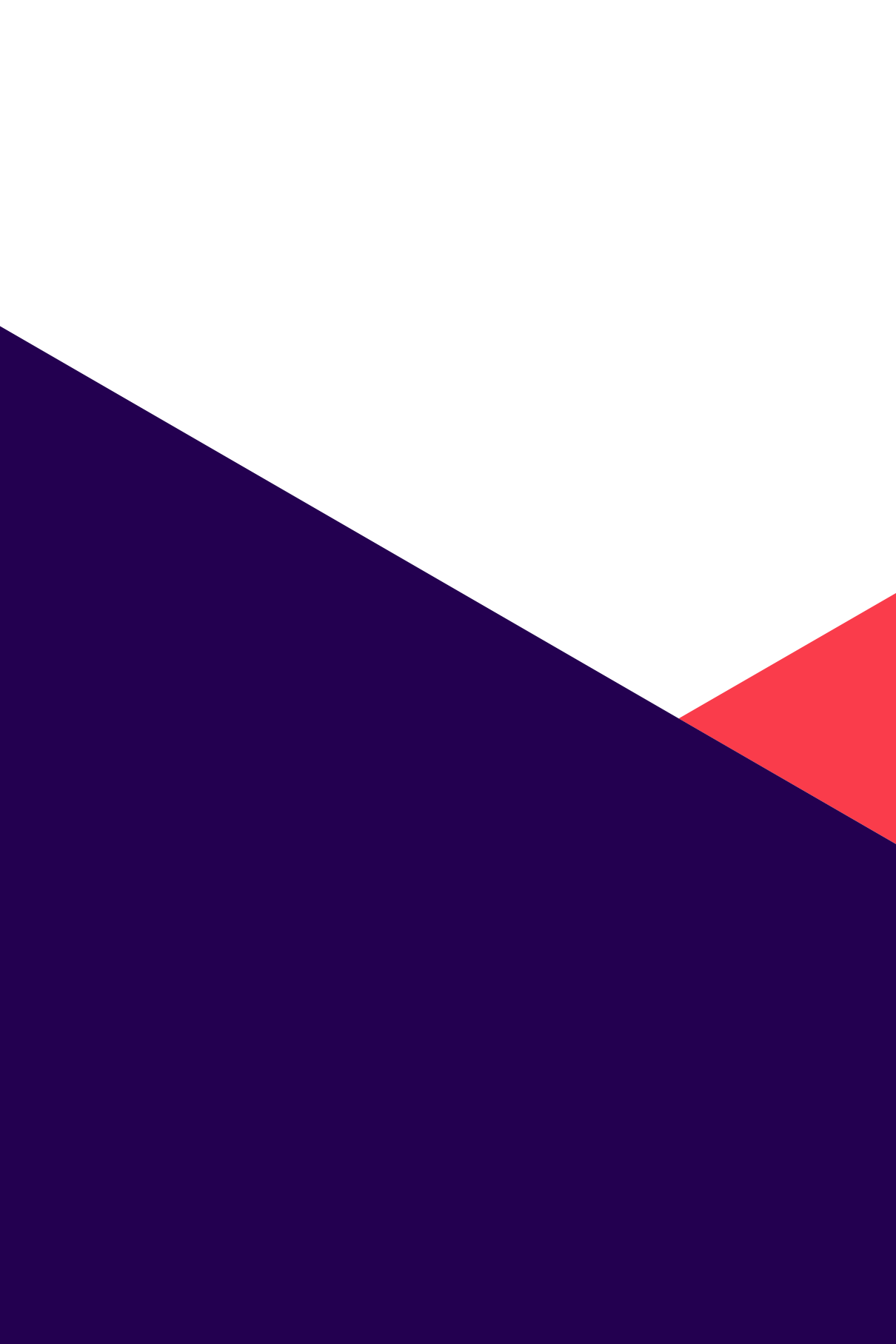
Employees with low pay rate

Measurement objective: The employees with low pay rate (ELPR) indicator aims to capture the percentage of employees that are working for low wages. It is defined as the percentage of employees whose hourly earnings in all jobs equal less than two thirds of the median hourly earnings of all employees.

Data sources: INEGI (National Survey of Employment and ENOE).

Method of computation:

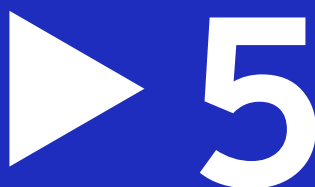
$$ELPR (\%) = \frac{\text{Number of employees paid less than } \frac{2}{3} \text{ of median earnings}}{\text{Total number of employees}}$$



Trade and decent work in Mexico's manufacturing sector

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► Introduction

Over the past two decades, efforts to improve working conditions in Mexico have delivered mixed results. On the one hand, there has been some important progress, for example with respect to narrowing the labour force participation gender gap, reducing the share of youth not in employment, education or training, the abolition of child labour, and increasing the share of women in senior and middle management roles. But on the other hand, some outcomes have been insufficient, and in some cases quite worrying, particularly with respect to adequate earnings (i.e. a minimum living wage), decent working time and work stability (Aleman-Castilla and Cuilty Esquivel 2020). And even though workers in manufacturing have typically fared better in this respect than those in other economic sectors, the differences have tended to decrease.

Between 2005 and 2020, the share of employed persons who live in a household with a total income below the national poverty line increased by nine percentage points, as did the ratio of this indicator for persons employed in the manufacturing sector with respect to that for persons employed in non-manufacturing. The share of employed persons working more than 48 hours per week remained roughly unchanged at the national aggregate level. However, the difference between the manufacturing and non-manufacturing sectors almost disappeared, as working time conditions worsened in manufacturing. On the bright side, the share of women in senior and middle management positions increased by ten percentage points nationally, and the difference between manufacturing and non-manufacturing industries decreased by just over a quarter, as the former sector caught up with the rest of the economy.

Although the recent evolution and current state of working conditions in Mexico are clearly the products of various overlapping factors, including the 2008–09 Great Recession (Busso and Messina 2020; Silva et al. 2021; Freije, López-Acevedo and Rodríguez-Oreggia 2011) and long-term social and structural changes (Piras 2006; Inchauste Comboni et al. 2021; Visser 2019), the disappointing performance in respect to some elements of the

Decent Work Agenda¹ could raise doubts about the alleged benefits of free trade and globalization.² This is especially so when it is considered that Mexico has made a remarkable and continued effort towards integration through trade liberalization and globalization since the country joined GATT in 1986. While in general both theory and empirical evidence on trade and its implications for labour markets are quite extensive (Aleman-Castilla 2020), much of the attention has focused on a restricted group of outcomes, such as wages (Helpman et al. 2017; Lee and Lee 2015; Krishna, Poole and Senses 2014; Kovak 2013), employment (Dix-Carneiro and Kovak 2017; Coşar, Guner and Tybout 2016; Autor, Dorn and Hanson 2013) and informality (Dix-Carneiro et al. 2021; Ben Salem and Zaki 2019; Ulyssea and Ponczek 2018; Cruces, Porto and Viollaz 2018). And although there has recently been an increase in the study of some additional aspects of labour markets (see, for example, Ben Yahmed (2017), Hakobyan and McLaren (2017) and Juhn, Gergely and Villegas-Sanchez (2014) on gender disparities, or Kis-Katos and Sparrow (2011), Edmonds, Pavcnik and Topalova (2010) and Olarreaga, Saiovici and Ugarte (2020) on child labour), evidence regarding other important characteristics of the world of work is still scarce. This latter group includes working poverty, excessive working time, and female participation in management positions, which are some of the most significant features of the Mexican labour market to have shown contrasting performances. A better understanding of the relationships between trade and these other labour market outcomes is even more important in the present context of job and income losses due to the COVID-19 pandemic, which have resulted in greater poverty and inequality; and although the accommodation and food services sector has been the worst affected worldwide, the manufacturing sector and its GSCs have also been severely disrupted by the crisis and containment measures (ILO 2021c).

Thus, in order to provide evidence regarding the impact of trade on these other labour market features somewhat neglected by the empirical

1 For the ILO (1999, 2008, 2013, 2021a, 2021b), decent work is central to poverty reduction and for achieving equitable, inclusive and sustainable development. The Framework on the Measurement of Decent Work covers employment opportunities; adequate earnings and productive work; decent working time; combining work, family and personal life; work that should be abolished; stability and security at work; equal opportunity and treatment in employment; safe work environment; social security; and social dialogue, employers' and workers' representation.

2 Keynes (2021) argues that "a widespread perception that the ideology of free trade has failed to deliver its promises" has been gaining momentum in recent years, and that politicians in rich countries "have seen furious backlashes against trade agreements and complaints that liberalisation has created losers as well as winners, leaving many workers behind". The President of Mexico has been a devoted critic of neoliberalism, of which free trade is a fundamental part; see for example his speech on 30 September 2021: <https://bit.ly/3om7akR>.

literature, this chapter extends the analysis presented in Aleman-Castilla (2021) to study the effects of non-preferential trade liberalization and exposure to globalization on working poverty, working hours and female workforce participation in the Mexican manufacturing industries between 2003 and 2018. For this purpose, two complementary estimation strategies are applied. First, a panel data approach is used with the 2003–08 Annual Industrial Survey (EIA) and the 2009–18 Annual Manufacturing Industry Survey (EAIM) to estimate the effect of exposure to globalization on gross daily wages per employee, daily hours worked per employee and the share of women in total employment within manufacturing firms. Second, a three-stage least squares estimation procedure is used to link the establishment data from these data sources to the worker data from the 2005–20 ENOE, along with the 2003–17 industry-level trade data from the WTO's DATA and Tariff Download Facility, to estimate the effect of both non-preferential trade liberalization and exposure to globalization on the working poverty rate for employed persons, the share of employment in excessive working time and the share of women in senior and middle management positions in manufacturing industries, after controlling for establishments' and workers' characteristics.

The main results are consistent with the theories on trade in the presence of firm heterogeneity (Sampson 2014; Yeaple 2005; Melitz 2003) and with previous findings from related empirical studies (Matthee, Rankin and Bezuidenhout 2017; Verhoogen 2008; Schank, Schnabel and Wagner 2007). First, within the manufacturing sector, it is found that firms that are more productive and firms with the largest share of income stemming from participation in GSCs pay higher wages and require shorter working hours. Second, it is found that greater exposure to globalization has contributed to lower levels of working poverty in those manufacturing industries that depend more on GSCs as a source of income. Third, while non-preferential trade liberalization has had a positive impact on reducing working poverty and excessive working time for the tradable industries in general, its consequences for the manufacturing sector have been mixed, with export tariff elimination giving only a small benefit and import tariff elimination having a negative effect. Last, it is found that higher non-preferential export tariffs are associated with higher shares of women in senior and middle management positions in all tradable industries, but when focusing on such industries in the manufacturing sector they have had no significant differential effect. In other words, these results suggest, on the one hand, that firms in the manufacturing sector that are more exposed to globalization have better working conditions; and on the other hand, that while further trade liberalization in the form of non-preferential tariff reductions may have contributed to lowering working poverty and excessive working times for

the tradable industries as a whole, this has not necessarily been the case for the manufacturing industries in particular, and female inclusion in both the workforce and management positions has also not improved accordingly.

The rest of the chapter is organized as follows. Section 5.1 briefly describes the trends in the relevant trade and decent work indicators for Mexico during the period of interest. Section 5.2 presents the data used in this study and a preliminary distribution analysis thereof. Section 5.3 presents the econometric approaches implemented and the corresponding results. Section 5.4 concludes.

► 5.1 Trade and decent work trends

As mentioned in the introduction, Mexico has achieved mixed results with respect to working conditions over the past 15 years. Although there have been improvements in some labour market outcomes, the country's performance regarding certain elements of the Decent Work Agenda has been disappointing. Most of its decent work indicators exhibit trends that are influenced by several common factors, such as the business cycle, social and structural changes, and adjustments to public policies; and even though workers in manufacturing have typically experienced better results than those in other sectors, their relative advantage has tended to decrease.

Consider first the working poverty rate for employed persons (*working poverty*, figure 5.1a), one of the main statistical indicators for measuring adequate earnings (ILO 2013). This rate – which is the proportion of employed persons living in households with an income below the national poverty line – increased considerably, by nine percentage points, between 2005 and 2020. The trend during this period was striking: growth in the wake of the 2008–09 Great Recession, followed by a reduction from 2018 onwards. These observations seem to confirm that wages were the main margin of adjustment in the Mexican labour market during the recession (Freije, López-Acevedo and Rodríguez-Oreggia 2011), and also that recent mandated increments in the minimum wage contributed to the reduction in the working poverty rate after 2018 (CONASAMI 2019; CONEVAL 2020a). In addition, the gap between manufacturing and non-manufacturing narrowed throughout the period of study, as the difference in working poverty between the two groups decreased from roughly seven percentage points in 2005 to five percentage points in 2020, mainly due to a faster deterioration of labour income in manufacturing.

A second interesting trend can be seen in the share of employees subject to excessive working time (*excessive hours*, figure 5.1b), taken to be the fraction of employed persons working more than 48 hours per week, the ILO's main statistical indicator for decent working time. Since 2005, around 27 per cent of employed persons in Mexico have had an inadequate working time arrangement, which undermines the balance between work and personal life and increases the risks to physical and mental health. Kaplan and Piras (2019) show that the Mexican labour market is characterized as demanding the third longest working hours among Latin American countries, just below Bolivia (Plurinational State of) and Colombia. The rate remained roughly unchanged for the overall economy, but it tended to worsen for the manufacturing sector, for which it increased by almost three percentage points between 2005 and 2020.

Last, Mexico's partial progress towards better working conditions could be exemplified by the share of women in senior and middle management positions (*female management*, figure 5.1c), a key indicator for equal opportunity and treatment of employment, measured as the share of women in decision-making and management roles in the public and private sectors. This indicator increased by around ten percentage points between 2005 and 2020. It displays a clear upward trend, which could partly be explained by such long-run social changes as the increase in female education, the need to supplement family income, and also the change in the age structure of the population, all of which have facilitated the reintegration of women into the labour market, especially after motherhood (Piras 2006). The ratio of this indicator between manufacturing and non-manufacturing industries increased by 26 per cent, as the share of women in management positions in the former rose at a pace that doubled that of the latter throughout the period.

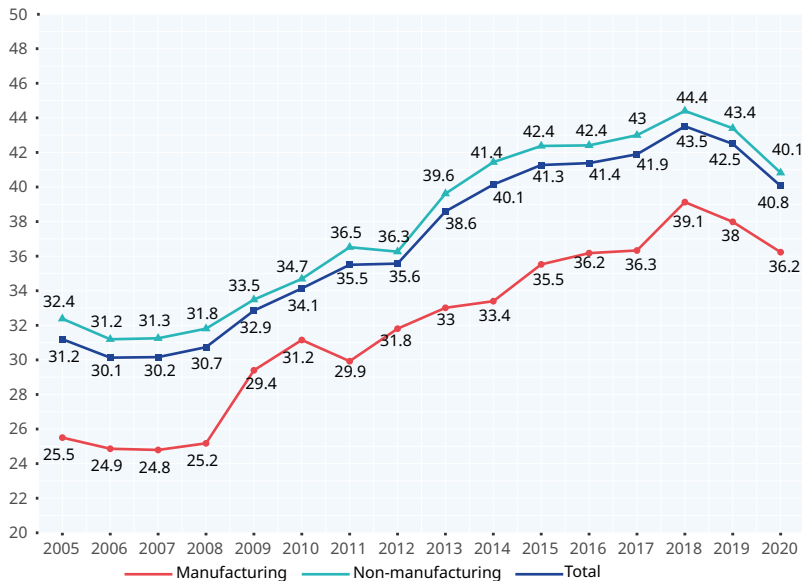
On the other hand, during the same period (2005–20), Mexico continued to deepen its trade liberalization and globalization processes, initiated when the country joined GATT in 1986 and then the WTO in 1995, followed by the signing of 7 new trade agreements³ (totalling 13 with 50 countries) and 17 new agreements for the promotion and reciprocal protection of investments (totalling 32 with 33 countries), among other measures (Mexico, Secretaría de Economía 2016). This continued integration effort translated into an

3 These were signed with: Uruguay (2004); Japan (2005); Peru (2012); Central America (2013); Panama (2015); Colombia, Peru and Chile for the Pacific Alliance (2016); and Australia, Brunei Darussalam, Canada, Chile, Japan, Malaysia, Peru, New Zealand, Singapore and Viet Nam for the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) (2018), which has not entered fully into force because it is still awaiting approval by some Members. On 30 December 2018, it entered into force for Australia, Canada, Japan, Mexico, New Zealand and Singapore; and on 14 January 2019 for Viet Nam.

additional 11 percentage point reduction in the country's trade-weighted average non-preferential import tariff (*import tariff*) and a 27 percentage point increase in its aggregate level of trade openness.⁴ Meanwhile, the trade-weighted average non-preferential tariff on Mexican exports to the country's 2018 top five trade partners (*export tariff*) remained roughly unchanged and low.⁵

► **Figure 5.1** Decent work trends in Mexico, 2005–20

a. Working poverty rate of employed persons (working poverty): percentage of employed persons living in households with incomes below the national poverty line^{1,2}



Note: ¹Based on labour force data from the ENOE (INEGI). ²Based on the national urban poverty lines (CONEVAL).

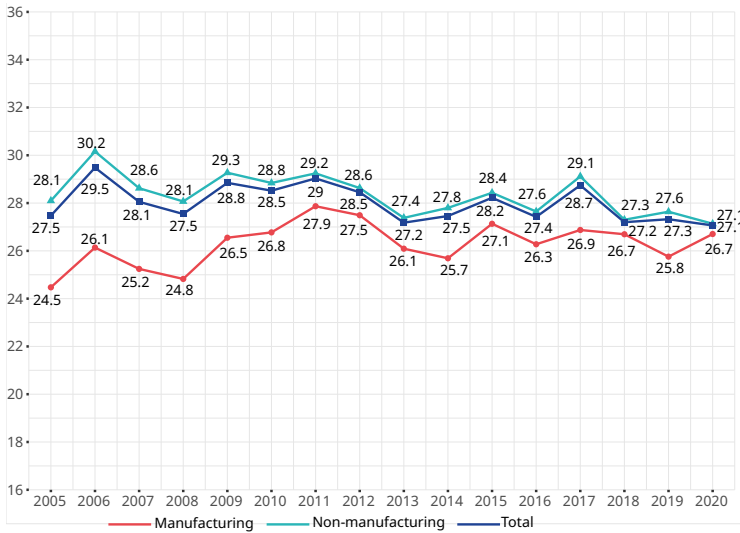
Source: Author's calculations using the two sources cited in the notes.

4 Trade openness is measured as the sum of a country's exports and imports as a share of that country's GDP.

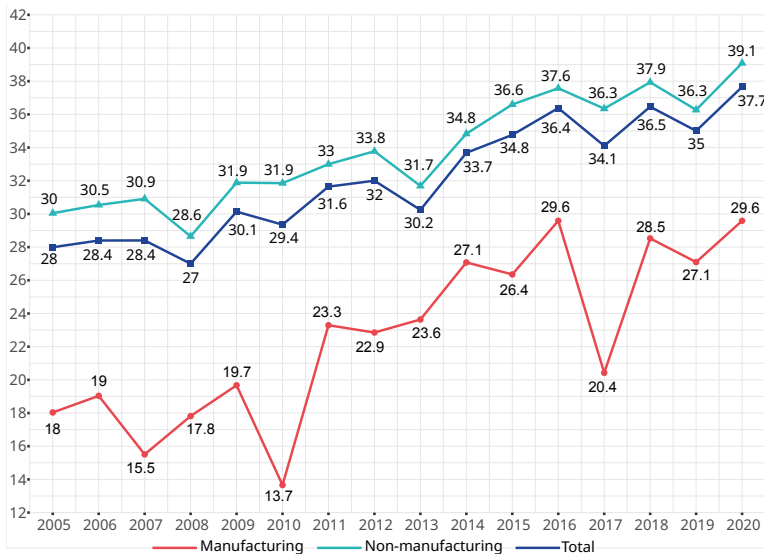
5 According to data from The Atlas of Economic Complexity, produced by the Growth Lab at Harvard University (available from <https://atlas.cid.harvard.edu/>), Mexico's top five trade partners in 2018 were the United States (75.8 per cent of total gross exports), the EU (5.8 per cent), Canada (5.1 per cent), China (2.4 per cent) and Japan (1.1 per cent). These countries and weights are used here in the construction of the export tariff.

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b. Employment in excessive working time (excessive hours): percentage of employed persons working at least 48 hours per week¹



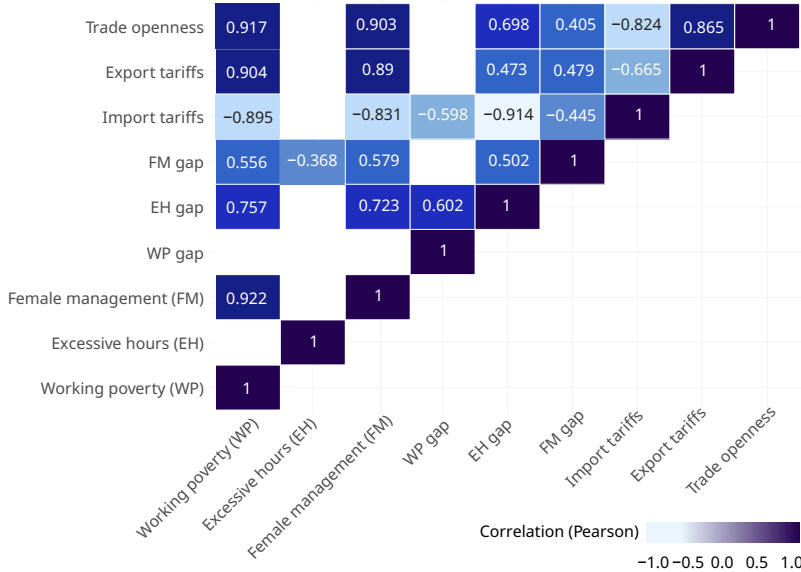
c. Women in senior and middle management (female management): percentage of occupied workers aged 15+ in senior and middle management positions²



Note: ¹Based on labour force data from the ENOE (INEGI). ²Based on the national urban poverty lines (CONEVAL).

Source: Author's calculations using the two sources cited in the notes.

► **Figure 5.2** Correlations for trade and decent work indicators



Note: WP gap = WP manufacturing/WP non-manufacturing; EH gap = EH manufacturing/EH non-manufacturing; FM gap = FM manufacturing/FM non-manufacturing. Only significant correlations (at a 5 per cent level) are shown.

Source: Author's calculations using labour force data from the ENOE (INEGI), the national urban poverty lines (CONEVAL), and WTO and Our World in Data (based on Feenstra, Inklaar and Timmer (2015)).

The trends described above could indicate the existence of some important relationships between trade and decent work (figure 5.2). For instance, *import tariffs* show a negative correlation with *working poverty* and *female management*, and reductions of these tariffs are associated with smaller sectoral differences for all three decent work variables (so that the corresponding manufacturing-to-non-manufacturing ratios increase). In contrast, *export tariffs* are positively correlated with *working poverty* and *female management*, and reductions of these tariffs are positively associated with larger sectoral differences in these two variables (so that the corresponding ratios decrease). Finally, *trade openness* shows similar results to *export tariffs*, but is associated with smaller sectoral differences (or larger ratios) in *excessive hours* and *female management* between the manufacturing and non-manufacturing sectors.

► 5.2 Data and preliminary distribution analysis

The data used in this study come from surveys of both establishments and workers conducted by INEGI: the 2003–08 EIA, the 2009–18 EAIM and the 2005–20 first quarters of the ENOE. The EIA and EAIM are annual panel-structured surveys that follow manufacturing establishments over time, classifying industries at the six-digit level under NAICS, and collecting information regarding: occupied personnel; remuneration; hours and days worked; costs, revenues and value of production; inventories; and fixed assets.⁶ The ENOE is a quarterly rotating-panel labour market survey that follows households and individuals for five consecutive trimesters. It collects data on socio-demographic (such as kinship, sex, age, education, marital status, number of children and geographic location) and labour market characteristics (such as economic activity status, occupation, economic sector, size and location of employer, wages, working time, social security coverage and unemployment spells, among others) of the working-age population (aged 15 years and older).⁷ Finally, 2003–17 data from the WTO are used to obtain measures of trade liberalization. The WTO's DATA and Tariff Download Facility provide information on MFN tariffs, bilateral imports, export perspectives for the top five markets, and NTM indicators. The MFN tariffs are the normal non-discriminatory duties that a WTO Member charges on imports that fall outside of any free trade or preferential agreement. In this sense, they represent an upper limit for actual trade taxes, as they apply between countries that do not have an agreement or to products that do not comply with the rules of origin agreed therein. MFN tariffs are binding for some important trade relationships, such as that with China (Mexico's

6 The EIA covered 231 industries under the 2002 NAICS, followed 7,294 establishments and excluded export-oriented maquiladoras. In 2009, the EAIM substituted the EIA, added nine more industries under the 2007 NAICS, increased the number of establishments to 11,455 and included export-oriented assembly plants. In 2017, the EAIM was updated, adjusting the number of establishments in the sample to 10,447 and the industries covered to 239 under the 2013 NAICS. The design of these surveys is based on the International Recommendations for Industrial Statistics of the United Nations (UN 2008). For methodological details, see INEGI (2007, 2012, 2019). Due to data confidentiality and the social distancing measures implemented amid the COVID-19 pandemic, access to these surveys was possible only through a remote processing facility. This meant that the code files with the estimation routines had to be sent to INEGI's Microdata Lab, for them to be run on the establishment-level data.

7 The Mexican labour market surveys have always had the ILO as the basic conceptual reference. However, to ensure comparability with new recommendations and raise the information quality standards, they have also considered the conceptual frameworks of other international bodies, such as the OECD and the United Nations Statistics Division (INEGI 2020).

fourth-largest trade partner), with whom Mexico does not have a preferential or free trade agreement.

For this study, working poverty, working hours and female participation are measured using six variables. The first three variables are derived from the EIA and EAIM manufacturing sector data. Their selection and construction are subject to the limitations and scarcity of the workforce information collected by these establishment-level surveys, but they are included in the analysis so that the best possible use is made of the wages and employment data, including by gender, available from these sources. These three variables are as follows:

- ▶ Gross daily wages per employee (*wages*) – the average gross wage and benefits⁸ paid per working day to each worker directly employed by the firm in substantive activities.
- ▶ Daily hours worked per employee (*hours*) – the average hours worked per day by each worker employed, either directly or indirectly, by the firm in substantive activities.
- ▶ Women's share of total employment (*women*) – the proportion of women among all workers employed, either directly or indirectly, by the firm in substantive activities.

An analysis of the relationship between trade and decent work based solely on workforce data obtained from establishment surveys would be somewhat limited (ILO 2021a, 63–65). For this reason, the more detailed ENOE national labour force data are used to construct worker-level indicators for the three labour market outcomes mentioned above (working poverty, working hours and female participation), following the recommendations of the ILO (2013, 2021b):

- ▶ *Working poverty* – an individual-level indicator for workers aged 15 or older who live in a household where the total monthly income is below the national poverty line.⁹
- ▶ *Excessive hours* – an individual-level indicator for workers aged 15 or older who work more than 48 hours per week.

8 That is, the wage before taxes, social security and other legally mandated deductions, converted to US dollars using the annual average official exchange rate to pay for obligations denominated in foreign currency (FIX exchange rate for the settlement date) published by Banco de México. See <https://www.banxico.org.mx/SieInternet/>.

9 The poverty line here refers to the first-quarter average values of the income poverty line for urban areas, estimated by the National Council for Evaluation of Social Development Policy. See, for instance, CONEVAL (2020b).

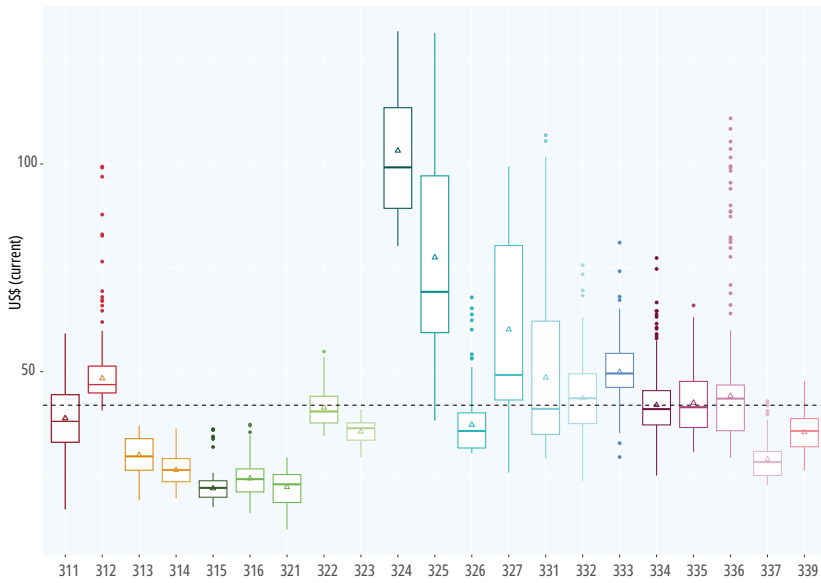
- *Female management* – an individual-level indicator for women aged 15 or older who are in senior or middle management positions.

Figure 5.3 shows the overall distributional characteristics of the workforce and trade data extracted from the EIA and EAIM establishment-level surveys. It presents box plots for the four-digit NAICS annual means of *wages*, *hours* and *women*, and the ratio of the sum of imported inputs and exports to total production (*trade openness*). Each data point is weighted by the corresponding number of establishments in the sample, and data points are grouped by three-digit NAICS subsector for ease of presentation. The triangles mark the mean for each subsector, and the dashed lines indicate the mean for the full sample. The box plots suggest there is an important level of heterogeneity across manufacturing industries. Establishments in subsector 324, “Petroleum and Coal Products”, pay the highest *wages* (figure 5.3a), have the lowest *hours* (figure 5.3b), have a relatively low share of *women* (figure 5.3c) and have the lowest level of *trade openness* (figure 5.3d). In contrast, subsector 334, “Computers and Electronics”, exhibits average *wages*, relatively high *hours* and share of *women* and the highest level of *trade openness*. Although not reported here due to space limitations, a similar analysis of the worker-level data from the ENOE suggests that *working poverty*, *excessive hours* and *female management* also show important variability across regions, economic sectors and population groups, indicating that worker heterogeneity is also relevant.¹⁰ For example, female management has the highest level of variability across economic sectors, registering the lowest participation rates in “Mining, Quarrying, and Oil and Gas Extraction”, the highest in “Health Care and Social Assistance” and a difference of more than 60 percentage points between the mean values for these two sectors over the 2005–20 period.

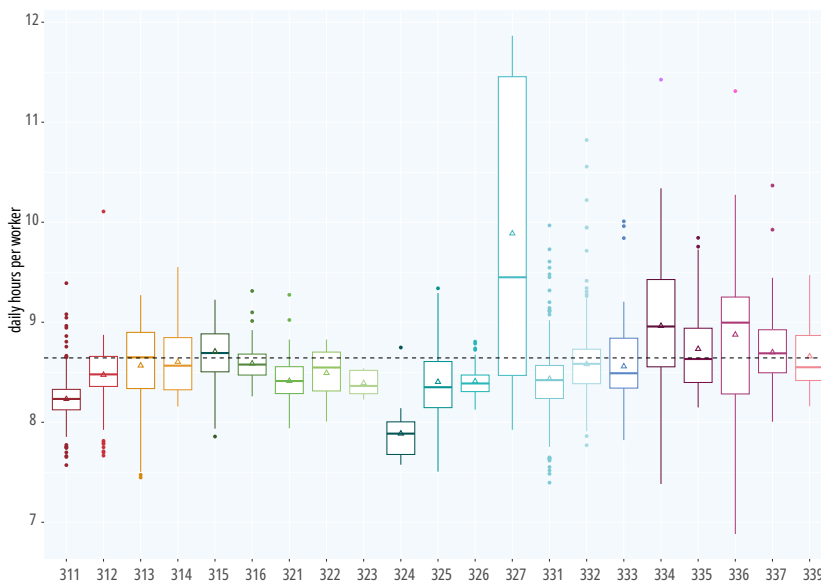
¹⁰ For the corresponding detailed analysis of working poverty, see Aleman-Castilla (2021).

► **Figure 5.3** Workforce and trade distribution using four-digit NAICS annual means, grouped by three-digit NAICS subsector

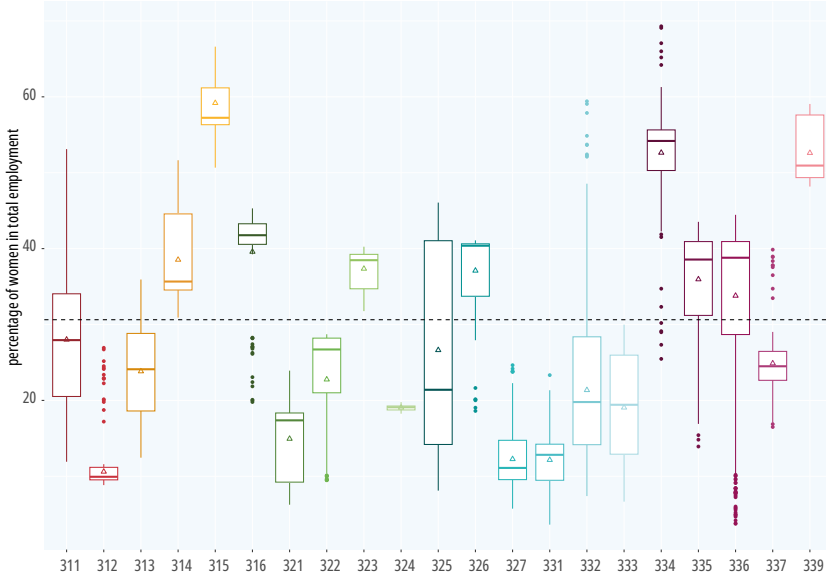
a. Gross daily wage per employee (*wages*)



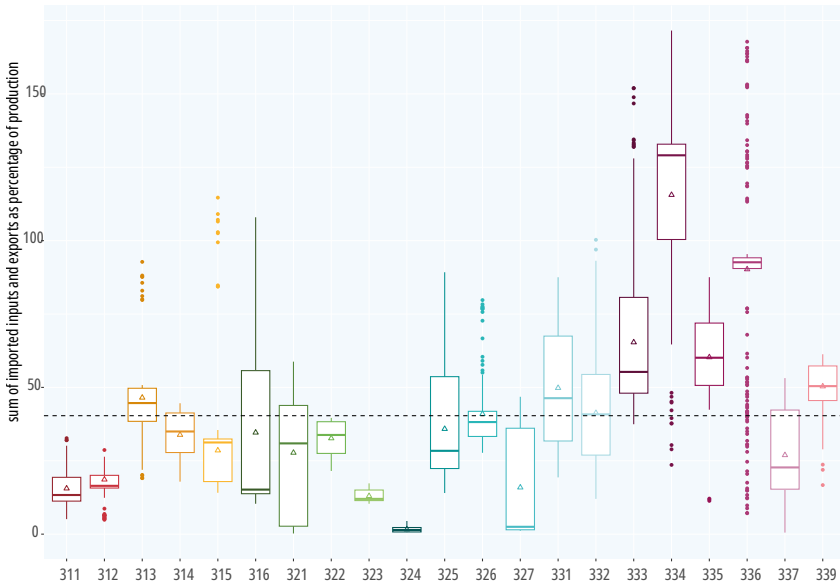
b. Daily hours worked per employee (*hours*)



c. Share of women in total employment (*women*)



d. Sum of imported inputs and exports as a share of total production (*trade openness*)



311	Food	321	Wood Products	331	Primary Metals
312	Beverages and Tobacco	322	Paper	332	Fabricated Metal Products
313	Textile Mills	323	Printing and Related Products	333	Machinery
314	Textile Products	324	Petroleum and Coal Products	334	Computers and Electronics
315	Apparel	325	Chemicals	335	Electrical Equipment, Appliances and Components
316	Leather and Allied Products	326	Plastics and Rubber Products	336	Transportation Equipment
		327	Non-metallic Mineral Products	337	Furniture and Related Products
				339	Miscellaneous

Note: Triangles represent weighted means for each three-digit NAICS subsector. The dashed lines indicate the weighted mean for the full sample.

Source: Author's calculations using establishment data from EIA-03, EAIM-09 and EAIM-13 (INEGI).

► 5.3 Econometric analysis

As in Aleman-Castilla (2021), the econometric analysis begins by using data from the EIA and EAIM manufacturing industry surveys to estimate fixed effects models for *wages*, *hours* and *women* in firms¹¹ i at time t on a matrix \mathbb{G}_{it} of the exposure-to-globalization variables trade openness and the share of income from maquila, sub-maquila and remanufacture services (maquila¹²), a matrix \mathbb{X}_{it} of firm characteristics (such as productivity, profitability, and revenue and cost structures), firm effects α_{it} , year effects δ_t , and an error term ε_{it} :

$$y_{it} = \alpha_i + \beta \mathbb{G}_{it} + \gamma \mathbb{X}_{it} + \delta_t + \varepsilon_{it} \quad (1)$$

This approach allows for an initial estimation of the effects of trade after controlling for firms' observable and unobservable characteristics. The *trade openness* variable measures how much firms buy and sell internationally as a share of their total production, while *maquila* is a measure of their level of participation in GSCs (how much of their revenue comes from producing intermediate goods or assembling final goods for other national and foreign firms). The main results are reported in table 5.1.

These estimates were consistent under alternative specifications and robustness tests.¹³ The variable *trade openness* has no significant effect on any of the three workforce indicators. However, *wages* are higher and *hours* lower in more productive firms and in those with larger shares of maquila; and hours are also higher in more profitable firms. The fact that neither trade openness nor maquila have a significant effect on *women* might seem at odds with the evidence from previous related empirical studies (for example, Ben Yahmed and Bombarda (2020)). However, this result becomes plausible when it is recalled that large trade-induced adjustments had already occurred in Mexico at the time of the country's accession to GATT, the WTO and NAFTA,

11 Aggregation at the firm level is obtained by averaging the related establishment-level data.

12 A "maquiladora" is a plant at which inputs owned by another firm are assembled into final products; and "sub-maquiladoras" provide complementary manufacturing, transformation or repairing services to maquiladoras. The term "maquila" is also commonly used to refer to the offshoring activities of US companies in Mexico.

13 These included the estimation of equation (1) using the data aggregated at the four-digit NAICS industry level, and over different subsamples; comparison of fixed effects versus pooled and random effects (Gourieroux, Holly and Monfort 1982; Hausman 1978); inclusion of lags for trade openness and maquila; and estimation of lagged dependent variable models (Angrist and Pischke 2009, 243–247).

two decades prior to the period analysed here (Juhn, Gergely and Villegas-Sanchez 2013; Aguayo-Tellez et al. 2014).¹⁴

► **Table 5.1** Fixed effects models for decent work-related indicators

	ln(wages)	Hours	Women
Trade openness	-0.000003 [0.0001]	-0.0001 [0.0003]	0.001 [0.005]
Maquila	0.003*** [0.0003]	-0.007*** [0.0013]	-0.004 [0.011]
Profit	0.0002 [0.0002]	0.0013* [0.0006]	-0.009 [0.006]
ln(productivity)	0.135*** [0.006]	-0.302*** [0.036]	-0.291 [0.151]
Industries	86	86	86
Firms	15 054	15 096	15 096
Years	1–13	1–13	1–13
Observations	91 947	92 082	92 082

Note: Significance codes: *** 0–0.001; ** 0.001–0.01; * 0.01–0.05. Profit = profit margin as a share of total income. Productivity = production per hour (in thousands of US dollars). Arellano (1987) robust standard errors clustered by firm are shown in square brackets.

Next, given that it is not possible here to match workers and firms, a three-stage least squares strategy is used to link the industry and labour force data at the four-digit NAICS level, after controlling separately for the observable characteristics of establishments and workers. This allows the analysis to be extended by estimating the effects of non-preferential trade liberalization (*import and export tariffs*) and exposure to globalization (*trade openness and maquila*) on *working poverty, excessive hours and female management*.

¹⁴ In 2003, the share of female employment in subsector 334, “Computers and Electronics” (the subsector most open to trade, as shown in figure 5.2d) was already above 50 per cent.

The first stage consists of estimating linear probability models for worker i in industry j at time t on a vector H_{ijt} of worker characteristics,¹⁵ a set C_{it} of indicators for city of residence, a set I_{ijt} of four-digit NAICS industry dummy variables, and an error term ϵ_{ijt} :

$$DW_{ijt} = H_{ijt} \beta_{Ht} + C_{it} \lambda_{jt} + I_{ijt} \delta_{jt} + \epsilon_{ijt} \quad (2)$$

where DW refers to each of the above-mentioned decent work indicators. Equation (2) is estimated using the ENOE data, with each year in the sample being estimated separately. In the case of *female management*, the dependent variable is an indicator for those workers aged 15 or over who are in a senior or middle management position, and all the independent variables are interacted with an indicator for women (as in equation (3) in Aleman-Castilla (2021)).

The second stage consists of estimating annual linear models of *trade openness* and *maquila* for establishment i in industry j at time t on a vector K_{ijt} of establishment characteristics,¹⁶ a set I_{ijt} of four-digit NAICS industry dummy variables, and an error term ν_{ijt} , using the EIA and EAIM data:

$$z_{ijt} = K_{ijt} \beta_{Kt} + I_{ijt} \gamma_{jt} + \nu_{ijt} \quad (3)$$

The coefficients δ_{jt} in equation (2) and γ_{jt} in equation (3) capture the variation in the decent work indicators and exposure-to-globalization variables, respectively, that is attributable to industry affiliation.¹⁷ In most of the cases, they are individually and jointly statistically significant. They are also somewhat correlated through time, which could be inversely related to their degree of sensitivity to changes in the economic environment, such as trade liberalization or exposure to globalization (Krueger and Summers 1988; Attanasio, Goldberg and Pavcnik 2004).

15 These include: age; schooling or experience; marital status; and indicators for gender, informality, household leaders, employers, and whether the person lives in a state in which the export trade value is larger than the import trade value, based on data from the Mexican Ministry of Economy (<https://datamexico.org/>).

16 These include the workforce variables for: gross daily wage per employee; share of female workers in total employment and daily hours worked per employee; cost-structure characteristics, such as the shares of labour subcontracting, fuel, energy, advertising and freight expenditures in total costs; profit margin; production per hour worked; the share of machinery and equipment in total assets; and the annual percentage change in total assets.

17 For the case of female management in equation (2), the relevant coefficients are those of the interactions between the industry indicators and the dummy variable for women ($\mu_{(I \times f)jt}$ in equation (3) of Aleman-Castilla (2021)), as they capture the part of the variation in the probability of holding a senior or middle management position that is attributable to being a woman in a given industry.

These industry-affiliation coefficients are then used in a third and final stage, to estimate a model of decent work δ_{jt} for industry j at time t on the vector T_{jt} of *import and export tariffs*, the vector y_{jt} of *trade openness and maquila* industry differentials,¹⁸ year effects Y_t , industry effects I_j , industry time trends $I_j \times tr_t$, and an error term ω_{jt} :

$$\delta_{jt} = T_{jt} \alpha_T + \gamma_{jt} \beta_\gamma + Y_t \theta_Y + I_j \eta_j + (I_j \times tr_t) \phi_{(I \times tr)} + \omega_{jt} \quad (4)$$

This type of econometric approach is familiar to the labour economics literature (for example, Krueger and Summers (1988)), and similar specifications have been used previously in the study of the impact of trade on different labour market outcomes (Attanasio, Goldberg and Pavcnik 2004; Goldberg and Pavcnik 2003; Aleman-Castilla 2006; Selwaness and Zaki 2013).

Table 5.2 presents the main results of the estimations using equation (4), which were generally consistent under alternative specifications and using different tests for robustness.¹⁹ Column (a) indicates that *import tariffs* and *maquila* have significant effects on *working poverty*. Lower importation taxes among tradable industries and higher shares of income from supply chain participation among manufacturing industries are both associated with lower working poverty rates. The fact that non-preferential import tariff elimination contributes to more adequate earnings could indicate that the benefits from trade in intermediate inputs dominate over the possible negative effects of foreign competition on final products, as reported in Amiti and Davis (2011) for the Indonesian case.

The estimated impact of the share of income from supply chain participation, on the other hand, is consistent with the results of earlier studies, such as Aitken, Harrison and Lipsey (1996), who found that higher levels of investment by foreign-owned firms in Mexico and the Bolivarian Republic of Venezuela (such as export-oriented maquiladoras) are associated with higher wages; or Schröder (2018) and Alfaro-Urena, Manelici and Vásquez (2019), who found that exporters and foreign-owned export-oriented

18 A value of zero is assigned to T_{jt} and y_{jt} for non-tradable and non-manufacturing industries, respectively. In this way, these observations are not dropped from the sample, as they do not contribute to the estimation of α_T and β_γ , but they are useful in getting more precise estimates of the year effects θ_Y .

19 These included, among others: comparison between ordinary and weighted least squares in the estimation of equation (2), to account for the ENOE's sampling weights (Solon, Haider and Wooldridge 2015); excluding the industry time trends $I_j \times tr_t$ in the estimation of equation (4), to assess their relevance in the identification of the effects of trade and globalization (Besley and Burgess 2004); using lagged and lead values for T_{jt} and y_{jt} , to explore the dynamics of the trade and decent work variables (Autor 2003); using different subsamples along the time (years) and group (industries) dimensions; and excluding unusual observations (both regression outliers and hat values).

multinational enterprises in Germany and Costa Rica pay higher wages and contribute to the improvement of labour market options for workers through spillover effects.

Column (e) shows that only *export tariffs* have a significant effect on *female management*. Higher exportation taxes are associated with higher shares of women in senior and middle management positions, which, along with empirical evidence on the gender pay gap (for example, Ben Yahmed (2017)), could be indicative of a higher demand for cheaper female labour, as the cost of access to foreign markets increases (UNCTAD 2014; ILO 2017, 75–119; van Staveren et al. 2007). Column (c) suggests that both non-preferential trade liberalization and exposure to globalization have no significant effect on *excessive hours*.

► **Table 5.2 Effect of non-preferential trade liberalization and exposure to globalization on decent work indicators**

	Working poverty		Excessive hours		Female management	
	(a)	(b)	(c)	(d)	(e)	(f)
Import tariffs	0.596*** [0.174]	0.910** [0.295]	0.137 [0.091]	0.362* [0.154]	-0.041 [0.030]	-0.073 [0.055]
Import tariffs × manufacturing		-1.035** [0.314]		-0.587** [0.195]		0.071 [0.070]
Export tariffs	0.288 [0.654]	2.260* [1.038]	0.737 [0.425]	1.795** [0.683]	0.222* [0.101]	0.485 [0.304]
Export tariffs × manufacturing		-2.128* [1.084]		-1.118 [0.722]		-0.403 [0.319]
Trade openness	-0.019 [0.079]	-0.093 [0.076]	0.068 [0.058]	0.026 [0.055]	0.005 [0.018]	0.007 [0.018]
Maquila	-0.503** [0.160]	-0.411** [0.137]	-0.063 [0.075]	0.019 [0.071]	0.047 [0.029]	0.038 [0.029]
Observations	2 156	2 156	2 156	2 156	2 014	2 014

Note: Significance codes: *** 0–0.001; ** 0.001–0.01; * 0.01–0.05. All regressions include year dummy variables, industry dummy variables and industry time trends. Newey–West standard errors with one lag are shown in square brackets.

Between 2009 and 2018, Mexico registered a 4.1 percentage point reduction in its weighted average MFN import tariff, a 0.7 percentage point increase in the corresponding tariff on exports to the country's top five trade partners, and a 0.5 percentage point decrease in the average share of income from supply chain participation. Taking this experience as the basis for gaining a better sense of the magnitude of the estimated effects, the coefficients in columns (a) and (e) imply that a representative manufacturing industry would have experienced a 2.2 percentage point fall in its working poverty rate and a 0.2 percentage point increase in its share of women in senior and middle management positions.

Columns (b), (d) and (f) explore the possibility that non-preferential trade liberalization may have different effects for manufacturing than for other tradable industries. This is done by including interactions of *import tariffs* and *export tariffs* with a dummy variable for manufacturing industries.²⁰ The estimates suggest that, while lower *import tariffs* may have been harmful for manufacturing industries in terms of higher *working poverty* and *excessive hours*, further reductions of *export tariffs* have been marginally beneficial. This is consistent with previous findings for other countries and labour market outcomes (Gaston and Trefler 1994; Scott 2005; Dutta 2007; Paz 2014), and it adds to the evidence on heterogeneous effects from trade liberalization on industries with different trade orientations (Amiti and Davis 2011). From an inbound perspective, while non-manufacturing tradable industries may benefit from cheaper imported inputs, manufacturing industries could be hurt by increased foreign competition. From an outbound perspective, although tradable industries benefit from lower exportation taxes, the gains are smaller for manufacturing industries, possibly because they have been exposed longer and more intensely to trade and globalization, and also because export tariffs were already relatively low. Finally, the interactions for *female management* were neither individually nor jointly statistically significant, meaning that the effect of trade liberalization on this indicator is no different for manufacturing than for other tradable industries.

To conclude this section, table 5.3 presents a summary of the main findings of the analysis. Because *trade openness* had no significant effect in either of the two econometric approaches used (i.e. fixed effects at the firm level, and three-stage least squares at the industry level after controlling for workers' and establishments' observable characteristics), this variable is not reported. Exposure to globalization, measured by the share of income

20 The coefficients for import tariffs and export tariffs are now estimates of the baseline effects for all tradable industries, and the interactions coefficients are estimates of the differential effects for manufacturing industries. The overall effect of trade liberalization for the latter is therefore given by the sum of the baseline and the differential effects.

from supply chain participation *maquila*, has contributed to higher average wages, lower working poverty rates and shorter working hours. The impact of trade liberalization, on the other hand, has been heterogeneous. Lower *import tariffs* have contributed to reduced *working poverty* and fewer *excessive hours* in all tradable non-manufacturing industries, but not in manufacturing. Lower *export tariffs* have also reduced *working poverty* and *excessive hours* in all tradable industries, but their effect on the first of these two decent work indicators has been smaller for manufacturing industries. Last, the share of women in senior and middle management positions increases with *export tariffs*, which possibly act as a source of competitive advantage due to gender inequality, in response to higher trade costs.

► **Table 5.3 Summary of the estimated effects of trade on decent work**

		Working poverty	Working hours	Female participation
Trade liberalization	<i>Import tariffs</i>	Lower <i>import tariffs</i> reduce <i>working poverty</i> in non-manufacturing tradable industries but increase it in manufacturing	Lower <i>import tariffs</i> reduce the share of <i>excessive hours</i> in non-manufacturing tradable industries but increase it in manufacturing	No effect on <i>female management</i>
	<i>Export tariffs</i>	Lower <i>export tariffs</i> reduce <i>working poverty</i> in all tradable industries, but with a smaller effect in manufacturing	Lower <i>export tariffs</i> reduce the share of <i>excessive hours</i> in all tradable industries	Higher <i>export tariffs</i> increase <i>female management</i> in all tradable industries
Exposure to globalization	<i>Maquila</i>	Higher shares of income from supply chain participation reduce <i>working poverty</i> in manufacturing industries and increase wages at the firm level	Higher shares of income from supply chain participation reduce hours in manufacturing firms	No effect on <i>women</i> nor on <i>female management</i> in manufacturing

Note: import tariffs = trade-weighted average MFN import tariff; export tariffs = trade-weighted average MFN export tariff; maquila = share of income from maquila, sub-maquila and remanufacture services (supply chain participation); working poverty = working poverty rate of employed persons; excessive hours = share of employees in excessive working time; female management = share of women in senior and middle management positions; wages = average gross daily wage per employee at the manufacturing firm level; hours = daily hours worked per employee at the manufacturing firm level; women = share of women in the total workforce at the manufacturing firm level.

► 5.4 Conclusions

This chapter has investigated the effect of non-preferential trade liberalization and exposure to globalization on a group of variables that are related to adequate earnings, decent working time, and equal opportunity and treatment in employment – three of the ten substantive elements of the ILO's Decent Work Agenda – in the Mexican manufacturing industries between 2003 and 2018. During this period, as Mexico deepened its trade liberalization and globalization processes, the country saw its rate of working poverty among employed persons and share of women in senior and middle management positions increase by several percentage points, while its share of employees in excessive working time barely changed. And although manufacturing has normally fared better than other economic sectors in this respect, the differences with respect to non-manufacturing sectors have tended to shrink.

As these trends could give rise to doubts on whether trade liberalization and globalization have really contributed to better working conditions, the analysis developed here has aimed to provide additional clarifying evidence in this regard. Thus, panel data estimations using manufacturing establishment surveys indicate that wages are higher and fewer hours are worked in firms that have a higher share of income from maquila services, which implies that a higher level of participation in GSCs is associated with better working conditions. In contrast, exposure to trade and globalization does not seem to influence the share of women within the workforces of manufacturing firms, as most of the adjustments in this area may likely have taken place during previous stages of the Mexican trade integration process (although insufficiently, as gender equality in terms of wages and career opportunities is still a pending issue).

By relying exclusively on data from establishment-level surveys, the above-mentioned analysis is bounded by the scarce workforce information collected through such instruments and does not use data on the individual characteristics of workers. To overcome these potential limitations, a complementary three-stage least squares approach was also used to link the establishment-level data with more detailed worker-level data from the national labour force survey, and with MFN tariff data from the WTO at the four-digit NAICS industry level, to assess the impact of trade liberalization and exposure to globalization on the three labour market variables.

For all tradable industries, it was first found that reducing the non-preferential import tariffs contributes to decreasing working poverty, whereas reductions of non-preferential export tariffs (i.e. those charged by a country's trade partners) reduce the share of women in management positions. While the former effect might arise because of cheaper trade in imported intermediate goods (allowing firms to pay better wages to their employees), the latter could be a consequence of discrimination against women as the cost of accessing foreign markets decreases (or, conversely, a preference for cheaper female labour when such access costs increase).

The effect of trade liberalization was then disaggregated for the manufacturing sector relative to other tradable industries. It was found that reductions of non-preferential import tariffs may have contributed to increasing both working poverty and excessive working time rates in manufacturing. However, further lowering of non-preferential export tariffs by Mexico's top five trade partners has still been beneficial for both decent work measures.

Apart from confirming the heterogeneous nature of the effects of trade and globalization across economic sectors, these results provide additional evidence that trade policy intentions (i.e. whether they are meant to promote imports or exports) matter: further reductions of import tariffs benefit sectors that consume imported inputs, but they may harm manufacturing through increased foreign competition. Likewise, lower export tariffs benefit non-manufacturing tradable industries more than manufacturing ones, as the latter have been exposed to trade and globalization for longer and more intensively.

Finally, it was also found that a higher degree of supply chain participation, measured by the share of income from maquila services in the total income of establishments in manufacturing industries, has also contributed to a lower working poverty rate, confirming that globalization has helped to improve working conditions in this sector through more adequate wages.

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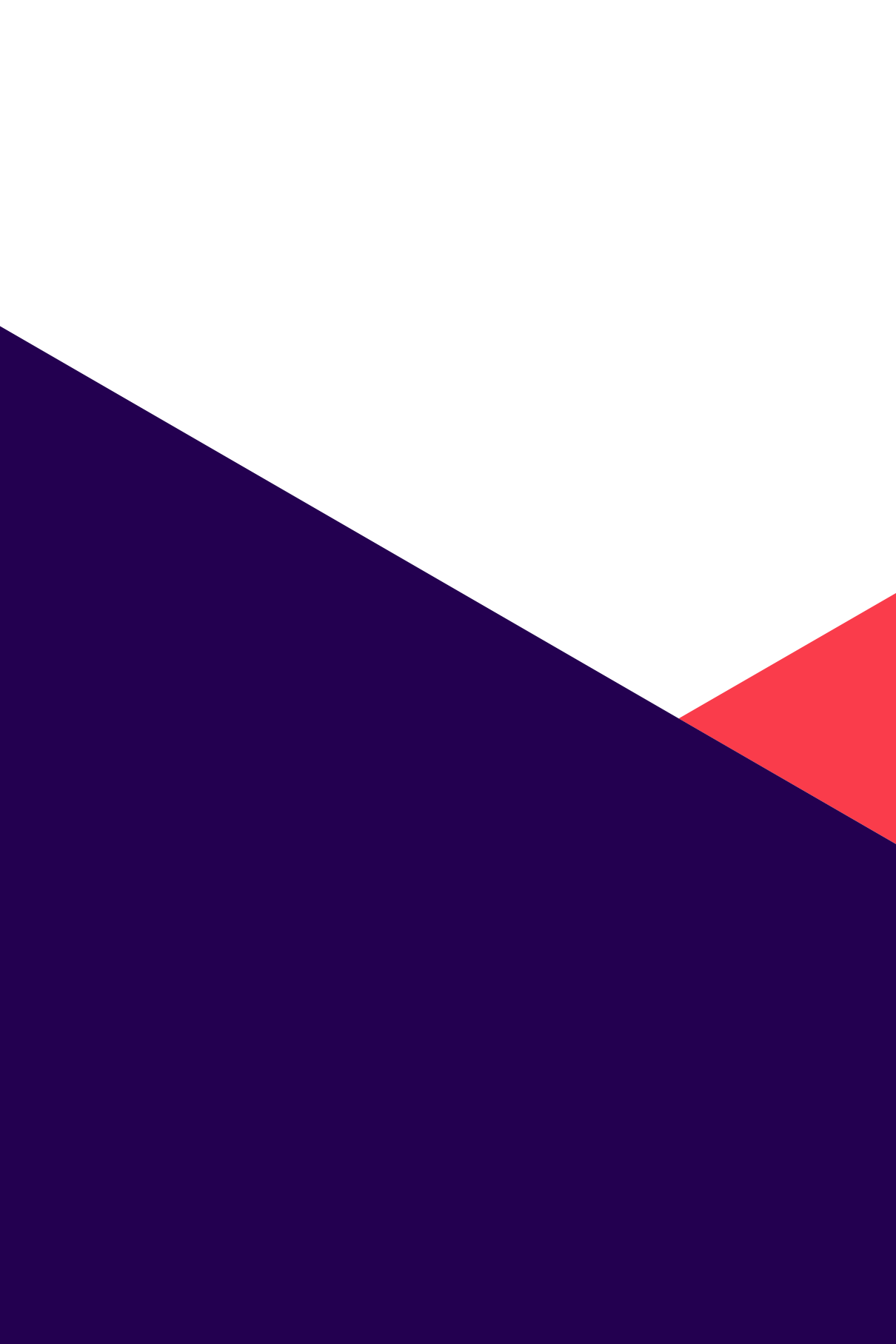
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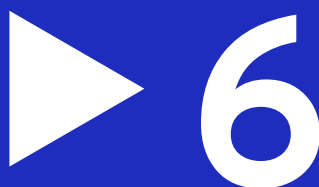


Trade and decent work in Viet Nam:

Insights from small and medium-sized enterprises

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► Introduction

Since the mid-1980s, starting with the *Doi Moi* programme, Viet Nam has undertaken major structural reforms to reorientate its planned economy towards a more open-market economy.¹ This transition included a focus on trade liberalization – the country joined the WTO in 2007 and, as of August 2022, is a partner to 15 RTAs in force and notified to the WTO.² During this period, Viet Nam's participation in international trade increased substantially. Exports soared from US\$14 billion in 2000 to US\$264 billion in 2019, while trade (the sum of exports and imports) as a percentage of GDP increased from 111 per cent to 198 per cent.³

There has also been a remarkable evolution in the structure of the labour market following the economic transition, with a shift from employment in agriculture to manufacturing and services. In parallel, some improvement has been observed in working conditions, including lower informality (ILO 2021a) and increased social protection coverage (ILO 2021b). While increased participation in trade might have contributed to these changes, there are not many studies analysing the links between them in the context of Viet Nam.⁴ Even at the global level, studies focus mostly on the effects of trade on employment creation and wages. However, trade might have implications for various aspects of workers' rights and working conditions (ILO 2021c, 2021d). Moreover, trade creates both winners and losers. It is therefore essential to understand how different actors, including different firms and workers, are affected in order to design and implement more effective policies (ILO 2021c, 2021d; WTO 2017).

The contribution of this chapter to the literature is twofold. First, it analyses an extended number of decent work indicators in the context of trade in Viet Nam. In addition to employment creation, the chapter investigates how increased participation of firms in trade has affected the provision of formal contracts, social protection coverage and OSH. OSH measures are essential for protecting workers against health risks at the workplace. Social

1 Currently, Viet Nam has diplomatic relations with 189 countries and is an active member of many international and regional organizations, including the United Nations, ASEAN and the Asia-Pacific Economic Cooperation (APEC).

2 See [the list of agreements](#) at Labour Provisions Hub (LPHub). In addition, the Regional Comprehensive Economic Partnership entered into force in January 2022 and two RTAs are currently under negotiation (Viet Nam–Israel and Viet Nam–EFTA).

3 [World Integrated Trade Solution](#) (WITS) database by the World Bank.

4 Decent work, as defined by the ILO, is a multifaceted concept, which refers to various aspects of work including rights at work, social protection and the promotion of social dialogue (ILO 2008).

protection supports individuals in times of difficulties and events faced throughout the life cycle (such as unemployment, sickness or maternity). Yet informal workers, although most at risk, hardly benefit from any insurance. The safety and protection of workers have also been topics of concern in the context of trade, as firms can be pressured to reduce labour costs to remain competitive. However, despite their relevance, these dimensions are still rarely studied in the literature.

Second, this chapter focuses on SMEs, which make up around 96 per cent of enterprises in Viet Nam and employ roughly half of the workforce (OECD 2021). SMEs are often found to struggle more with providing decent work conditions to their employees compared with large firms (ILO 2015). By shedding light on the implications of trade for SMEs, the findings of this chapter will be useful for formulating policies to better support these firms and their workers.

This chapter is divided into six sections. Section 6.1 will provide a literature review of trade and labour market outcomes, and section 6.2 will trace broader labour market trends in Viet Nam. The data utilized in this chapter will be presented in section 6.3, while section 6.4 will detail the econometric strategy. Finally, section 6.5 will present the results and section 6.6 will draw the conclusions.

► 6.1 Literature review

Trade has often been associated with economic growth, job creation and welfare gains at the aggregate level (WTO 2017; Frankel and Romer 2009). However, various actors, such as firms and workers with different characteristics, might not benefit from trade in the same way. Contemporary trade theories, developed over the past few decades, have highlighted the importance of taking into account firm and worker heterogeneities, and their possible consequences for the interpretation of trade effects. At the firm's level, theoretical studies and empirical evidence suggest that productive firms benefit more from trade liberalization, expanding their production and labour demand, while less productive firms tend to contract and exit the market (Melitz 2003). Larger firms are also found to engage more in trade compared with SMEs (Bernard, Redding and Schott 2007). The latter face a plethora of challenges, such as high fixed costs of entry, lack of access to

finance, and lack of information and of entrepreneurial skills, among others (WTO 2016; Kazimoto 2014).

Trade also has differential effects on the labour market. The possibility of finding new jobs and the quality of employment created differ for workers with heterogeneous characteristics, such as their skills, age, education and gender. Some workers lose their jobs while others get a chance to enter the labour market for the first time. For instance, trade has been associated with higher demand for skilled workers (Kasahara, Liang and Rodrigue 2016; Meschi, Taymaz and Vivarelli 2016; Goldberg and Pavcnik 2007; Sánchez-Páramo and Schady 2003) and higher skill premiums (Attanasio, Goldberg and Pavcnik 2004; Harrison and Hanson 1999). One reason is that trade facilitates the diffusion of new technologies which require higher skills (Acemoglu and Autor 2011). Increased trade in skill-intensive services has also contributed to this trend (WTO 2019). Besides, trade has been found to create jobs for unskilled workers, especially for women in developing countries in low-paid jobs (Frederick et al. 2021). Some beneficial effects on income have also been identified in developing and emerging countries, as in the case of Viet Nam, with trade liberalization leading to a large wage growth for unskilled workers and to a narrowing of the wage gap between skilled and unskilled workers (Fukase 2013). However, despite these positive effects, trade has often been associated with the rise of inequalities in both developed and developing countries (Harrison, McLaren and McMillan 2011).

In addition, an increasing number of studies have been investigating how trade affects informal employment, with some mixed results. As an example, the tariff reduction due to the United States–Viet Nam bilateral trade agreement has been found to lead to an increase in formal employment in Viet Nam (McCaig and Pavcnik 2018). However, differences between workers are argued to play an important role, with young and more educated workers having a higher chance of moving out of informality. Despite this, other studies do not necessarily find that trade leads to a decline in informal employment, such as Attanasio, Goldberg and Pavcnik (2004) in Colombia. Some studies also highlight the importance of labour institutions in the diffusion of the impact of trade on informality, such as Goldberg and Pavcnik (2003) or Ponczek and Ulysea (2021).

As this brief overview of the literature suggests, while there are more studies analysing the relationship between trade and the labour market, conclusions are not always clear. Heterogeneities between firms and workers have important consequences for how the effects of trade are diffused. Moreover, many aspects of decent work, such as social protection coverage or OSH, are still largely overlooked in the literature. The few studies that exist on social spending and trade tend to find heterogeneous effects of international

trade on social spending (Desai and Rudra 2019) and on different welfare programmes (Håggqvist 2020). Similarly, a limited number of studies analyse the impacts of trade on OSH, with diverse conclusions. One paper looks at the impact of import competition on the health of workers and concludes that the injury rate increases concomitantly (McManus and Schaur 2016). However, other studies find that OSH conditions in firms can improve as a result of process upgrading through GVCs (ILO 2017). Given the scarcity of the literature on these issues, and the heterogeneity of results, there is considerable scope for more research.

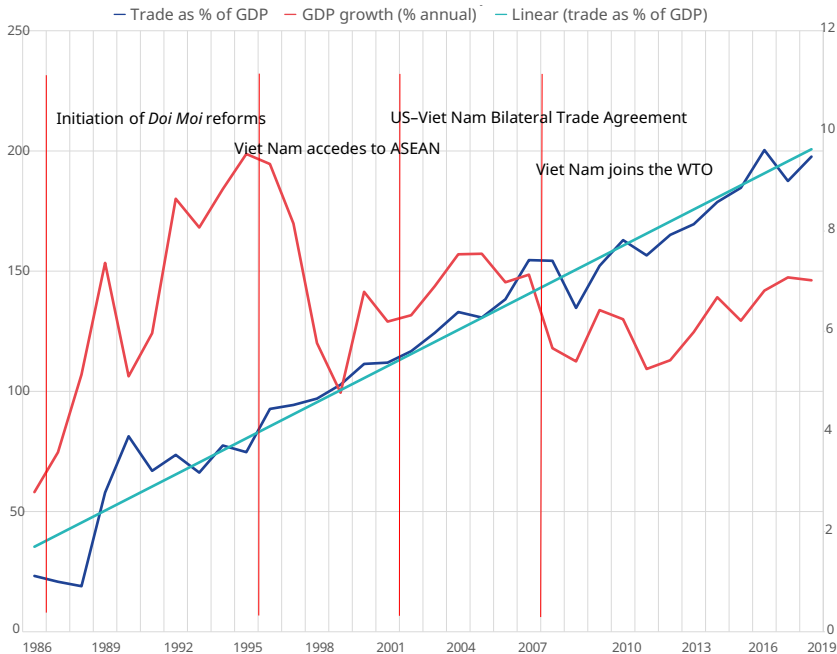
► 6.2 Trade and labour market trends in Viet Nam

The period of structural reform in Viet Nam, *Doi Moi*, has been followed by significant changes in the country's economic and labour landscape. Sharp increases were observed in its participation in international trade (the sum of exports and imports over GDP), from 25 per cent in 1986 to around a spectacular 212 per cent in 2019. Viet Nam's GDP growth rate also soared from 3 per cent in 1986 to 7 per cent in 2019.⁵ Foreign direct investment inflows have also been on an upwards trajectory, rising from 0 per cent of GDP just before the end of the 1980s to 6.2 per cent in 2019.⁶ The country's role in international trade is likely to increase further as there is significant evidence that, because of tensions with China, the United States has started to increase trade with neighbouring countries, such as Viet Nam (Choi and Nguyen 2021). Figure 6.1 traces the trade openness and GDP growth figures for Viet Nam since 1986, along with the key turning points in the trade trajectory of the country, such as accession to ASEAN and the WTO.

5 The figures are provided for 2019 throughout the chapter so as to discount the effects of the pandemic.

6 [World Bank World Development Indicators](#).

► **Figure 6.1 Trade as percentage of GDP and real GDP growth rate in Viet Nam (1986–2019)**



Source: World Bank World Development Indicators.

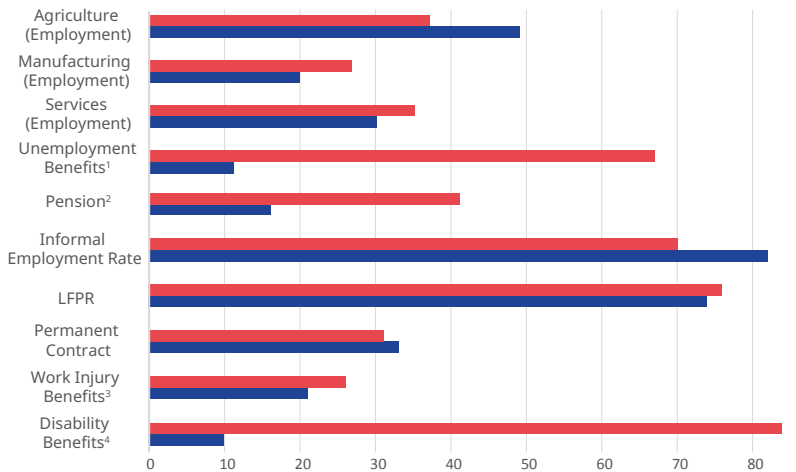
The structure of exports and imports has significantly changed over the past two decades. With a share of 42 per cent in 2019, up from 8 per cent in 2000, machinery and electronics constitute the most exported products. This is followed by textiles and clothing (15 per cent), and footwear and headwear (9.3 per cent), whose shares remained relatively stable throughout the same period. However, exports of raw materials declined markedly from 41 per cent down to 8 per cent, indicating a shift from the exports of unprocessed products to manufactured goods.⁷ In fact, the economic complexity index (ECI) of Viet Nam rose from -1.48 to -0.06 between 1998 and 2020.⁸ In terms of imports, the largest share is again composed of machinery and electronics (40 per cent), followed by raw materials (10 per cent), and textiles and clothing (8 per cent).

⁷ Source: WITS.

⁸ The ECI indicator provides a measure of knowledge embedded in the products produced by a country. It utilizes a combination of the diversity of exports of a country and their ubiquity (Hidalgo and Hausmann 2009). The index is calculated on a scale of -1 (lowest complexity) to 1 (highest complexity).

Important changes also took place in the labour market throughout the same period. Some indicators related to this chapter's areas of interest (employment structure, social protection and informality) are presented in figure 6.2.⁹ Between 2007 and 2019, the share of employment in agriculture declined from 49 per cent to 37 per cent, while it increased in manufacturing (from 20 per cent to 27 per cent) and in services (from 30 per cent to 35 per cent).¹⁰ The LFPR has remained relatively stable throughout this period, at around 76 per cent in 2019. This indicates that job declines in agriculture were accompanied by job creation in other sectors.

► **Figure 6.2 Selected labour market indicators for Viet Nam (percentage)**



Note: ¹Data for 2010 and 2020. ²Initial data for 2010. ³Data for 2015 and 2020. ⁴Data for 2016 and 2019.

The employment figures are ILO-modelled estimates by broad economic sector (agriculture, manufacturing and services). Unemployment benefits correspond to the proportion of the population receiving benefits. Pension is defined as the proportion of persons above retirement age receiving benefits. The informal employment rate is the proportion of informal employment in total employment. The LFPR is defined as the proportion of people of working age who are employed and unemployed. The permanent contract rate is defined as workers in paid employment holding permanent contracts. Finally, disability and work injury benefits are defined as the proportion of persons with severe disability collecting disability social protection benefits and the employed covered in the event of a work injury.

Source: ILOSTAT.

⁹ OSH-related data are scarce in Viet Nam. ILO (2019) indicates that the number of occupational injuries increased from 2010 to 2018. However, the coverage of the data remains limited.

¹⁰ Source: ILOSTAT.

Social protection has improved substantially in Viet Nam over the past decades.¹¹ The share of unemployed persons receiving unemployment benefits increased from 11 per cent in 2010 to 67 per cent in 2019.¹² Additionally, where 16 per cent of persons above retirement age received a pension in 2000, 41 per cent did in 2019. The coverage rate following a work injury also increased from 21 per cent in 2015 to 26 per cent in 2019. Finally, 84 per cent of persons with severe disability were collecting financial disability benefits in 2019, whereas only 10 per cent were in 2016.¹³ These improvements can be linked to changes in laws on social and health insurance that the country adopted over the past decade with the objective of increasing coverage (ILO 2021b). However, large gender gaps exist in terms of social protection, with women's rates and benefit levels being lower than men for many contingencies, including old age and sickness (ILO 2021e).

The informal employment rate also improved, falling from around 82 per cent in 2007 to 70 per cent in 2019.¹⁴ This decrease was mostly due to the decline of employment in the agricultural sector (ILO 2021a). Interestingly, female employees tend to have a lower informal employment rate than men (67 per cent compared with 72 per cent, respectively, in 2019),¹⁵ suggesting that they are more likely to be employed in predominantly formal industries such as manufacturing (ILO 2021f).¹⁶ Despite this progress, the share of workers on permanent contracts (as opposed to temporary) dropped slightly from 33 per cent to 31 per cent between 2007 and 2019, which is an indication of increased precarity.¹⁷ While this rate has declined both for men and women, women still tend to have more permanent contracts: 36 per cent compared with 27 per cent of men in 2019. However, women are disproportionately represented in vulnerable employment,¹⁸ especially as contributing family workers (ILO 2021f).

11 Source: ILOSTAT. Data on types of social protection are not available on a yearly basis and, where available, are provided from the earliest year to 2019.

12 It should be noted that overall unemployment is relatively low in Viet Nam, under 3% annually since 1996 (source: ILOSTAT).

13 Source: ILOSTAT.

14 The [complete definition of what constitutes informal employment](#) encompasses both the characteristics of the job being performed and the characteristics of the enterprise.

15 Source: ILOSTAT.

16 However, these jobs tend to be low-skilled and low-paid and gender pay gaps persist. In Viet Nam, the overall gender wage gap was 8.3 per cent in 2021, rising to 17.9 per cent in occupations predominant in the manufacturing industries such as plant and machine operators, and assemblers (source: ILOSTAT).

17 Source: ILOSTAT. This statistic is for the employed population aged 15 to 64 who have a contract and are in paid employment.

18 The term "vulnerable employment" encompasses own-account workers and contributing family workers (ILO 2010).

While improvements have been observed both in Viet Nam's trade participation and in some indicators linked to the labour market, the link between the two has rarely been explored in the literature. This chapter sheds light on a set of labour market dimensions that have not been extensively analysed so far. For this purpose, the study uses a unique firm- and worker-level survey dataset which covers the universe of both formal and informal SMEs in Viet Nam.

▶ 6.3 Data

This study uses data from a survey on SMEs in Viet Nam, which was conducted biennially from 2011 to 2015.¹⁹ SMEs in the database are described as those with fewer than 300 employees, with micro enterprises having up to 10 employees, small enterprises up to 50 and medium enterprises up to 300.²⁰ The reasons for choosing this database are twofold: first, the database contains labour indicators that support an analysis of the effects on various aspects of decent work, such as those relating to social protection and informality. Second, both firms and their workers were surveyed so it is possible to analyse firm-level worker outcomes from the dataset. It must be noted that micro-identifiers for workers were anonymized and, therefore, individual workers cannot be followed over time. However, the data do make it possible to follow enterprises over time.

Enterprise-level data from the SME survey contain information on several key variables, such as enterprise code, products, indicators related to financial performance (assets and revenue), import and export status of firms (yes/no), export and import values, and indicators related to labour (total employment, female workers, wages and labour cost). The total number of unique firms in the final dataset is 3,504. The enterprises were asked about the above-mentioned variables for the two years preceding each questionnaire. Therefore, using this questionnaire, it was possible to create a panel over six years, from 2009 to 2014, for this chapter. Table 6.1 describes the firms in the dataset.

19 Viet Nam SME Surveys were conducted in 2011, 2013 and 2015 by the Institute of Labour Science and Social Affairs (ILSSA), the Central Institute for Economic Management (CIEM), the Development Economics Research Group (DERG) at the University of Copenhagen, and UNU-WIDER, with technical support and finance from the Danish International Development Agency (DANIDA). The first survey was conducted in 2009; however, data from that round are not available.

20 This definition corresponds to the World Bank definition of SMEs.

► Table 6.1 Descriptive statistics for firms (averages) by year

Year	Revenue (billions of VND) ¹	Exports (billions of VND) ¹	Labour cost (billions of VND) ¹	No. of employees	Assets (billions of VND) ¹	Value-added (billions of VND) ¹	Age	Exporters (% of total)	Direct importers (% of total importers)
2009	7.66	0.47	0.39	13.7	4.76	1.21	11.4		
2010	6.09	0.55	0.32	14.0	3.76	0.99	12.4		
2011	4.22	0.49	0.45	13.9	3.77	1.15	13.6	6.0	1.6
2012	4.80	0.58	0.518	13.5	4.13	1.26	14.6		
2013	8.49	1.83	0.67	13.8	5.89	1.83	14.5	6.2	1.9
2014	9.84	1.90	0.73	14.1	6.24	1.72	15.5	7.1 ²	1.7 ²

Note: ¹Deflated using 2009 as base year. ²Figure for the year 2015.

Comparing 2009 and 2014, the descriptive statistics seem to indicate that the sampled SMEs earned more revenue (after a decline in 2010 and 2011), exported higher amounts, hired a larger workforce and paid them better (both the average number of workers and the labour cost per surveyed worker increased), and owned a larger number of assets. However, this increase in size is not necessarily reflected in the increase in the value-added generated by the firms since the overall increase over the surveyed time frame is quite variable. Also, these increases might be due to attrition, whereby less productive and less competitive firms exit the market over subsequent survey waves. While the survey tries to re-interview firms for each subsequent sample, there is a certain level of attrition (see table 6.2). Brandt et al. (2016) calculate the survival rates between the 2011 and 2013 surveys to be 90.6 per cent, and 91.3 per cent between the 2013 and 2015 surveys. Therefore, it is likely that some firms ceased to exist at the same time as others stopped responding to the questionnaires.

► **Table 6.2 Attrition of firms in sample**

	2011	2013	2015
Total number of firms	2 512	2 542	2 647
Number from previous samples	n.a.	2 058	2 138
Number of new firms not in previous samples	n.a.	484	509
Attrition number	n.a.	454	858
Attrition rate	n.a.	18%	34%

n.a. = not applicable.

The SME survey also comprised a questionnaire that surveyed workers within the firms already included in the database. This survey took a maximum of seven workers from a randomly selected list of enterprises and asked them about *worker-level variables*. These biennial worker-level data contain information on the characteristics of workers such as gender, age, education level, type of labour contract (for example, formal written), coverage by social protection and information related to OSH measures (table 6.3). A total of 848 unique firms is represented in this dataset, with an average of around 574 firms included in each period, and around 1,464 unique workers were interviewed per period.²¹

In order to analyse the relationship between labour market outcomes and trade, this chapter first focuses on the relationship of exports and imports with labour demand using the enterprise-level data. Then, based on the worker-level data, it explores the dimensions of decent work related to formal employment, social protection and OSH, through specific indicators.

Formal employment

The presence of a *written contract* is often used to account for formal employment, and the lack of it is a component of the ILO definition of informality.²² The worker with a contract is protected by the law under the terms of the contract but might not necessarily be covered by social

21 The number of firms interviewed was 597 in 2011, 600 in 2013, and 524 in 2015. The number of workers interviewed was 1,478 in 2011, 1,571 in 2013 and 1,342 in 2015.

22 Social protection coverage is also an indicator for formal employment (Galli and Kucera 2008; Marcouiller, Ruiz de Castilla and Woodruff 1995; Saavedra and Chong 1999). However, as all those who have written contracts are not covered by social protection, a distinction is made here.

protection.²³ The variable constructed for the purpose of this study takes the value of 1 if the worker has a formal labour contract, 0 otherwise.²⁴

Social protection

Social protection, as defined by the ILO, covers a range of contingencies.²⁵ Three of its components – health insurance, unemployment insurance and sick leave – are used separately as proxies in this study, due to their relevance and data availability.²⁶ Moreover, as ILO (2021g) indicates, protection against these three risks has gained increased relevance during the pandemic. The variables created for the purpose of this study take the value of 1 if the worker is entitled to a specific insurance (health, unemployment or sick leave), 0 otherwise.²⁷

Occupational safety and health

The provision of training on OSH gives some information about OSH measures undertaken by the enterprises.²⁸ The indicator takes the value of 1 if the workers are trained on OSH in the enterprise, 0 otherwise.

► **Table 6.3 Descriptive statistics for employee-level data at the firm level**

	2011	2013	2015
Formal contract (% of total)	46.9	50.1	54.0
Provision of training (% of total)	51.0	38.1	28.7
Health insurance (% of total)	35.2	42.6	47.9
Unemployment insurance (% of total)	28.0	34.1	41.0
Sick leave (% of total)	38.0	41.4	52.6

23 In 2019, 61 per cent of salaried workers had written contracts while only 54 per cent of them were covered by social protection.

24 The precise question in the questionnaire is “Do you have a formal (written down) labour contract?”.

25 These include benefits for medical care, maternity, invalidity, survivors, unemployment, employment injury, family and old age (see [the comprehensive definition of the indicator](#)).

26 The precise question in the questionnaire is “Does your employer provide, either directly or through the Social Insurance Fund, any of the following benefits (according to regulations)?”. The benefits listed are sick leave, maternity leave, old age pension, accident compensation, survival benefits, health insurance, unemployment insurance and annual paid leave.

27 Paid sick leave covers entitlement for both workers and their children.

28 The precise question for this indicator in the questionnaire is “Have you received training on occupational health and safety at your workplace?”.

	2011	2013	2015
Female employees (% of total)	41.7	41.6	41.1
Married (% of total)	74.2	76.9	80.4
Age	34.2	34.8	36.8
Education	1.6	1.6	1.7

Note: Education is coded from 1 to 3 with the following coding: 1 = Up to high school; 2 = Above high school/technical college; 3 = College/university.

Table 6.3 contains a description of worker-related indicators aggregated at the firm level by year. It can be seen from the table that, for the firms within the sample, the percentage of workers with written formal contracts increased steadily, which might suggest that there was an increase in formality among the employees within the sampled firms. However, the provision of training on OSH decreased, which could point towards a worsening of OSH standards within the firms in the survey. On a more positive note, there are hints of an increase in the coverage of social security, with a rise in health and unemployment insurance and sick leave. The percentage of female workers in the firms remained steady but both the age and educational attainment of workers show gradual increases. Section 6.4 investigates the possible relations between these changes and increased trade participation of firms in Viet Nam.

► 6.4 Empirical strategy

One of the major challenges when studying the impact of trade on labour markets with firm-level data is addressing the fact that the majority of firms do not export and those that do so have particular characteristics that make them engage in trade. This situation leads to a selection bias and to endogeneity issues, as the decision of firms to export may influence their labour market outcomes. One of the techniques that is used in the literature to mitigate these issues is the Heckman selection model (Heckman 1979). This methodology assumes that there is a latent function which determines the selection of firms into exports and the outcome (being an exporter) is observed only when the criterion defined in the selection equation is met.

The model is hence composed of two equations. First, a selection equation which shows whether a firm engages in trade:

$$exp_i = \begin{cases} 1 & \text{if } exp_i^* = aX + e > 0 \\ 0 & \text{if } exp_i^* = aX + e \leq 0 \end{cases} \quad [1]$$

This equation is estimated through a probit model for both the labour demand and the labour market outcome specifications. It includes the logarithms of value-added, age and assets, as these characteristics are likely to determine why an enterprise engages in exports. The estimates from this selection equation are used to calculate inverse Mills ratios, which can be thought of as sample selectivity correction terms. Inverse Mills ratios are then included in the main response equation (second equation) in order to control for the correlation between a firm's decision to export and the effect of its exports on the labour demand or labour market outcomes. Using the Mills ratios established in the selection equation, two different specifications are used for labour demand [2] and labour market outcomes [3] at the second stage.

6.4.1 Labour demand

One of the oft-used empirical methodologies which tie labour demand to trade is through an augmented Cobb-Douglas production function, with cost minimization and/or profit maximization conditions. In a Cobb-Douglas function, production is considered an outcome of labour and capital, and trade is taken into account through its impact on technology.²⁹ More specifically, both imports and exports are presumed to play a direct role in the technological progress parameter in this framework, with exporters more likely to have knowledge of capital goods and importers more likely to acquire them. Using this framework, a reduced form log-linearized version of a labour demand function can be derived. In line with this literature, and based on the available variables in the enterprise data, this chapter adopts an estimation equation for labour demand as follows:

$$\begin{aligned} \log(labour)_{it} &: \beta_1 + \beta_2 T_{it} + \beta_3 \log(assets)_{it} \\ &= \beta_4 \log(value-added)_{it} + \beta_5 Mills\ Ratio_{it} + \partial + \gamma + \varepsilon_{it} \end{aligned}$$

where

$\log(labour)$ is the log of the total number of workers in a firm;

²⁹ The empirical framework in this paper is similar to that used by Mouelhi (2007) and Njikam (2014).

T is the transformed value of direct exports or percentage of direct imports;³⁰

$\log(\text{assets})$ is the log of total assets;

$\log(\text{value-added})$ is the log of (revenue – cost);

γ represents the province-level controls;

δ represents the year-level controls;

i is a firm in time t .

The trade variable corresponds to either the value of total exports for the final product of the enterprise or to imports represented through the percentage of machinery and equipment which is procured from foreign suppliers, as opposed to domestic sources, such as households, state enterprises and state agencies.

6.4.2 Labour market outcomes

In the case of labour market outcomes, worker-related variables are integrated in the equation:

$$LMO_{jits} = \beta_1 + \delta_{2T_{it}} + \beta_3 \log(\text{assets})_{it} [\mathfrak{Z}] + \beta_4 \log(\text{value-added})_{it} \\ + \beta_5 \text{gender}_{jit} + \beta_6 \text{age}_{jit} + \beta_7 \text{education}_{jit} + \beta_8 \text{Mills Ratio}_{it} + \delta + \gamma + \varepsilon_{it}$$

where

LMO represents the labour market outcomes (that is, written labour contract, training on OSH, health insurance, unemployment insurance and sick leave);

T is the transformed value of direct exports or percentage of direct imports;

$\log(\text{assets})$ is the log of total assets;

age is the age of worker;

education is the education level of worker;

gender is expressed as 1 if female;

γ represents the province-level controls;

δ represents the year-level controls;

j is an individual in firm i in time t and based in the province s .

³⁰ The main trade variables are transformed using an IHST – these are exports and the percentage of direct imports of raw materials and machinery/equipment, due to them being right-skewed with a large number of zero values.

In each case, tests were carried out to inspect the distribution of the variables and their correlations. Furthermore, variance inflation factor tests were used to decide which variables to include in the regression as firm covariates. The year and province controls were incorporated in order to account for time-invariant effects of the year and province.

► 6.5 Results

The results for equation [2], which investigates the relationship between trade (imports and exports) and the labour demand, are shown in table 6.4. Panel (a) shows the results for exports and panel (b) for imports.

► **Table 6.4 Panel regression results for labour demand**

Variables	(a) Exports	(b) Imports
	Log of labour	Log of labour
Exports (IHST)	0.020*** -0.004	
Direct imports (% of total) (IHST)		0.047*** (0.012)
Log of assets	0.043*** -0.011	0.042*** -0.012
Log of value-added	0.401*** -0.023	0.400*** -0.024
Constant	-3.825*** -0.364	-3.816*** -0.423
Observations	15 053	15 053
Number of firms	3 497	3 497
Province controls	Yes	Yes
Year controls	Yes	Yes

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. IHST = inverse hyperbolic sine transformation. Bootstrapped standard errors in parentheses.

It can be seen from table 6.4 that an increase in both exports and imports is associated with a rise in employment in SMEs.³¹ This is in line with studies which find a positive impact of imports and exports on employment in Viet Nam (Le et al. 2022) and would support the idea that engagement in international trade contributes to the growth of SMEs. A positive relationship between labour demand and other firm characteristics, such as the total value of assets and value-added, has also been identified. This would also support the literature which suggests that exporting and importing firms are larger in size and more productive (Bernard, Redding and Schott 2007).

The results of the coefficients for labour market outcome equation [3] are presented in table 6.5. The table shows that exporting has a positive and significant relationship with the presence of written formal contracts, and social protection coverage through insurance for healthcare, unemployment and sick leave.

► **Table 6.5** Regression results for labour market outcomes

Variables	(1) Formal contract	(2) Health insurance	(3) Unemployment insurance	(4) Sick leave insurance	(5) Provision of OSH training
Exports	0.0185* (0.0104)	0.0325*** (0.00882)	0.0349*** (0.00656)	0.0290*** (0.00779)	0.00307 (0.00587)
Log of value-added	1.012***	1.195***	1.090***	0.604***	0.510***
Log of assets	(0.0605) 0.0902***	(0.0782) 0.157***	(0.0747) 0.127***	(0.0628) 0.103***	(0.0475) 0.0597***
Female	(0.0225) 0.168***	(0.0199) 0.182***	(0.0272) 0.134**	(0.0254) 0.0158	(0.0211) -0.0876**
Education	0.350*** (0.0353)	0.296*** (0.0335)	0.264*** (0.0277)	0.271*** (0.0307)	-0.0785*** (0.0267)
Age	-0.0156*** (0.00295)	-0.0139*** (0.00407)	-0.00901*** (0.00343)	-0.00242 (0.00256)	-0.00329 (0.00220)
Constant	-14.82*** (0.814)	-19.36*** (0.974)	-17.81*** (1.015)	-10.16*** (0.813)	-7.110*** (0.623)
Observations	4 319	4 259	4 255	4 253	4 318
Province controls	Yes	Yes	Yes	Yes	Yes
Year controls	Yes	Yes	Yes	Yes	Yes

Note: Robust standard errors in parentheses. *** p < 0.01, ** p < 0.05, * p < 0.1.

³¹ The results are robust to changing the selection equation to account for importers instead of exporters.

6.5.1 Formal employment

Exports and imports increase the likelihood of SMEs offering written labour contracts to their workers in Viet Nam. Given the prevalence of informal employment in the country, this is an important finding, as it shows that trade can contribute to formalization of workers. Another result from the regressions is that the probability of having a written contract is higher for women compared with men in SMEs. This is in line with the findings of the labour force surveys in Viet Nam, in which women were found to have more formal contracts (see section 6.2). Finally, there is a positive relationship between formal contracts and education, but a negative one with age. Indeed, younger and higher educated workers are more likely to have formal written contracts. This is in line with the findings of McCaig and Pavcnik (2018), who also showed that young and educated workers had a higher chance of moving out of informality due to increased trade. However, it should be noted that firms might be resorting to short-term written contracts for seasonal labour, which would negate many of the benefits which come with having an employment contract. Therefore, it is also important to investigate the duration of contracts in future studies. In terms of firm characteristics, assets and value-added are positively correlated with written contracts. This is expected, as larger firms, even within the sample of SMEs, are more likely to offer contracts at a higher rate than smaller firms. Furthermore, assets and total value-added are often considered proxies for firm size.

6.5.2 Social protection

Exports increase the probability of firms offering a greater number of social security policies, in this case health insurance, unemployment insurance and sick leave benefits. This could be due to the international pressure and scrutiny which come with engagement in trade but also to the participation of firms in specific programmes, such as Better Work, which aim to improve conditions in the labour market. While we do not have any data on whether the enterprises surveyed were part of the Better Work programme, there is some evidence that firms that are tend to comply more with labour standards. Furthermore, there seems to be a significant and positive relationship between gender and social security coverage, with women workers more likely to be covered. This follows the finding that women tend to have more formal contracts. However, it should be noted that many women tend to drop out of the labour market and wage employment due to care duties (maternity and family) in Viet Nam. While they might be well covered by social security when younger, their careers tend to be short, which is illustrated by the low coverage by pension schemes (ILO 2021e). Finally, the age of workers has a

significant negative relationship with social security, while the education level of workers seems to have a positive correlation. This could stem from the fact that firms offer better working conditions to higher educated workers in the first place. However, it could also mean that higher skilled workers are more likely to be aware of, demand and participate in social security programmes offered by firms and the State.

6.5.3 Occupational safety and health

The estimated results do not show any significant relationship between exporting and training on OSH. However, training does have a significant negative relationship with gender. This is likely to reflect the fact that SMEs in the survey are less ready to offer OSH training if their workforce has a higher proportion of women. This might be attributable to the fact that women are often less likely to perform jobs which require OSH training, such as routine jobs in manufacturing enterprises. Besides, the same could be said of workers with a higher level of education, as they are also less likely to perform roles or tasks which require mandatory training.

► 6.6 Conclusion

Trade and labour market patterns have changed significantly in Viet Nam over the last decades. Exports and imports of the country have increased spectacularly and working conditions have consequently improved. While the link between the two phenomena has rarely been explored, increasing exports and imports can have significant effects on labour beyond employment creation, like on workers' rights and working conditions. This relationship has gained renewed attention, especially in the wake of trade agreements with comprehensive labour provisions that Viet Nam signed in the last years (including the CPTPP and EU–Viet Nam Free Trade Agreement).

In order to investigate the relationship between trade and labour in Viet Nam, this chapter used data from a firm- and worker-level survey conducted biennially from 2011 to 2015. In addition to employment creation, it explored the impact of exports and imports on other aspects of decent work, such as informality, social protection and OSH. The focus was on SMEs, which constitute the vast majority of firms in Viet Nam (around 96 per cent), employing 47 per cent of the labour force and contributing to 36 per cent of national value-added in 2016 (OECD 2021).

Regarding the econometric strategy, the chapter adopted the Heckman selection model in order to account for the selection bias and endogeneity arising from the fact that only a small number of SMEs engage in trade. On the one hand, the results showed that increased exports and imports by SMEs were associated with a higher probability of increased labour demand as well as better outcomes in terms of formal contracts and social protection coverage. This finding has significant consequences for policymaking, as it shows that measures promoting the trade participation of SMEs can also lead to gains in employment and in the working conditions of workers. Generally, multinational enterprises, which are the main actors of international trade, are found to offer better conditions. On the other hand, this study highlights that trade can have important distributional effects in terms of labour market outcomes, even among SMEs. This also requires particular attention from policymakers to ensure that the benefits of trade are more evenly distributed. It is worth noting that while participation in trade was found to contribute to better conditions in firms during the period that this chapter studied, the significant improvements in social protection coverage that were observed in the last decade coincided with changes in social and health laws in the country. This shows the importance of policies at the national level to improve working conditions, going beyond the impact of firm-level characteristics.

Finally, the conclusions of the study should be interpreted with caution as some limitations exist in the empirical analysis. First, the dataset is not fully representative of the universe of SMEs, nor of exporting firms in Viet Nam. A more representative sample of these categories would allow for a more accurate assessment of the impacts of trade on labour demand and decent work outcomes in the country. Second, tracking of individuals over time is not possible with the data used. Therefore, many worker-level outcomes cannot be directly observed. This also precludes the possibility of analysing worker transitions between occupations and sectors. A longitudinal survey following workers over time would provide better insights into worker-level impacts. Third, since the data collection method is a survey, it suffers from the associated shortcomings, such as response bias and attrition. The availability and use of administrative data could provide richer, more accurate insights into the relationships investigated in this chapter. Finally, the data collected by the survey often do not use fully harmonized classifications for education, occupation, skills or industrial sectors. A focus on harmonizing the data collection strategy could improve the analysis of this survey in terms of its external validity, and its comparability to other countries.

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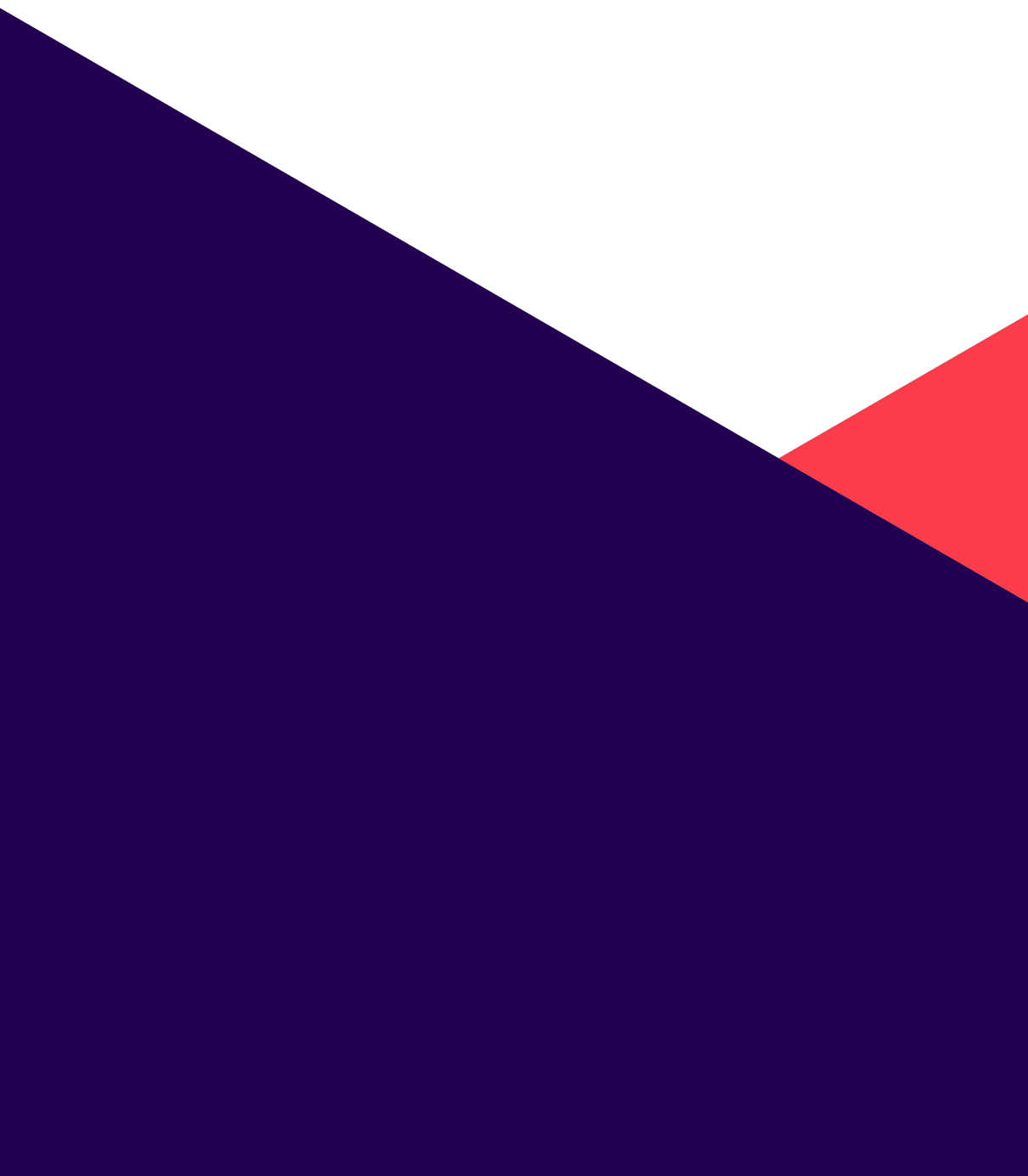
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Gendered effects of trade restrictions on labour market outcomes in Malawi

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► Introduction

Literature on trade theory largely agrees that trade restrictions harm economic growth (Davidson and Matusz 2004). However, the disaggregated impacts of trade restrictions on various segments of the labour market and over a cross-section of economic sectors are little understood. Using Malawi as a case study, we explored the gendered effects of trade restrictions on labour market outcomes, focusing in particular on the agriculture sector. Malawi presents a curious case because it is committed to achieving UN SDG 8 – “decent work and economic growth” – through enhancing agricultural productivity and commercialization, industrialization and urbanization (Government of Malawi 2020). In its overarching developing strategy, the Malawi Vision 2063, the country aims to shift its model from largely smallholder subsistence farming to commercial farming through the promotion of high-value crops for export, farm insurance, agricultural finance, improved farming technology, improved agricultural legislation, well-functioning market and pricing mechanisms, and active participation in international trade (Government of Malawi 2020). Since the Malawi Vision 2063 seeks to improve agricultural productivity but places no emphasis on labour market aspects within the sector, this chapter could contribute to the debate by underlining the effects that some trade policy choices could have on the labour market, with an emphasis on the agricultural sector.

Malawi’s agricultural sector is an interesting case: not only is it highly representative of the situation in most African countries – that is, reporting the lowest income per capita, being labour abundant and having scarce natural resources – but it also presents practical problems that directly resonate with trade restrictions and labour markets. First, the country follows rather liberal policies, associating itself with trade blocs such as the Southern African Development Community (SADC), the Common Market for Eastern and Southern Africa (COMESA), and recently the African Continental Free Trade Area (AfCFTA) (MCCCI 2021).¹ Also, Malawi has suffered considerably from the COVID-19 pandemic, of which the consequences for trade and labour markets are yet to be analysed (WHO 2021).

In addition, Malawi’s labour markets are not entirely competitive (Cuddington and Hancock 1995; Simtowe 2015). The rigidity or flexibility regarding the ease of entry and exit into jobs and markets, the hiring and firing of workers,

¹ For a more detailed analysis of the implications of the AfCFTA for the labour market see MacLeod in Volume 2.

the influence of skills and education in finding job opportunities, and the sectoral gender implications have not been studied extensively. For instance, recent living standards measurement surveys indicate that, despite labour mobility and active migration within Malawi's districts, productivity has not increased in agriculture (Kilic, Palacios-López and Goldstein 2015a). The major export sectors are either dominated by monopolies or oligopolies (for example, the sugar, tea and tobacco industries (Chambers, Reed and Snell 2000; Chinoko 2013; Moyer-Lee and Prowse 2015). The country also has a history of imposing ad hoc trade bans, which have considerable distortionary effects on general factor employment (Aragie, Pauw and Pernechele 2018). Implementing lasting solutions to these issues could be highly beneficial to ensure more sustainable economic growth.

The aim of this study is to assess the impact of trade restrictions on labour market outcomes in Malawi. Specifically, the study seeks to assess the gendered impact of trade restrictions on occupational choice – wage earners, non-agriculture self-employed workers and farmers – among skilled and unskilled individuals in Malawi's labour market. The study also aims to assess the gendered impact of trade restrictions on farming, micro-enterprise and self-employment revenues among skilled and unskilled individuals employed in the agricultural sector. Conducting a skill-differentiated analysis is of particular importance because, as UNCTAD (2017) observed, many of the inequalities, wage disparities and further occupational choices could be explained by skills. A standard CGE model is used as well as a top-down behavioural micro-simulation attached to real microeconomic data for Malawi, such as the Living Standards Measurement Survey (LSMS), also called the fifth integrated household survey or IHS5. The key innovation of this approach is to combine an ex ante impact evaluation technique and link it to a representative household survey using ex post econometric techniques (Tiberti, Cicowiez and Cockburn 2017). This approach, using such a mix of methods, augments existing analytical tools to better understand the impacts of trade policies.

The rest of the chapter is structured as follows. Section 7.1 presents the literature review and section 7.2 explains the methodology. Section 7.3 provides the data and analysis, followed by the results of the estimation in section 7.4. Finally, section 7.5 draws the conclusions.

► 7.1 Literature review and contextual issues

Trade could stimulate economic growth and development (Krugman, Obstfeld and Melitz 2017). There is consensus in the literature on the fact that, when a country faces labour market rigidities and has distortionary market policies, trade impediments might lead to increased unemployment (Helpman and Itskhoki 2010). Though the country may have a comparative advantage, gains from trade are lower than when it removes trade restrictions and implements more flexible labour market policies (Helpman and Itskhoki 2010). Helpman and Itskhoki (2010) further argue that flexible labour market policies lead to increased total factor productivity and generally lower price levels. For a country dependent on agriculture, higher total factor productivity is often linked with increased economic growth (Benfica, Cunguara and Thurlow 2019).

Thus, under assumptions of intra-industry firm and worker heterogeneity, and wage distortions, removing trade restrictions in the form of tariff reductions could change the structure of the labour market when it is open to foreign competition (Helpman and Itskhoki 2010; Balassa 1964; Samuelson 1994). Using data from Colombia, Attanasio, Goldberg and Pavcnik (2004) found that tariff removals between the 1980s and the 1990s led to increased human capital, which negatively affected sectors that relied significantly on unskilled workers. While an increase in human capital is associated with increased total factor productivity (TFP), it is difficult to establish the ease with which individuals can find and switch between available jobs and the ease of hiring and firing individuals once they have been employed based on the predictions from TFP-based theory and literature alone. As such, it is important to examine the empirical context for specific impacts, and a theoretically consistent ex ante analysis, coupled with an approach driven by micro-econometric data, can uncover these mechanisms. To illustrate how this could be achieved, Colombo (2009) modelled, in a didactic micro-simulation-linked CGE, the behavioural probability of employment and expected wage equations using a two-stage Heckman sample selection model.²

² The Heckman model expresses the logarithm of the wage as a linear combination of explanatory variables and an inverse Mills ratio – an individual specific constant to account for sample selection bias because one only observes the wages of individuals who are employed and not the unemployed (Heckman 1974 and 1976).

Additionally, the evidence indicates that, within the sub-Saharan context, women face significant constraints consistent with theoretical predictions from some selected trade models. For example, the lower productivity among women in Malawi is abundantly explained by child dependency (Kilic, Palacios-López and Goldstein 2015b) and the number of hours they dedicate to unpaid domestic work, in line with Akerlof and Yellen's (1990) fair wage-effort hypothesis. Specifically, in Malawi, women commit about 9 per cent of their working hours to unpaid domestic work (UN Women 2014). Consequently, it is important to consider theoretical underpinnings in trade when gender is considered.

Removing trade barriers creates a large market for domestic export commodities by creating more demand for commodities produced in a country (Davidson and Matusz 2004). In so doing, this creates opportunities for more economic activities in other economic sectors. In turn, this increases demand for factors of production, such as labour, which could significantly reduce unemployment (Krugman, Obstfeld and Melitz 2017). More demand for a country's exports means that the country faces competitive prices for its commodities and can therefore have a positive trade balance (Löfgren, Robinson and Harris 2002). Higher prices for exports – often leading to favourable terms of trade where export prices are higher than import prices – tend to further reduce unemployment (Porto 2008). Implementing and adhering to decent work principles could attract more trade, i.e. an increase in the demand of a country's exports, thus increasing labour productivity through increased employment of factors in the export sectors (Carrère, Olarreaga and Raess 2022; Distelhorst and Locke 2018). This, in turn, has the potential to create more value-added through increased productivity and generate higher income for households and the whole economy through increased profitability (Carrère, Olarreaga and Raess 2022).

However, there is some evidence that trade liberalization in the form of sudden removal of tariffs destroys jobs. Attanasio, Goldberg and Pavcnik (2004) found that the probability of unemployment grew after removing tariffs. Furthermore, according to Porto (2008), lower production costs and fewer regulations in foreign countries could make imports outcompete commodities produced domestically, thereby making foreign firms crowd out domestic firms. Writing from a perspective centred on the United States, and then from a global one, Davidson and Matusz (2004) pointed out that such competition could result in lower production, massive lay-offs and closures of domestic firms, which all contribute to higher unemployment. Further, Devarajan and Rodrik (1991) show that positive impacts of trade liberalization are not evident due to increased imports and reduced employment in high wage sectors. While much of the discussion on Devarajan and Rodrik's

work shows the rate at which individuals lose jobs (Davidson and Matusz 2004; Menezes-Filho and Muendler 2011), it ignores the rate at which displaced workers find new jobs in a more liberalized economy. Therefore, it is important to examine whether the same applies from the perspective of a developing country with a comprehensive accounting of all economic activities.

Hasan et al. (2012), using trade protection data and industry-level unemployment data from India, did not find evidence that removing trade restrictions increases unemployment. They noted that, when states liberalize trade, urban employment increases where labour markets are more flexible and predominantly produce export commodities. This is consistent with the Heckscher–Ohlin model, according to which trade restrictions would lead to more employment in the most abundant factor that is producing the export (see Krugman, Obstfeld and Melitz 2017).

It is interesting to note that, according to the Ricardo–Viner model of trade, the removal of trade restrictions benefits the factors specific to the sector producing export commodities but harms the factors in the competing import industry. Nevertheless, Davidson and Matusz (2004) pointed out that the impact on mobility is unclear.

Furthermore, it is widely accepted that most African countries have an abundance of unskilled and medium-skilled labour, such that opening up trade could trigger changes in occupation choices between sectors (Crush and Williams 2010). For instance, employed individuals who run the risk of being laid off may become entrepreneurs, self-employed or move to the agricultural sector. However, the extent to which a trade-related impact could prompt changes in labour supply with respect to the rigidities of the African labour market has not yet been analysed.

Additionally, according to UNCTAD (2017), most countries in the COMESA trading bloc face significant gender constraints. First, the study, which highlighted trade and gender linkages within the COMESA, indicated that there was a difference of US\$200 between the incomes of male and female workers using 2011 purchasing power parity. This gap could potentially stem from the fact that most women work on their own account, especially in agricultural sectors where 86 per cent of women are not formally employed. The study further highlighted that women in agriculture face discrimination and are often relegated to vulnerable, informal, low-wage farm work. Consequently, women working in the agricultural sector had the lowest incomes, and ranked among the poorest in the study. The study also pointed out that most rural women who work in the agricultural sector have low literacy rates, and that a huge inequality exists between men and

women in terms of access to and ownership of land. Specifically, Malawi has a gender inequality index of 140, which is the second highest in the COMESA trade bloc, 9 points behind the Democratic Republic of the Congo. However, the study showed that the impacts of trade restrictions on labour market outcomes are not straightforward as they are different depending on skill, sector and markets structure (UNCTAD 2017).

Wamboye and Seguino (2015) attempted to explore the effects of trade liberalization (that is, the removal of tariff and non-tariff barriers to trade) on women's occupational choices in the mining and minerals sector of 38 countries south of the Sahara Desert. Their analysis found that only 20 per cent of women worked in the mining industry, compared with 40 per cent who were employed in agriculture. Their results, based on two-stage least squares estimation, revealed that being a mainly exporting country was negatively correlated with women having more employment chances. Though not particularly robust across different specifications, trade expansion generally had negative effects on female employment rates. Yet a critical review paper by Winters and Martuscelli (2014) observed that trade restrictions could improve women's incomes. Country-specific studies in a counterfactual scenario could help to explain the mechanisms at play, specifically across other labour categories such as agriculture, self-employment and wage employment.

The approach used by Creedy and Kalb (2005) seems appropriate to mitigate the fact that micro data in developing countries may face serious measurement errors – for example, individuals may not divulge their actual wages but the amount of hours they have worked. The study used maximum likelihood methods to estimate discrete hours labour supply functions. Using a multinomial logit model, Creedy and Kalb (2005) were able to model individual workers' responses to tax incentives by calibrating the discrete hours labour supply model to the individual base data. Further, Tiberti, Cicowiez and Cockburn (2017), using a top-down behavioural microsimulation for distributional analysis, took a multinomial logit approach to model occupational choice, following the Creedy and Kalb (2005) approach to model changes in occupational choice when a shock occurs.

Experimental approaches can be used to assess the effects of trade restrictions on labour market outcomes. As Malawi cannot proffer itself to a natural experiment of assessing the outcomes before and after trade restrictions, different numerical counterfactual experimental options can be used to mitigate data deficiencies, such as input–output, SAM multiplier and CGE modelling approaches (Boccanfuso and Savard 2012; Colombo 2009; Tiberti, Cicowiez and Cockburn 2017). These methods have the advantage of presenting a baseline overview of the economy and can proceed to create

ex ante counterfactual scenarios based on changes in trade policies. Then, the effects of these trade policies can be translated into micro data in a manner similar to Tiberti, Cicowiez and Cockburn (2017), using behavioural microsimulation models.

Trade restrictions may alter the employment of specific factors of production, such as labour and capital, by initiating changes in their mobility across sectors. Most of the trade agreements that Malawi is party to involve most of the aforementioned structural and behavioural shifts in economic activities (for example, tariff deregulation and productivity shifts), making a simple static CGE model centred on the agricultural sector particularly adequate.

It may also be argued that, since we are chiefly focusing on the agricultural sector, it would have been better to use a PE model, one of those models that focus on one sector of the economy but could account for more markets. However, while a PE model can take a single commodity, it is not well suited to handle complex issues, such as the use of intermediate products that may come from the non-agricultural sector and other forward linkage effects, as our analysis considered multiple markets and regions. Moreover, institutions like households, enterprises and government, which are the key focus of the distributional component of this study, may not be well represented in a PE model. Thus, this study benefits from maximizing the merits of a CGE model while making it simple and more tractable.

This review suggests that removing trade barriers creates more economic activities and has the potential to increase sector-specific productivity. It is also worth noting that removing trade barriers creates mixed employment outcomes for women, and that context plays a significant role. While data remain scarce, the combined use of forward-looking and theoretically consistent ex post analyses can help overcome these complex problems.

► 7.2 Methodology

This section presents the methods that were used to assess the gendered effects of trade restrictions on labour market outcomes in Malawi. In summary, the analysis started with a CGE model calibrated to a comprehensive SAM for Malawi with a 2014 baseline. The CGE model simulated a 50 per cent increase in tariffs, imposed where sectoral, and observed the effects on income. Then, the results of the CGE model were linked to theoretically consistent micro-econometric models of occupational choice, and wage and/or profit determination estimated using nationally

representative data. Lastly, a counterfactual scenario was simulated, in which the impacts of the CGE model reflected on real households in terms of income distribution and changes in poverty using standard Foster–Greer–Thorbecke measures. Counterfactual results were then compared with the baseline to identify the impact.

7.2.1 A static computable general equilibrium model for Malawi

We used a standard CGE model for Malawi, which was adopted from the International Food Policy Research Institute by Löfgren, Robinson and Harris (2002). The standard CGE model used a calibrated share form for its structural parameters in order to replicate a base that was represented by SAM data. It was solved either through mixed complementarity programming or non-linear programming. The Malawi model broadly comprised five sectors, namely agriculture, manufacturing, utilities, private services and public services. It contained ten types of households, which were distinguished according to their place of origin (rural versus urban), level of education (primary, secondary school and tertiary education) and income quintiles. To illustrate how the model works, we used various assumptions from economic theory.

Our model started with producers in each of the sectors producing output using factors of production under constant returns to scale. The model took productivity as exogenous and used fixed shares of production technologies. We assumed that firms maximized profits in such a way that factor payments were equal to production revenues. We also assumed that labour supply was exogenous. Labour with no formal education or basic primary education was understood to be unemployed and mobile; labour with secondary education to be unemployed and fully mobile, and that with tertiary education to be employed but sector-specific.

To illustrate these assumptions, unskilled labour can easily move across the sectors. For example, an unskilled smallholder farmer can easily move to become a security guard or domestic worker in another sector. However, it would be difficult for an architect or medical doctor to switch between sectors during the study's time frame. Another critical assumption was that wages are not uniform across economic activities. Indeed, there are considerable distortions in wages. However, we fixed the wage differentials across the sectors and allowed for a market clearing wage. These labour market closures enabled us to study the impacts of trade restrictions on employment outcomes within the agricultural sector, as farmers can

reallocate their labour resources to activities that are more lucrative on the international market. While Malawi, like many African countries, has a large informal sector – there are many unregistered firms and countertrading practices – which is a bit difficult to track for tax purposes, all economic activities were captured within the representative survey from which many of the institutional data in the SAM accounts were obtained.

As land and capital are fully employed and sector-specific, one-off production decisions are taken at the beginning of the season. For example, if farmers perceive that soya bean prices are likely to be high, they can shift production from cereals to soya beans in order to maximize profits from farming at the beginning of the farming season. However, once production has begun, farmers cannot change their production decisions in the short run. This is what Pauw et al. (2011) call the dumb farmer assumption; it summarizes the short-run factor market closure for CGE models where factors of production such as land and capital are sector-specific and fully employed.³

Households are utility-maximizing agents who earn their incomes from factors of production, remittances and transfer payments from the government. Assuming standard Cobb–Douglas preferences, households consume commodities in fixed shares that add up to one.

To model international trade, domestic prices and international prices were compared through an exchange rate mechanism. We assumed that the exchange rate was flexible and market-driven. The model did not account for financial assets but the exchange rate determined the real exchange rate; that is, the relative price of traded to non-traded commodities (Burfisher 2017). The model also assumed that Malawi is a small country and therefore did not influence international prices. Domestically and foreign-produced commodities substituted each other using the Armington assumption (Alston et al. 1990; Armington 1970). The model created an aggregate commodity of imported and domestically produced goods based on the real exchange rate and the preferences were determined by a constant elasticity of substitution (CES). Thus, the CES gave rise to an optimal ratio of demands for domestic and foreign goods as a function of relative prices and their shares, respectively. Similarly, exporters also decide whether to sell domestically or export. Using the Armington assumption, we used a constant elasticity of transformation function; that is, a CES with a positive response to price changes (Alston et al. 1990). We also obtained an optimal ratio of demands as a function of relative prices and shares of goods exported and sold on the domestic market (Pauw

3 Closure rules refer to how the model treats market equilibrium in the specification of behavioural equations.

et al. 2011). We assumed that world prices were fixed but that domestic prices adjusted through tariffs, taxes and subsidies (Pauw et al. 2011).

In order to assess the welfare of a given policy in a CGE framework, one often seeks to evaluate whether individuals become better off after a particular policy has been implemented. Then, a monetary value is given which represents the impact of the policy in terms of real consumption. Real consumption is therefore computed as the cost of the new consumption bundle compared with that of the old bundle using pre-policy consumer prices. The difference materializes the change in welfare. A detailed model description can be found in Löfgren, Robinson and Harris (2002).

7.2.2 A multinomial logistic regression of occupational choice

One effect of trade restrictions would be to make certain jobs less desirable than others, which could hinder the achievement of Malawi's productivity goals. For instance, the competing import sectors that a tariff may protect may experience higher wages to the detriment of other sectors in the economy (Di Ubaldo and Winters 2020). Further, in line with Akerlof and Yellen (1990), workers would also not be as productive in those sectors whose job openings are undesirable, to the point that productivity might be driven down. As a result, the vision for Malawi's strategic sectors could be affected.

The CGE model was able to capture changes in general factor employment and its associated changes in incomes. However, it required detailed microeconomic data to simulate the changes in actual factor employment. For example, if the CGE model showed that labour employment and income had decreased by 10 per cent, respectively, it would require data from a detailed representative survey to show the number of people who could lose their jobs. This is because CGE models often work with representative agents, such as a worker or a household.

To link the policy experiment in the CGE model to the survey data, we followed a theoretically consistent behavioural approach, like Colombo (2009). The approach started with how individuals could choose occupations to maximize their utility, given their income as a constraint. Based on their observable characteristics, we used a multinomial logistic regression to model occupational choice among individuals. The utility from each occupational choice was generated econometrically (see Tiberti, Cicowiez and Cockburn 2017). We obtained each individual's highest utility based on their characteristics. Thus, following this logic, lower utilities were associated with lower probabilities of being employed in a particular sector.

If results from the CGE model indicated that a certain proportion of jobs would be lost in a given sector, we replaced the proportionate individuals in the employment category with the unemployed in the sector if an individual's probability of being employed in the sector was less than the mean percentile probability of that particular job category (Tiberti, Cicowiez and Cockburn 2017).

7.2.3 Heckman sample selection model for wages, and distributive analysis

The main goal for individuals choosing wage employment is to maximize their utility by earning their desirable wage. To transfer the results of the CGE model on to a representative survey, we also followed a microeconomic behavioural approach as opposed to only using a top-down approach of transmitting the results to the agents. Based on the above, the Heckman model was used to model the wage equation. The Heckman model, considered as a reference in labour economics, is a model that was first used to assess the effect of hours worked by women on their wage rates. As women who work self-select into employment, some women worked and others did not. Thus, a missing data problem occurred, causing a selection bias (Heckman 1974). Heckman (1974) provided a two-step econometric procedure to correct this bias by explicitly modelling determinants of the probability to work and determinants of the wage equation – leading to a simultaneous equation approach. From the CGE model, we examined the percentage change in the wages. Then, we replaced the predicted wage earnings with the changes from the CGE in the following manner:

$$\log Y_{km} = \log[\hat{Y}_{km} \cdot (1 + \Delta Y_{km}^{CGE})]$$

where \hat{Y}_{km} is the predicted total household factor income for an individual k in sector m , and ΔY_{km}^{CGE} is the percentage change in the income obtained from the CGE model. This way, the CGE model linked with the microeconomic data in a theoretically consistent manner by econometrically adjusting for selection bias and closely following microeconomic theory.

Workers that self-select into farming as farmers do not face a wage function. They rather face profit functions which are non-decreasing in output prices and non-increasing in input prices, homogeneous of degree 1, convex and continuous in prices (Varian 1992). To model the impacts of trade restrictions on farmer profits, a similar Heckman procedure was adopted. It is worth noting that, upon diagnostic testing, results pointed towards the use of a single equation form.

Given the effects on wages and profits, a distributive analysis was conducted to assess the impact of counterfactual trade restriction policies on incidence, and the depth of poverty and inequality. Standard Foster–Greer–Thorbecke indexes were used (Foster, Greer and Thorbecke 2010). All micro-econometric work was conducted in Stata 14 using standard commands. However, for the distributive analysis, a DASP package was used.

7.2.4 Experimental design

In order to assess gendered effects of trade restrictions on labour market outcomes using Malawi's CGE model, the following experimental design was considered. First, we showed prevailing tariffs and formulated a baseline scenario. Then, we created a hypothetical counterfactual scenario and observed the results. Lastly, we transferred the results to an econometric simulation module.

It is important to note that Malawi is party to several trade agreements (table 7.1). These agreements formed our baseline scenario. In this scenario, all tariffs on exports to the SADC, the East African Community (EAC) and the EU under the Everything but Arms (EBA) programme are set at zero (see table 7.1, columns 2–5). However, Malawi imposes 20 per cent taxes on coffee and tea, and 5 per cent on tobacco and groundnuts to the countries in the Economic Community of West African States (ECOWAS). These current tariffs are effectively applied rates. In columns 6 and 7, we showed the MFN tariff rates. These are the tariffs that a country can impose on exports to certain countries that are not under any preferential trade agreement. In essence, they are the highest tariffs a nation can charge. Column 6 shows that the maximum tariff rate on trade is up to 125 per cent, beyond which it may lead to redress at the WTO. Column 7 represents the prevailing MFNs for various commodities. Column 8 presents bound tariff rates on selected agricultural commodities. These are the types of trade agreements that Malawi negotiated at the WTO and to which it is bound (MCCCI 2021).

► **Table 7.1 Malawi's tariff schedule showing maximum MFN, bound and prevailing rates based on trade agreements (percentage)**

Product (1)	SADC (2)	ECOWAS (3)	EAC (4)	EU (EBA) (5)	Max MFN (6)	MFN (7)	BND (8)
Sugar	0	n.a.	0	0	125	50	121
Macadamia	0	n.a.	0	0	125	5	121
Soya beans	0	n.a.	0	0	125	8.50	121
Coffee	0	20	0	0	125	8.50	121
Tea	0	20	0	0	125	34	121
Tobacco	0	5	0	0	125	18.40	121
Groundnuts	0	5	0	0	125	15	121
Rice	0	n.a.	0	0	125	75	121
Chillies	0	n.a.	0	0	125	0	121
Honey	0	n.a.	0	0	125	40	121

Note: MFN = most favoured nation; BND = bound tariff; n.a. = not applicable.

To formulate a rationale for the hypothetical trade-restrictive scenario, we focused on the MFN rate (50 per cent) in column 7 and effectively adjusted all the tradable commodities' tariffs in the SAM to that level. Having done that, we ran the CGE model and analysed the results across sectors, factors of production and households. Furthermore, we took results from the CGE model and transferred them to the micro-econometric simulation module to observe disaggregated impacts.

► 7.3 Data

7.3.1 The Malawi social accounting matrix

We used a 2014 SAM for Malawi (Thurlow 2017). The SAM used the Malawian kwacha as a currency, with 2014 as a base year. The SAM combined 42 activities and 43 commodities (table 7.2). Commodities in the SAM are primary outputs from productive activities. For example, maize farmers produce maize as an output so the SAM creates a maize account. Similarly,

food processors produce processed foods as their primary output. The SAM contains eight factors disaggregated by education level and ten households disaggregated by rural/urban status and income quintiles. It also contains three types of taxes, namely direct taxes (corporate and personal), import duties and sales taxes (taxes on products minus product subsidies). In addition, the SAM contains additional accounts: domestic trade margins, export margins, import margins, enterprises, government, savings and investments, changes in stocks, and rest of the world.

We focused the attention of the study on the agricultural sector by aggregating the SAM accounts for the non-agricultural manufacturing sectors and analysed multipliers and agriculture's forward linkages with regard to the implementation of decent work indicators.

► **Table 7.2** Aggregate SAM for Malawi with 2014 as the base year

	Activities	Commodities	Factors	Enterprises	Households	Government	Investment	Rest of the world	Total
	(a)	(c)	(f)	(e)	(h)	(g)	(i)	(w)	
Activities		3 121			262				3 383
Commodities	1 223	0			1 673	308	307	725	4 236
Factors	2 173							1	2 175
Enterprises			1 154			96		115	1 364
Households			889	1 175		20		11	2 095
Government	-13	263		113	102			98	563
Savings				75	53	139		40	307
Rest of the world		853	132	1	5	0			990
Total	3 383	4 236	2 175	1 364	2 095	563	307	990	

7.3.2 The Integrated Household Survey

We used the fifth LSMS for Malawi, also known as the IHS5. The objective of the IHS5 data is to provide a benchmark for poverty, and socio-economic indicators for evidence-based policy formulation and analysis (Government of Malawi 2020). The data are also used for national accounting purposes. The survey, with 12,288 random households obtained using stratified sampling, is a nationally representative dataset for Malawi, which has detailed data on occupational choice, approximate hours of work and wages. We used these data to estimate the impacts of trade restrictions on occupational choices and factor earnings. The IHS5 also has a detailed expenditure module, which we used for impacts on revenue and wages that result from labour market changes.

The survey data show that 87.4 per cent of households in Malawi are farm households comprising 4 ± 2 individuals, with considerable heterogeneity. The typical male household head (70 per cent) is 35 ± 16 years old and married (76 per cent), but mostly categorized as an unskilled worker having only attended seven years of primary school. The household head is reported to earn a maximum of 36,315 kwacha in monthly wages, while living in a rural area (81 per cent) with possibly 1 child under 6 (see table 7.3). Gender is the major source of income inequality: unskilled male farmers earn, in general, a staggering 6,583 kwacha more than their female counterparts. Nevertheless, the disparity disappears for skilled workers, with a difference of only 1,859 kwacha.

► **Table 7.3** Socio-economic characteristics of individuals based on skill and occupational status

Occupational choice	Unskilled (1)	Skilled (2)	Full sample (3)
<i>Wage earner</i>			
Gender (male = 1)	0.87 (0.34)	0.91 (0.29)	0.88 (0.33)
Age (years)	37.98 (12.36)	39.42 (11.82)	38.42 (12.20)
Married (yes = 1)	0.85 (0.35)	0.81 (0.38)	0.84 (0.36)
Natural log wage	10.20 (0.68)	11.00 (1.37)	10.45 (1.02)
Rural (yes = 1)	0.78 (0.41)	0.51 (0.50)	0.70 (0.45)
Household size	4.20 (2.05)	4.13 (1.98)	4.17 (2.03)
<i>Non-agricultural/self-employed</i>			
Gender (male = 1)	0.85 (0.36)	0.89 (0.32)	0.86 (0.34)
Age (years)	36.71 (12.14)	36.32 (9.32)	36.56 (11.12)

Occupational choice	Unskilled	Skilled	Full sample
	(1)	(2)	(3)
Married (yes = 1)	0.87 (0.34)	0.85 (0.35)	0.86 (0.34)
Natural log wage	10.48 (0.73)	11.19 (1.01)	10.76 (0.91)
Rural (yes = 1)	0.48 (0.50)	0.28 (0.45)	0.40 (0.49)
Household size	4.16 (2.09)	4.07 (1.90)	4.12 (2.02)
Farmer			
Gender (male = 1)	0.71 (0.45)	0.66 (0.47)	0.70 (0.45)
Age (years)	42.62 (15.25)	46.55 (15.61)	43.70 (15.45)
Married (yes = 1)	0.80 (0.40)	0.69 (0.46)	0.77 (0.41)
Natural log farm earnings	10.44 (0.47)	11.77 (0.78)	10.81 (0.82)
Rural (yes = 1)	0.92 (0.27)	0.77 (0.42)	0.88 (0.32)
Household size	4.61 (2.04)	4.28 (2.13)	4.52 (2.07)
Not working/unemployed			
Gender (male = 1)	0.70 (0.46)	0.57 (0.49)	0.67 (0.47)
Age (years)	41.10 (15.81)	50.22 (18.91)	43.47 (17.11)
Married (yes = 1)	0.77 (0.42)	0.61 (0.48)	0.73 (0.44)
Rural (yes = 1)	0.82 (0.38)	0.74 (0.44)	0.80 (0.01)
Household size	4.44 (2.07)	4.08 (2.21)	4.34 (2.11)
General statistics			
Farmers (%)			87.4 (0.41)
Unemployed (%)			9.0 (0.04)
Wage earners (%)			3.6 (0.02)
Household size			4.1 (2.02)
Age of household head (years)			35.1 (16.2)
Married (%)			76.2 (0.32)
Years of schooling			7.3 (4.3)
Average wage/month			36 315 (15 132)
Male	27 859 (28 367)	38 543 (25 454)	33 201 (29 328)
Female	21 276 (20 438)	36 684 (17 682)	28 980 (22 435)
Rural residents			81.2 (0.38)

Note: The means are reported with standard deviations between parentheses. N = 11 433. US\$1 = 816 kwacha. All results in the table have used survey weights accounting for complex design.

The remaining 3.6 per cent of the labour categories were wage earners. They were workers that could do other jobs requiring minimal skills, but highly likely to require brute force. Those in the non-agricultural/self-employed category were mostly male (86 per cent).⁴ Respondents in this category were about 37 years old, married (86 per cent) and earned about 44,355 kwacha as their monthly wage. In total, 60 per cent of them lived in urban areas with a household size of four members.

The unemployed represented 9 per cent of the respondents in the sample. They were about 38 years old on average, living largely in rural areas (70 per cent), and 84 per cent of them were married while mostly earning about 34,544 kwacha with a household size of four members. There were considerable differences between unskilled and skilled wage workers in terms of wages, with skilled workers earning up to 68,872 kwacha while unskilled workers earned about 26,027 kwacha.

The other statistically robust source of heterogeneity among wage workers was the location. Most unskilled wage earners were based in rural areas. Furthermore, results showed no household-level economies of size as the differences between large and small households were not statistically significant. Nevertheless, there was strong evidence of gender bias among skilled wage earners, with a difference of 33,075 kwacha. The gender bias among unskilled workers was only significant at 10 per cent.

About 46 per cent of respondents were statistically categorized as unemployed when they did not report a wage. Their occupation was unclassified or classified as labourer, not employed, institutionalized and above the age of 16. Of these, 67 per cent were male and 73 per cent were married. They were, on average, 43 years old and lived in rural areas.

► 7.4 Results and discussion

7.4.1 Econometric results

Table 7.4 presents the results of two multinomial logistic regression models of occupational choice between skilled and unskilled workers. The multinomial logistic model enabled the study to estimate the parameters

4 The reported statistics are from column (3), "Full Sample".

of occupational choice in a theoretically consistent manner using nationally representative data. The dependent variable is occupational choice, with groups such as wage earners, non-agricultural self-employed, not working/unemployed and the base category of farming. The naming convention follows Tiberti, Cicowiez and Cockburn (2017). Generally, results indicate that the models fitted correctly with a Wald chi-square significant at 1 per cent ($p < 0.01$). Factors that were statistically significant in the unskilled labour category among wage earners and non-agricultural workers were the geographical location, the age of the household head, the marital status, the education level and the number of children under 16 years old. Unemployed respondents were barely different from farmers in terms of socio-economic characteristics. The results were also similar for the skilled categories.

► **Table 7.4** Multinomial logistic regression results of occupational choice

Occupational category	Unskilled labour (1)		Skilled labour (2)	
	Coefficient	Standard error	Coefficient	Standard error
Wage earner				
Rural (yes = 1)	1.50***	0.15	1.13***	0.28
Head of household (yes = 1)	0.00	0.00	0.02**	0.01
Age (years)	0.81***	0.17	0.90***	0.29
Education (years)	-1.00***	0.31	-1.81***	0.19
No. of children under 16	0.19**	0.08	0.89***	0.13
Married (yes = 1)	-0.08**	0.04	-0.18**	0.06
Regression constant	-0.12	0.10	-0.04	0.19
Non-agricultural self-employed				
Rural (yes = 1)	1.32***	0.11	0.72***	0.14
Head of household (yes = 1)	0.01***	0.00	0.02***	0.01
Age (years)	0.61***	0.12	1.13***	0.16
Education (years)	-1.34***	0.30	-1.62***	0.17
No. of children under 16	0.60***	0.05	0.83***	0.10
Married (yes)	-0.15***	0.03	-0.15***	0.03
Regression constant	-0.02	0.07	-0.14*	0.10
Not working/unemployed				
Rural (yes = 1)	3.00***	0.93	0.61	0.86
Head of household (yes = 1)	0.01	0.02	0.00	0.02

Occupational category	Unskilled labour (1)		Skilled labour (2)	
	Coefficient	Standard error	Coefficient	Standard error
Age (years)	1.65***	1.14	0.70	0.77
Education (years)	-1.15***	0.40	-1.66***	0.33
No. of children under 16	0.74	0.71	0.69***	0.14
Married (yes)	-0.67	0.64	-0.06	0.18
Regression constant	0.72**	0.40	-1.45**	0.94

Note: *** = $p < 0.01$; ** = $p < 0.05$; * = $p < 0.10$. Other coefficients are not statistically significant at the 0.10 level. Wald chi-square of 1,630 ($p < 0.01$) for the unskilled labour model and 1,641 ($p < 0.01$) for the skilled labour model. The table presents two multinomial logistic regression models for unskilled (panel 1) and skilled (panel 2) labour categories. The dependent variable in both models is the occupational choice, with categories shown in italics. The base labour category is farming. Robust standard errors were used.

Table 7.5 summarizes the results of the Heckman sample selection model for estimating the wage of unskilled and skilled workers. Except for the unskilled workers category, the results generally indicated that the Heckman model was suitable for the analysis as there was indeed considerable selection bias in the sample. This was evidenced by the log likelihood test of independence of equations, which was vehemently rejected at all conventional significant levels. As a robustness check and appropriate model choice for the unskilled workers, an ordinary least squares regression with a log-level functional form coupled with robust standard errors was used. The model fitted correctly with an F-statistic of 620 ($p < 0.001$).

The key determinants in the wage equation among unskilled workers are the age, the gender, the education level, and whether the worker is located in an urban area. All other things being equal, these are the conditions that highlight the influence of trade restrictions. Results show that women receive 23 per cent lower wages than men. Also, for individuals who have attained 23 per cent secondary school education (skilled panel 3), an additional year of progressive schooling resulted in 43 per cent higher wages. Among unskilled workers, education played a significant role in determining wages, such that an additional year in school was associated with a 20 per cent increase in wages, other things being equal.

► **Table 7.5** Results of the Heckman sample selection wage determination model

Variables	Heckman unskilled (1)		OLS unskilled (2)		Heckman skilled (3)	
	Coefficient	Standard error	Coefficient	Standard error	Coefficient	Standard error
	(1)	(2)	(5)	(6)	(9)	(10)
Age	0.091***	0.010	0.002***	0.001	0.034*	0.019
Age 2	-0.001***	0.000	0.000***	0.000	0.002	0.000
Gender (male = 1)	0.233***	0.084	0.244***	0.004	-0.772***	0.128
Education (years)	0.203***	0.028	0.019***	0.004	0.426***	0.023
Household size	0.001	0.011	0.004***	0.001	-0.014	0.017
Central region	0.091	0.071	-0.008**	0.005	0.251**	0.102
Southern region	0.001	0.069	0.008*	0.006	0.058	0.090
Urban dweller	-0.163***	0.049	-0.002	0.006	-0.116**	0.047
Constant	7.777***	0.392	10.1***	0.012	10.62***	0.475
<i>Wage worker (yes = 1)</i>						
Married	0.339***	0.037			0.386***	0.054
Age	0.002*	0.001			-0.017***	0.001
Gender	0.485***	0.030			0.598***	0.042
No. of children	-0.093***	0.020			-0.089***	0.024
Access to credit	-0.039	0.031			-0.041	0.029
Central region	-0.117***	0.039			-0.242***	0.056
Southern region	-0.017	0.037			-0.100*	0.054
Constant	-1.987***	0.052			-0.771***	0.071
/athrho	0.029	0.146			-1.864***	0.174
/insigma	-0.170*	0.092			0.463***	0.102
rho	0.029	0.146			-0.953***	0.016
sigma	0.844	0.078				
lambda	0.025	0.124				

Note: *** = $p < 0.01$; ** = $p < 0.05$; * = $p < 0.10$. OLS = ordinary least squares. Other coefficients are not statistically significant at the 0.10 level. Wald test of independent equations ($\rho = 0$) panel 1: $\chi^2(1) = 0.04$ Prob > $\chi^2 = 0.8414$. $F(8, 20185) = 619.51$, R-squared = 0.16, Prob > $F = 0.0000$. Wald test of independent equations ($\rho = 0$): $\chi^2(1) = 115.26$ Prob > $\chi^2 = 0.0000$. The outcome variable is the wage for both skilled and unskilled labour categories. A standard Heckman procedure was employed. Robust standard errors were used.

To link the micro-econometric labour market analysis with the CGE results, we considered the applied MFN tariff of 50 per cent (see table 7.1) that could be levied on import commodities. In the simulation, we adjusted the import prices upwards by the tariff rate. This is the opposite of what Attanasio, Goldberg and Pavcnik (2004) empirically observed in Colombia, where tariffs were entirely removed over a period of time; they empirically observed a period of tariff removals while in our case we do the opposite – we impose tariffs in a forward-looking manner. As a result (table 7.6), demand for both skilled and unskilled labour declined at the sectoral level. In the unskilled labour category, where people mostly work in agriculture as casual labourers and farmers, maize and tobacco labour demand decreased by 4.6 per cent and 6.5 per cent respectively. Since the agricultural sector relies heavily on import commodities, such as chemicals and fertilizers (not shown in the table but present in the disaggregated SAM under industry (Thurlow 2017)), it could bear the brunt of the effects of trade restrictions.

► **Table 7.6 Changes in sectoral labour demand when a 50 per cent MFN tariff is imposed (CGE results)**

	Unskilled labour				Skilled labour					
	flab-n		flab-p		flab-m		flab-s		flab-t	
	Base	%Δ	Base	%Δ	Base	%Δ	Base	%Δ	Base	%Δ
Agriculture										
Maize	1.5	-4.6	3.0	-4.6	2.4	-4.6	0.1	-2.1	0.3	-2.3
Rice	0.4	-3.6	0.6	-3.6	0.3	-3.6	0.0	-1.2	0.0	-1.3
Other										
Cereals	0.6	-2.5	1.2	-2.5	0.5	-2.5	0.0	0.0	0.0	-0.1
Cassava	0.5	-4.3	1.0	-4.3	0.8	-4.3	0.0	-1.8	0.0	-1.9
Potato	0.4	-4.1	1.0	-4.1	0.6	-4.1	0.0	-1.6	0.0	-1.8
Pulses	1.4	-3.7	3.6	-3.7	3.4	-3.7	0.0	-1.2	0.0	-1.3
Horticulture	5.0	-3.3	11.3	-3.3	4.5	-3.3	0.1	-0.8	0.2	-1.0
Tobacco	1.1	-6.5	2.6	-6.5	2.3	-6.5	0.2	-4.1	0.1	-4.2
Cotton	0.7	-3.1	1.3	-3.1	0.8	-3.1	0.1	-0.6	0.0	-0.8
Sugar	0.3	-8.4	0.3	-8.4	0.2	-8.4	0.0	-6.0	0.1	-6.1
Seeds	0.1	-3.8	0.1	-3.8	0.1	-3.8	0.0	-1.3	0.0	-1.5
Livestock	4.6	-0.9	10.5	-0.9	6.6	-0.9	0.2	1.7	0.2	1.5
Poultry	1.3	-1.3	2.5	-1.3	1.6	-1.3	0.0	1.3	0.0	1.1
Forestry	0.8	-2.0	1.9	-2.0	2.1	-2.0	0.7	0.5	0.9	0.4

	Unskilled labour						Skilled labour			
	flab-n		flab-p		flab-m		flab-s		flab-t	
	Base	%Δ	Base	%Δ	Base	%Δ	Base	%Δ	Base	%Δ
Fishing	1.5	-1.8	3.1	-1.8	2.2	-1.8	0.1	0.8	0.7	0.6
Industry	0.2	-3.5	1.1	-3.5	1.9	-3.5	0.2	-1.0	0.5	-1.1
Utilities	0.0	-3.3	0.4	-3.3	1.5	-3.3	0.8	-0.8	1.3	-1.0
Services	0.7	-2.7	2.6	-2.7	14.1	-2.7	1.2	-0.2	4.8	-0.4

Note: %Δ = percentage change from base; flab-n = unskilled labour with no education; flab-p = unskilled labour with primary education only; flab-m = skilled labour with a Junior Secondary School Certificate; flab-s = skilled labour with a Malawi School Certificate of Education; flab-t = labour with tertiary education. The base values were billions of kwacha when 419.03 kwacha equalled US\$1.

The effects for the skilled labour category were also negative, albeit twice as low in magnitude compared with the unskilled labour category. For skilled workers, agricultural labour demand declined the most: the demand for workers with a middle secondary school certificate (flab-m) declined by between 4.6 per cent and 6.5 per cent. The evolution of labour demand for this category was similar to that for other agricultural workers because people in this category may work as permanently employed farm workers, such as machine operators, farm workshop assistants and clerks. However, people who finished secondary school (flab-s) and those with tertiary education (flab-t) saw their labour demand decrease by about 1.8 per cent in the agricultural sector and only 1 per cent in industry sectors.

These changes in labour demands were linked to actual households through the micro-simulation model by taking the sectoral declines in labour demands – which suggested job losses – and linking them to the occupational choice model. The decline in labour demand from the CGE model expressed as a percentage was placed alongside the occupational category probability percentile in the form of job queuing – i.e. the probability of losing a job among individuals in a category was sorted from highest to lowest. If this value corresponded to a percentile along the occupational choice probability, then individuals with a probability of employment less than or equal to that percentile would end up losing their jobs and falling into the unemployment group. Table 7.7 summarizes the link between the CGE results of the impact of a 50 per cent MFN tariff on labour demand and the behavioural micro-simulation results based on multinomial logistic regression in table 7.4.

► **Table 7.7** Micro-simulation results showing number of jobs lost due to trade restrictions

Unskilled workers			
	Wage to unemployed	Non-agriculture to unemployed	Agriculture to unemployed
CGE %Δ	-3.5	-3.5	-3.5
Probability	0.0012	0.0134	0.0923
No. of jobs lost	2 805	65 623	671 481
Skilled workers			
CGE %Δ	-3.25	-1.1	-1.5
Probability	0.0037	0.0169	0.1171
No. of jobs lost	14 368	44 415	302 511

Note: CGE results are based on averages from table 6.6. Survey results use inverse probability importance weights to find population figures. %Δ = percentage change from base.

Results showed that implementing trade restrictions would hurt unskilled workers more than skilled ones. The most affected would be the agricultural sector with a loss of close to 671,481 jobs, followed by the non-agricultural sector losing 65,623 jobs. Interestingly, people with wage jobs seemed to lose the least jobs.

Moreover, skilled workers would also be affected, with over 300,000 agricultural jobs and over 44,000 non-agriculture jobs lost. Wage workers in this category would be particularly vulnerable as, in comparison, only 14,000 unskilled workers' jobs would disappear.

Another finding of the study was that trade restrictions would hurt women more than men. Among unskilled wage earners, women would lose 2,118 jobs, compared with 687 jobs lost by men (tables 7.7 and 7.8). In the non-agricultural working category, the 50 per cent MFN tariff rate would drive about 40,000 female workers into unemployment. Finally, unskilled female farmers would be the most exposed to trade restrictions as close to 320,000 jobs would disappear. Almost 1 million jobs would be lost in agriculture when skilled and unskilled farmers are combined. Further, 18,000 jobs would be lost among skilled female non-agricultural workers and 2,543 wage earners would lose their jobs. Thus, these results indicate that women, particularly unskilled, in the labour market are adversely affected by trade restrictions.

► **Table 7.8** Micro-simulation results showing the number of female jobs lost due to trade restrictions

Unskilled workers			
	Wage to unemployed	Non-agriculture to unemployed	Agriculture to unemployed
CGE %Δ	-3.5	-3.5	-3.5
Probability	0.0012	0.0134	0.0923
No. of jobs lost	2 118	39 819	320 715
Skilled workers			
CGE %Δ	-3.25	-1.1	-1.5
Probability	0.0037	0.0169	0.1171
No. of jobs lost	2 543	18 023	285 894

Note: CGE results are based on averages from table 7.6. Survey results use inverse probability importance weights to find population figures.

When disaggregated according to occupational incomes (that is, farm income, wages and salaries, and non-agricultural or self-employment income), results showed that factor incomes changed considerably under a restrictive trade regime. For example, CGE impacts showed that the incomes of self-employed and farm workers would fall by 2 per cent, while wage earners' incomes would fall by less than 1 per cent in the medium term. When these results were transferred to a distributive analysis module and welfare aggregates were calculated, it was found that the poverty head count index rose by four percentage points while the poverty gap index rose by three percentage points when an extreme poverty line of US\$1.9 was considered (table 7.9). After the simulation, the structure of inequality remained generally unchanged, as evidenced by the Gini index.

► **Table 7.9** Results of the poverty distributive analysis

Variable	Estimate	Standard error	Lower bound	Upper bound	Poverty line
Head count index					
Base	0.748	0.001	0.745	0.751	100
Sim	0.794	0.001	0.791	0.796	100
Poverty gap index					
Base	0.592	0.001	0.590	0.595	100
Sim	0.631	0.001	0.628	0.633	100
Gini index					
Base	0.731	0.002	0.728	0.734	
Sim	0.738	0.002	0.735	0.741	

► 7.5 Conclusion

This study assessed the impact of trade restrictions on labour market outcomes using a static CGE model for Malawi. The results of the CGE model were transferred to a behavioural micro-simulation model of the labour market to simulate changes in occupational choice when the economy adopts a more restrictive stance on trade.

We conducted a counterfactual scenario in which the government imposed the highest MFN of 50 per cent on imports. The results indicated that rising tariffs could have significant impacts on the labour market as we observed a decline of up to 7 per cent in sectoral labour demand. When these results were linked to the micro-simulation, the model showed a cumulative loss of 1 million jobs. Agriculture being the largest employer, it suffered the most as tariffs are associated with rising factor prices for imports. Furthermore, results also indicated that implementing trade restrictions would particularly affect women employed in the agricultural sector, and cause unskilled women to lose their livelihoods. Distributive analysis also showed that trade restrictions deepened the incidence and depth of poverty, but did little to change the structure of inequality.

It is worthwhile to point out some of the caveats in using the CGE model. First, the CGE model used is a static model. This means that it analysed the economy at one set point in time. Resources permitting, it could be more informative to consider a more dynamic version of the problem to ensure full adjustment and reallocation of resources over time. Second, CGE models can be complex to the unfamiliar, such that they may appear as a black box if the assumptions are not well articulated. In this chapter, we attempted to simplify the CGE model without adding too much detail and made explicit our short- to medium-term factor closures. As a guide for future research, a highly disaggregated CGE model which encompasses more sectors than only agriculture should be considered.

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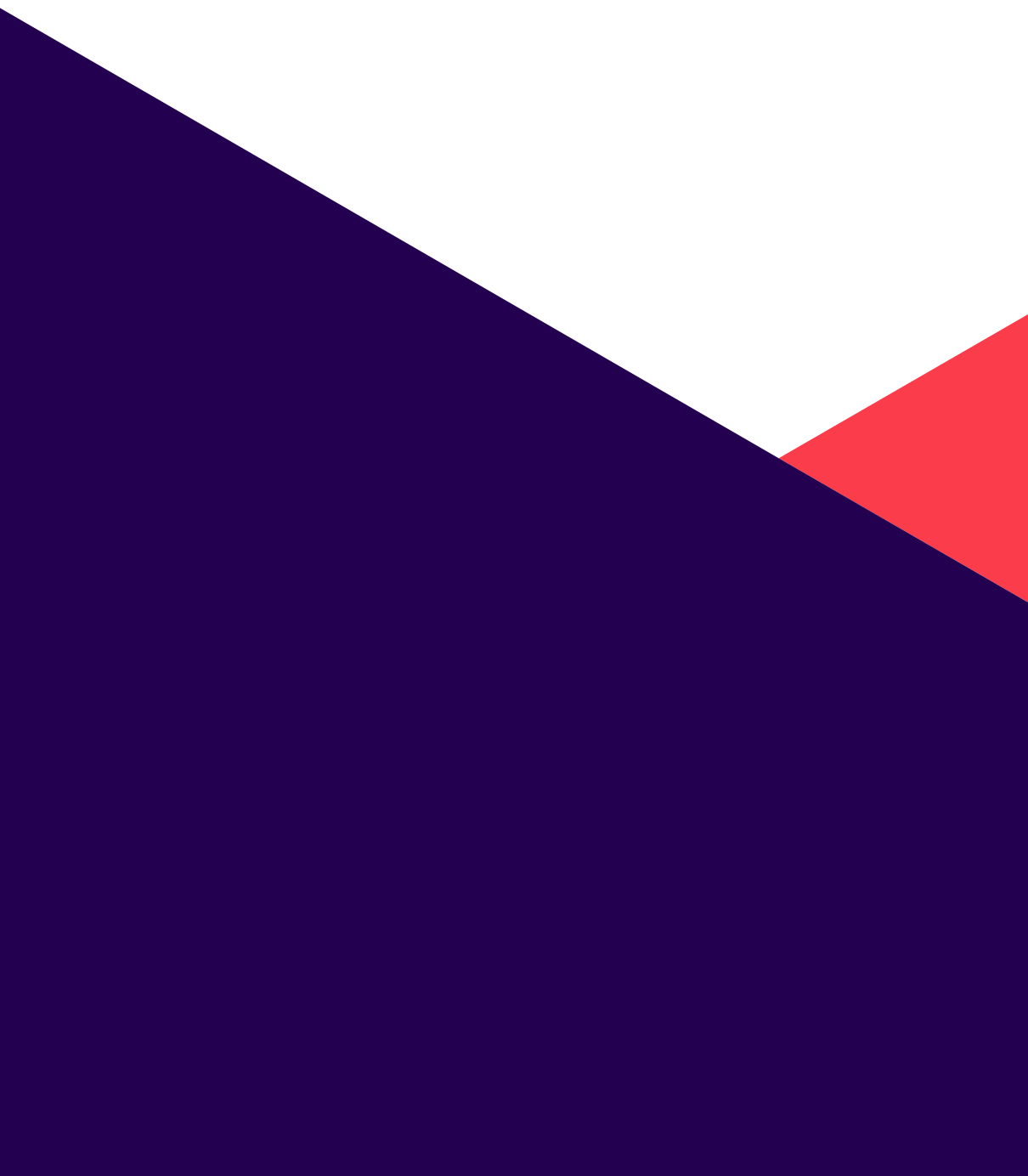
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Part 3

**Addressing labour
market impacts of trade:
The role of the ILO**



Skills, employment and trade:

The role of skills and employment policies
in making trade more inclusive and resilient

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► Introduction

The COVID-19 pandemic plunged the global economy into the worst recession since the end of the Second World War (Yeyati and Filippini 2021) and caused a sharp decline in global trade across a wide range of economic sectors (ILO 2020a; UNCTAD 2020a). In June 2020, enterprises in the manufacturing sector were suffering a disruption of up to 35 per cent of their imported input supply owing to workplace closures, posing a risk to 255 million workers in the sector and to an additional 96 million workers in services supplying inputs to manufacturing (ILO 2020b). In April 2021, an estimated 97 million jobs in GSCs were still experiencing high negative impact, while around 107 million jobs were adversely affected to a moderate degree (ILO 2021a). Over the course of 2021, the global economy experienced a quick recovery, posting a growth rate of 5.6 per cent, the highest in nearly 50 years (UNCTAD 2022). However, a closer look reveals that the recovery has been highly uneven across countries, sectors, firms and population groups, with developing countries faring worse and potentially even facing a “lost decade” in their efforts to achieve sustainable development (UNCTAD 2020b; IATF 2022).

In addition to the COVID-19 pandemic, climate-related crises and the recent war in Ukraine have triggered severe disruptions in global trade and supply chains, which have accelerated the efforts by governments and businesses to strengthen supply chain resilience through more localized and/or regional sourcing strategies. Moreover, global trade and supply chains are encountering formidable challenges as a result of changes in consumer demand and labour and skills shortages, among other factors.

Measures to develop workers' skills and, more generally, policies on education and training have a major influence on the outcomes and inclusiveness of ongoing fundamental changes in labour markets related to trade, the reconfiguration of supply chains and technological advances. Skills policies can help to make structural transformation beneficial for all. Given the role of skills in improving productivity, promoting a more equitable distribution of employment and income, and making economies resilient, skills development should form an integral part of comprehensive national policies to ensure that the gains from trade are distributed fairly.

This chapter reviews the main features of ongoing supply chain disruptions and discusses possible ways of transforming GSCs to be more inclusive and resilient. Among the many policy areas that are relevant to promoting inclusive trade for decent work, it focuses on skills development and lifelong

learning. More specifically, the chapter considers how improving a country's skills base can contribute to: (a) the enhancement of productivity; (b) greater equality in employment and income; and (c) the resilience of its economy. First, skills development plays a fundamental role in productivity enhancement by increasing the absorptive capacity of exporting and importing firms to benefit from technology and knowledge spillover. Second, equitable access to skills development opportunities can counteract the inequalities in employment and income caused by skill-biased technological change and the skill premium associated with international trade. Third, skills development fosters trade diversification and economic resilience by enabling workers to perform a wide range of tasks and facilitating their transitions across sectors and occupations, as well as by enabling companies to move up in tiers of GSCs. However, this chapter acknowledges that skills development and lifelong learning are only part of the solution. It is argued that the gains from trade can be shared equitably when effective and comprehensive economic, fiscal, social and labour market policies and programmes are put in place to promote inclusive growth at the national level, and that skills development is central in such initiatives. Finally, the chapter presents examples of skills development and lifelong learning policies and programmes, drawing on the ILO's country-level interventions under the Skills for Trade and Economic Diversification programme.

► 8.1 What lessons can we learn about trade and globalization from the COVID-19 pandemic and the multiple crises currently faced by the world?

The COVID-19 pandemic was a combined health and economic shock in an already turbulent context marked by trade tensions and conflicts, a rise in protectionist policies and increasing pressure to achieve more sustainable economies. By focusing on static efficiency over the past three decades (as reflected in, for example, just-in-time production and inventory optimization), GSCs have become highly efficient, specialized and interconnected but at the same time also highly exposed to global risks. This supply chain model has proved susceptible to the multiple mutually reinforcing crises – notably the global financial crisis of 2008–09, the COVID-19 pandemic, the war in

Ukraine and the resulting food and energy crises – and to the megatrends associated with the sustainability imperative, increasing geopolitical tensions, technological advances and digitalization.

The COVID-19 crisis highlighted yet again the risks arising from the interconnected nature of international trade and production, and in particular the risks associated with *hyperspecialization*. Disruptions of supply chains lent new urgency to the debate on the future of GSCs. In particular, the measures taken by China to slow the spread of the virus “resulted in shortages of parts and equipment [for] downstream industries, most notably the automotive, [electronics,] chemicals, garments and textiles, machinery, metal and metal products industries, and those relating to precision instruments” (ILO 2020a). Moreover, there was a major shortage of personal protection equipment due to both supply- and demand-side problems. Import markets were closed off because of the lockdowns. In 2018, China had been the source of up to 50 per cent of all supplies of personal protection equipment in both the United States and the EU (Bown 2020). Following the outbreak of the pandemic, the US Government sought to increase domestic production of those goods, but there were considerable challenges with regard to coordination and it was not easy to scale up production quickly.

While the pandemic exposed the fragility of GSCs (especially those for essential goods), it also showed that supply chains could be at the heart of economic recovery. Recent reports by the World Bank and the WTO have found that countries highly integrated into GSCs recovered faster than others, and that well-rationalized and diversified supply chains are far more likely to be a source of resilience than of vulnerability (Brenton, Ferrantino and Maliszewska 2022; WTO 2021). These reports suggest that “the resilience-enhancing role of trade tends to outweigh the increased exposure” (WTO 2021, 9) to shocks that trade openness brings. It has been suggested that enterprises linked to GSCs are motivated to keep their existing business partners in order to avoid the “sunk costs” that having to find new partners would entail. This was especially so during the pandemic, when it was difficult to travel to verify new business partners. The ability to continue operating enhances the resilience of businesses so that “trade within GSCs recovers more quickly than other types of trade” (Brenton, Ferrantino and Maliszewska 2022, 28). For instance, the economic modelling in the above-mentioned World Bank report suggests that “a shift towards global reshoring to high-income countries and China could drive an additional 52 million people into extreme poverty, most of them in sub-Saharan Africa (Brenton, Ferrantino and Maliszewska 2022, xii). On the other hand, measures to reduce trade barriers and enhance integration into GSCs could potentially “lift almost 22 million additional people out of poverty by 2030 ... and improve the incomes

of the bottom 40 per cent of the income distribution" (Brenton, Ferrantino and Maliszewska 2022, 3).

Another important challenge is the fact that the pandemic has accelerated the digitalization of GSCs. To cope with changes in consumer behaviour and the disruptions experienced by supply chains, businesses have started to use digital technologies to make their operations more agile and resilient. The ever-increasing volume of e-commerce transactions has heightened customer demand in terms of both delivery times and types of service. By adopting digital tools and technologies such as machine learning, predictive analytics, automated inventory management, real-time tracking and blockchain, businesses are able to identify and address supply chain problems earlier. However, there are several challenges related to the digitalization of supply chains. First, businesses need to assimilate new skills, roles and responsibilities and new organizational structures if they are to realize the full potential of digitalization. Second, because micro, small- and medium-sized enterprises play an important role in many economies, there is an urgent need to help such enterprises on their digitalization journey. Although technologies and automation can augment the productivity of some supply chain workers, they may also end up replacing such workers. Unless carefully designed adjustment policies are adopted, the increased digitalization of supply chains could well lead to negative labour market outcomes, especially due to the limited ability of many workers across sectors and occupations.

8.1.1 Reconfiguration of global supply chains in the post-COVID-19 period

Ongoing debates on the reconfiguration of GSCs are exploring how to achieve a balance between *efficiency* and *resilience* as supply chains are expected to face more serious and recurrent disruptions in the future. Some possible options discussed in the recent literature include multisourcing or alternative supply sourcing, the building up of safety stocks, inventory management, risk management, nearshoring, proximity sourcing, regionalization and greater domestic production.

According to UNCTAD, GSCs will go through a drastic transformation in the coming decade because of the increasing need for better resilience of GSCs owing to the COVID-19 crisis, which has exacerbated the existing major challenges to the international trading system arising from technological advances, growing economic nationalism and protectionism, and the sustainability imperative (UNCTAD 2020c). In view of these megatrends, the

following four possible trajectories of GSC transformation across industries in the post-pandemic period have been discussed in the literature, including the above-mentioned report (UNCTAD 2020c):

- *Reshoring* refers to the process of bringing productive activities back to developed countries from low-wage countries – either the entire production process or a part of it. The goal is to have “shorter, less fragmented value chains and a greater geographical concentration of value added” (UNCTAD 2020c, xii). Reshoring is motivated both by security concerns regarding the supply of essential products and by the need to increase strategic autonomy. Industrial and technological capabilities and capacities are essential to ensure competitiveness and for addressing societal challenges such as the transition to a “green” economy and the need for technological sovereignty in high-tech industries. Reshoring dynamics depend very much on political will as well as on the ability of policymakers to promote reshoring through targeted policies. There are several arguments in favour of reshoring. In particular, reshoring can create jobs in developed countries, help to curb greenhouse gas emissions and reduce supply chain uncertainties. As the technologies used in production processes nowadays require much less labour than those used in the past, there is some evidence that reshoring improves the labour market opportunities of high-skilled workers in developed countries but not those of low-skilled workers (Krenz, Prettnner and Strulik 2021). As production processes become more capital- and technology-intensive because of robots and digital technologies, developing countries are losing their competitive advantage arising from cheap labour. Reshoring would therefore imply a decline in employment in developing and emerging countries. From the point of view of firms, the advantages of reshoring include the availability of more skilled labour, shorter delivery times and lower carbon footprints. However, reshoring can be a long process and requires substantial investment of money and time by firms, as well as effective coordination. While reshoring responds to an immediate need for security and brings new opportunities for local businesses and suppliers in many cases, governments and employers need to carefully assess the long-term sustainability of such an approach.
- *Diversification* of GSCs is the main alternative to reshoring. As a trajectory that involves multiple sourcing, it leverages GSCs to build resilience. The benefits of diversifying include risk mitigation and the availability of backup sourcing plans in case of a shock to supply chains. Diversification is most prevalent in services and GSC-intensive manufacturing industries. This trajectory increases the opportunities for new entrants (economies and firms) to participate in GSCs, but its reliance on digitalization means

that those supply chains will “be more loosely governed, platform-based and asset-light” (UNCTAD 2020c, xii). Teleworking opportunities are being enhanced not only by advanced digital communication tools, but also by cloud technology and internet of things-enabled devices. In addition, improvements in translation software are facilitating communication between firms in different parts of the world. For developing countries to be able to embrace these opportunities, certain key enablers need to be in place, including a digital development strategy to ensure the availability of robust digital infrastructure and a skilled workforce with the necessary digital and technical skills.

- ▶ *Regionalization* “reduces the physical length but not the fragmentation of supply chains” (UNCTAD 2020c, xii). It is one way to mitigate exposure to shocks. The main feature of this trajectory is to move production closer to where products are sold and it is most prevalent among “regional processing industries, some GSC-intensive industries and even the primary sector” (UNCTAD 2020c, xii). For instance, the recently established African Continental Free Trade Area, whose first phase took effect in January 2021, provides new momentum for the development of regional supply chains. The regional production of processed and semi-processed goods in this free trade area has great potential given that such goods accounted for 79 per cent of intra-African exports in 2019 (AUC and OECD 2022). Digitalization enhances and facilitates the regional value chain coordination. Accordingly, digital development, including a skilled workforce with the necessary digital skills, is a key enabler of regionalization, especially in developing countries. While there is a momentum for regionalization as many countries see regional trade as a valid alternative to globalism for building their resilience in the post-pandemic period, regional value chains are not easy to maintain: they require stronger regional coordination and favourable systemic conditions. In addition, regionalization needs to be considered as part of a business resilience strategy that is environmentally sensitive.
- ▶ *Replication* refers to distributed manufacturing, an alternative form of organizing production, close to the point of consumption. Distributed manufacturing is supported by new technologies such as additive manufacturing and three-dimensional printing. Distributing the needs of manufacturing across several factories in different locations significantly reduces supply chain risks and makes it easier to maintain stable production in a rapidly changing world. It leads to shorter supply chains and a rebundling of production stages. Activities are more geographically distributed, but with a higher concentration of value added. Replication is

especially relevant to hub-and-spoke industries and regional processing industries (UNCTAD 2020c).

8.1.2 Implications of the COVID-19 crisis for labour markets and skills

While the response to the COVID-19 crisis provides an opportunity for all countries to embark on some of the structural reforms advocated in the 2030 Agenda for Sustainable Development, this section focuses on the changes in the skills needs of both businesses and individuals (workers and jobseekers) in developing countries as a result of the crisis.

Skills have a key role to play in the immediate response to the economic crisis, in getting employees back in the workplace, as well as in building resilience and implementing longer-term strategies. In 2020–21, the ILO accordingly supported a series of “rapid assessments” of upskilling and reskilling needs due to the COVID-19 crisis across 12 developing countries¹ (ILO 2022; ILO, forthcoming). These assessments sought to understand the changes in skills demand that have arisen from addressing the pandemic-related challenges and the expectations for the future.

In line with the trends presented in *World Employment and Social Outlook: Trends 2021* (ILO 2021b), the rapid assessments have revealed not only that the crisis resulted in a large decrease in both employment and hours worked in the surveyed countries, but also that the effects of the reduced labour demand have been unequal across workers. While some workers were able to continue working remotely, remote working was not an option for many workers, in particular for lower-skilled workers (ILO 2022).

The firms surveyed had to swiftly build up “digital resilience” to overcome the problems caused by social distancing, lockdowns and travel restrictions. While the crisis led to increased employment opportunities in areas related mainly to ICT, the skill sets required to harness those opportunities were often in short supply – typically skills in ICT system management and for the deployment of new ICT applications (ILO 2022).

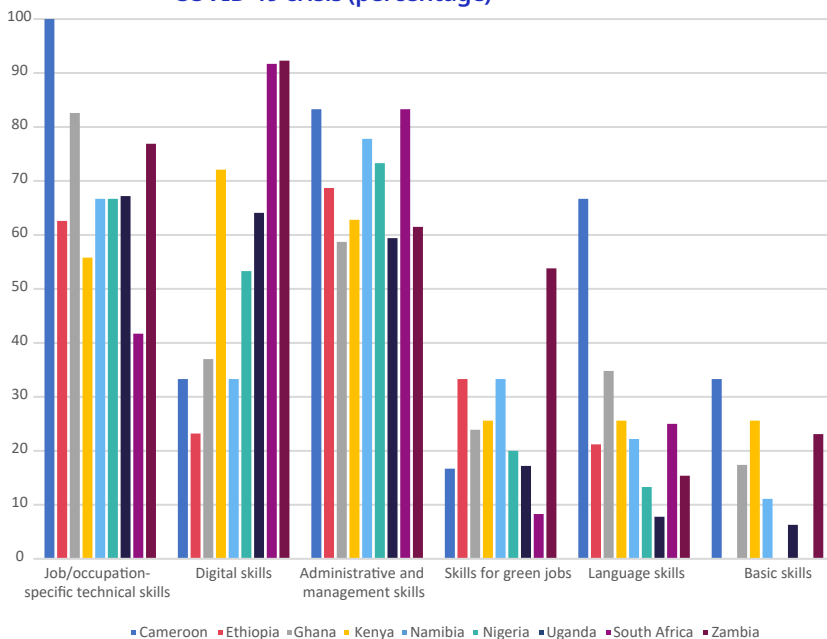
More importantly, the interruption of international supply chains required firms to be able to respond quickly to rapid changes in the external environment. Firms in some sectors were able to increase their domestic market share while the supply of imports was greatly reduced (as in the

¹ Specifically in Cambodia, Cameroon, Ethiopia, Ghana, Kenya, Kuwait, Morocco, Namibia, Nigeria, South Africa, Uganda and Zambia.

textiles sector in South Africa). The pursuit of new domestic markets was also adopted by some firms as a strategy in situations where traditional export markets had contracted sharply or had been almost wiped out, as in the case of the hospitality and tourism sector. For instance, in Namibia, the tourist industry responded by focusing on catering to domestic and regional tourists rather than those travelling to the country from much farther afield.

Looking to the future beyond the immediate COVID-19 response, both firms and individuals emphasized a distinct set of skills priorities that are crucial to ensure business and employment resilience. These include specific technical skills required for a given job or occupation; administrative and managerial skills; digital skills; and skills for “green” jobs (see figure 8.1). For one third of the enterprises and individuals surveyed, the skills needs for green jobs were a priority in relation to building resilience. There is also direct evidence, specifically from Cambodia, that at the same time as employers sought to recover the skills they had lost during the pandemic, they also had to adapt the skills of their workforces to the challenges of the dual green and digital transitions.

► **Figure 8.1** Share of establishments reporting specific types of training needed to seize opportunities arising from the COVID-19 crisis (percentage)



Source: ILO (2022, figure 7.4).

Analysis of the needs and priorities identified during these rapid assessments suggests that skills development and lifelong learning warrant renewed attention on the part of policymakers and practitioners in order to leverage the potential of international trade to promote inclusive growth. Indeed, skills are one of the key factors that account for the distributional effects of international trade. In developing countries, most firms operate in the informal economy and workers are employed in low-productivity and low-paying informal work. Their engagement in international trade is often superficial and limited mainly to a small number of sectors. International trade can help to improve the productivity of firms and workers, create opportunities for employment and higher incomes, and diversify a country's economic activities to achieve greater resilience. These are all important elements of inclusive growth, in which skills development and lifelong learning² play an essential role.

8.1.3 The role of skills in enhancing productivity

Firms participating in international trade have been observed to be generally more productive than non-trading firms. There are at least two explanations for this correlation between trade and productivity. One is that productive firms self-select (Melitz 2003) to participate in international trade – that is, they are more productive to start with. Another is that firms improve productivity by exporting and importing. When participating in international trade, the skills of its workforce largely determine a firm's absorptive capacity to benefit from technological and knowledge spillovers through the channels of learning by exporting and importing (Van Biesebroeck 2005; Amiti and Konings 2007; De Loeker 2007). “Learning by exporting” refers to a mechanism whereby firms improve their productivity after beginning to export (De Loeker 2007), by learning from foreign markets that are more technologically advanced and more sophisticated in terms of consumer demand. The productivity enhancement is especially marked when firms in lower-income countries export to higher-income ones (Van Biesebroeck 2005). In addition, productivity can also increase in importing firms as a result

2 Lifelong learning “has generally evolved to be understood today as covering all education and training during a lifetime, including both initial education and training and adult learning. It is considered ‘lifelong’ but also ‘lifewide’, covering learning in institutions, families, communities and workplaces. It is also considered ‘life-deep’, because it recognises the ongoing and active acquisition, development and deployment of knowledge over a lifetime” (ILO 2019b, 6).

of their learning from the foreign technology and knowledge embodied in intermediate inputs (Amiti and Konings 2007).

The complementary nature of skills and technological and knowledge spillovers highlights the importance of skills development to achieve productivity growth through international trade, especially in developing countries, where the skills base is patchy and firms' absorptive capacity therefore tends to be lower. This has implications not only for productivity at the firm level but also for a country's economic growth. Indeed, diverging levels of investment in skills development and in enhancing the absorptive capacity of firms explain much of the divergence in the development trajectories of countries participating in international trade (Keller 1996; Rogers 2004). The importance of skills development and lifelong learning is even greater if one bears in mind the accelerated pace of technological advancement, as the skills of the labour force must be continuously updated to generate technological and knowledge spillovers and sustain the enhancement of productivity through international trade.

8.1.4 The role of skills in achieving equality in employment and income

Another commonly observed fact is that, the aggregate benefits notwithstanding, the gains from international trade tend to be distributed in an inequitable manner across countries, sectors, firms and workers. Greater import competition caused, for example, by offshoring can drive unproductive firms out of the market, leading to job losses, declining wages or even the waning of an entire sector. Increased participation in international trade can cause the destruction and creation of jobs in different sectors and locations requiring a different set of skills; therefore, it can result in higher unemployment (Narula 2003). On the other hand, international trade increases demand for certain skills, leading to a wage premium for some occupations. In a hypothetical world in which labour is perfectly mobile, displaced workers can be absorbed by growing sectors. In reality, however, smooth transitions often do not happen because of frictional and structural barriers, leading to significant employment and income losses, especially among vulnerable population groups, and increasing the risk of prolonged negative economic and social consequences, such as poorer health outcomes and lower educational achievement across generations (Bacchetta et al. 2021; Pierce and Schott 2020; Autor, Dorn and Hanson 2015; Davis and von Wachter 2011).

This "skill premium" plays an important role in the inequality caused by international trade. Trade can induce skill-biased technological change

(Costinot and Vogel 2010; Pavcnik 2017), which favours skilled labour by leading to better employment opportunities or a wage premium, and disfavours lower-skilled labour by leading to displacement or declining wages (Thoenig and Verdier 2003; Hummels et al. 2014). This skill-biased polarization of labour markets caused by international trade contributes to widening inequalities between lower- and higher-skilled workers. Consequently, measures aimed at promoting skills development among vulnerable population groups must be in place to facilitate the labour market transitions of displaced workers and improve their ability to earn a higher income.

8.1.5 The role of skills in economic diversification and resilience

A further stylized fact regarding international trade is that trade diversification reduces volatility and thus increases economic resilience (Ardelean, Leon-Ledesma and Puzzello 2022; WTO 2021). The series of recent social and economic crises triggered by the COVID-19 pandemic and geopolitical tensions has drawn attention to the heightened risk of disruptions in trade and investment and the importance of building resilience through diversification. A high degree of specialization in a limited number of economic sectors can have a catastrophic impact on an economy if a country does not have a buffer against sector-specific shocks, such as the shocks experienced by tourism and other customer-facing services sectors as a result of the lockdown measures during the pandemic. A diversified economic structure would help countries to cope with such sector-specific shocks (WTO 2021).

Trade diversification can be promoted by a wide range of policies, including through skills development. Increasing the pool of skilled talent that can effectively perform a wide range of tasks across different economic sectors and occupations ensures that the right balance is struck between supply chains being lean on the one hand, and risk-averse on the other (Contractor 2022).

► 8.2 What supportive policies and strategies are required to ensure that trade is beneficial for everyone in society?

Despite the above-mentioned adverse distributional effects of trade, inclusive trade remains a catalyst for structural transformation and sustainable development, in particular if it is accompanied by relevant domestic policies and global cooperation.

Given the role of skills in enhancing productivity, bringing about a more equitable distribution of employment and income, and achieving economic resilience, skills development should form an integral part of comprehensive domestic policies to ensure that the gains from trade are distributed fairly. Disadvantaged population groups and economic units face significant domestic constraints such as limited access to finance, education and technology (Bacchetta et al. 2021). Skills development policies therefore need to be combined with industrial policies to enhance the competitiveness of a country's production system, as well as with other measures to support effective labour market transitions of the workforce. Policies and programmes to improve labour mobility include skills policies aimed at reskilling and upskilling workers, and social protection policies to support those suffering from job losses in the harder-hit sectors.

8.2.1 Policies to stimulate productive development

While the main focus of this chapter is on the nexus between skills and inclusive trade, it is important to recognize that skills are part of the answer, but only a part. When thinking about the structural changes that are required for sustainable development, a broader perspective is necessary to enable skills development measures to play a useful role within a set of policies designed to improve both social and economic outcomes. Therefore, before discussing how skills policies can support inclusive trade (see section 8.2.2), we shall consider briefly the need for comprehensive industrial and productive development policies.

To build resilience and achieve sustainable development, it is necessary to design specific development paths based on local and regional

opportunities, which depend on the available mix of knowledge assets, skills and institutions. These elements are part of a more comprehensive and inclusive view of the development process. The response to the COVID-19 crisis constitutes a unique opportunity to revisit policy goals and define an integrated policy approach to structural transformation and sustainable growth that ensures social and economic upgrading.

Under such an integrated approach, it is important to consider the complementarities between different policies aimed at fostering productivity and resilience. These policies can have national, sectoral and local dimensions and should take into account the interdependence between various factors underlying economic and social performance, ranging from demand-side factors, such as innovation and research and development (R&D), technology, trade and investment, to supply-side factors, such as education and skills, and institutional, social and financial structures.

A sectoral or local approach is also key to achieving resilience. This means adopting different combinations of measures and policies to meet the different needs of economies. Indeed, the requirements of different ecosystems in terms of resilience and efficiency may vary depending on local challenges and opportunities.

Sector- or region-based policies are an essential starting point for structural transformation and sustainable growth that strikes a balance between efficiency (more productivity) and resilience. In that regard, comprehensive industrial policies are needed to ensure social and economic upgrading. Such policies are aimed at developing a gradual development pathway towards new activities within the existing institutional and economic frameworks, not merely at leveraging local skills and competences.

Dani Rodrik, a leading development economist, and his co-authors have highlighted in their recent publications the need for a *new industrial policy* to address the challenges of increasing productivity while reducing inequality in society (Rodrik and Stantcheva 2021a, 2021b; Autor et al. 2022). “Where will the good and productive jobs come from?” is the question they have raised to highlight the need for integrated and reoriented growth and development policies. Their main argument is that it is essential to integrate productivity and inclusivity agendas, in contrast to the traditional approach in which those two areas are addressed through separate policy tools. For example, Rodrik and Stancheva (2021a) present a simple organizing framework, summarized in a 3 x 3 matrix, that can be used when considering policies to achieve inclusive prosperity (examples of policies are given in Appendix I). One key point raised by the same authors in a related paper is that “good jobs are contingent on higher productivity and the expansion of good firms” (Rodrik and Stantcheva, 2021b, 828). Their proposed strategy to foster the creation of

good jobs focuses on productivity enhancement along the middle spectrum of the labour market. They further emphasize that the strategy requires iterative and collaborative governance practices to ensure flexibility, as the creation of good jobs depends on a wide array of decisions on investment, technology, work and business organization, the consequences of which are complex (Rodrik and Stantcheva, 2021b, 835).

The implications of the need to reorient growth and development policies are summarized in table 8.1 below, taken from Autor et al. (2022), who compared what they refer to as a “good-jobs development model” (the text in the red box in the table) with traditional growth policies (in light blue) on the one hand, and with traditional social protection and poverty reduction strategies (in dark blue) on the other. In contrast to the traditional growth model, the next generation of growth policies will have to target SMEs that have the potential to enhance both employment and productivity, most of which are in the services sector. The authors argue that traditional industrial policies would need to be revised and extended to segments of the informal economy. Sustainable growth is possible only by “creating more productive, better jobs for workers at the bottom of the skill distribution”. Future development policies will therefore need to strike a balance between social protection and productivity growth. Moreover, new technologies that are labour-friendly should be treated as a “global public good” (Autor et al. 2022, 79–80).

► **Table 8.1** Development model based on the creation of good jobs

		At what stage of the economy does policy intervene?		
		Pre-production	Production	Post-production
Which segment of the economy do we care about?	Low productivity	Investments in education and health		Cash transfers; full-employment macro policies
	Middle productivity		Promotion of higher-quality jobs in services; employer-linked training policies; job-creating customized business incentives; "appropriate technologies"	Safety nets
	High productivity	Innovation systems; intellectual property rules; trade agreements	Subsidies; R&D incentives	Corporate tax incentives

Source: Autor et al. (2022, figure 9).

8.2.2 Skills policies and strategies required for inclusive trade

Depending on the context, there are two types of skills-based strategies to support inclusive trade: short-term strategies and longer-term ones. Moreover, effective skills strategies, regardless of the time frame for their implementation, must integrate diverse entry points of targeted interventions for vulnerable groups into their interventions.

8.2.2.1 Quick-win solutions: What skills?

The COVID-19 crisis accelerated structural change to a considerable extent, and this is continuing with the adoption of new technologies, further digitalization and shifts in the patterns of GSC trade. The crisis itself led to a huge loss of employment, often concentrated in certain sectors, and in many cases the new jobs that are emerging in the recovery phase are

not identical to those that were lost. The future resilience of workers, firms and economies will depend on the ability to quickly identify and seize new employment opportunities.

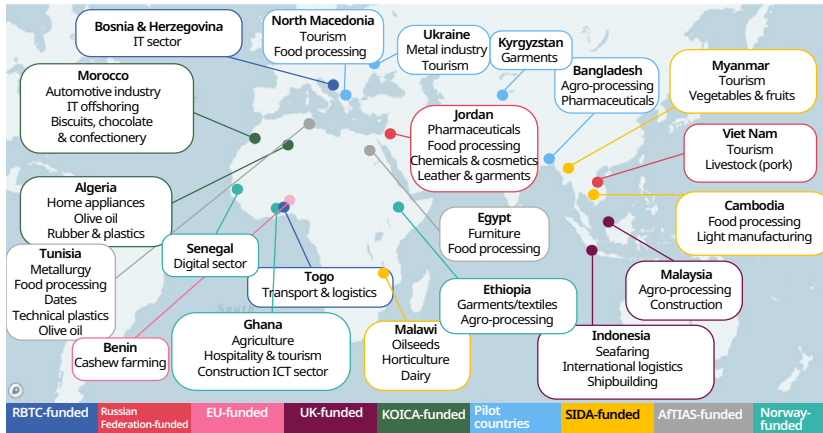
A trade-related employment shock can have a persistent negative impact on the labour market outcomes for workers (ILO and WTO 2017). Effective skills strategies need to be designed to reskill and upskill workers who lose their jobs or who may be vulnerable in the future; to improve their transferable, or “soft”, skills and make them more employable; and to use skills development to build a comparative advantage in expanding areas of the economy that are capable of absorbing unemployed workers.

Effective skills strategies should seek to ensure that sufficient and relevant skills are available to enable the upgrading process that leads to inclusive growth of economies. What, then, are the current and emerging skills priorities for businesses and workers in tradable sectors?

The involvement of firms in trade and GSCs affects not only the level of skills required, but also the types of skills (ILO and WTO 2017). The ILO’s Skills for Trade and Economic Diversification (STED) programme provides relevant granular qualitative evidence based on the observation of patterns in key business capabilities that firms need to strengthen or create to be able to participate successfully in tradable sectors, whether as exporting or import-competing firms. Addressing those business capabilities gaps shapes the skills that firms are looking for among workers. Some key categories of skills priorities identified through the STED programme in over 25 countries and more than 50 tradable sectors (see figure 8.2) are summarized below.³

3 Adapted from Chapter 2 of ILO 2020c.

► Figure 8.2 Development cooperation under the ILO's Skills for Trade and Economic Diversification programme



Ongoing STED work through SIFA project

Zimbabwe (Horticultural sector) - United Republic of Tanzania (Beef) - Eswatini (Horticultural sector) - Ghana (Garments and textiles)

AFTIAS = Aid for Trade Initiative for the Arab States; KOICA = Korea International Cooperation Agency; RBTC = Regular Budget for Technical Cooperation (of the ILO); SIDA = Swedish International Development Cooperation Agency; SIFA = Skills Initiative for Africa.

Source: ILO web page on the STED programme, www.ilo.org/sted.

Digital skills: While digitalization and technological advances offer an enormous potential for enhancing the competitiveness, productivity and efficiency of companies, their development and deployment require an increasingly wide range of digital skills at different sophistication and specialization levels across almost all occupations. Anticipating, identifying and delivering these digital skills needs is crucial both for improving competitiveness and productivity and for making trade inclusive. In Senegal, the STED approach has been applied from 2019 onwards to support the Ministry of Employment, Vocational Training, Apprenticeship and Placement in the preparation of a digital skills strategy to meet the needs of the digital economy. The key challenge was that the provision of technical and vocational education and training (TVET) for the ICT sector was not well developed, with very few training programmes focusing on medium- to lower-level skills. Accordingly, the STED programme in Senegal sought to support employers and TVET providers in identifying priority areas and diversifying the training opportunities offered while focusing on the higher-level skills required by employers. The resulting recommendations centred on skills development in several areas that are important for the Senegalese digital sector to be able to compete in global markets, including business process outsourcing, digital marketing, production of multimedia digital content and software development (mobile apps and games). The main direct output has been

the development and validation of the Digital Development Strategy for Vocational and Technical Training, which was adopted by the Government of Senegal in 2020.⁴ The strategy, which is aligned with the National Development Plan and the Senegal Digital Strategy 2025, is intended to contribute to the development of the human capital required for the growth of the digital economy. To achieve a better match between the training offered and labour market needs, the strategy promotes the use of digital technologies in the provision of TVET services and supports digital inclusion. Key activities under the action plan for implementation of the strategy include the launching of five new training programmes,⁵ the digitalization of existing training programmes, the development of a basic digital skills framework for trainers and learners, training of trainers and learners in skills for digital entrepreneurship, and the creation of “digital clubs” for TVET students. Digital clubs are an inclusive ecosystem designed to enable learners to develop digital and entrepreneurship skills and strengthen their innovation capacity in preparation for their entry into the labour market. In addition, a digital skills needs analysis was carried out and training in the skills identified was delivered to all staff in the Ministry of Employment, Vocational Training, Apprenticeship and Placement, from directors down to training inspectors, trainers and administrative staff.

*Core work skills:*⁶ Skills strategies for inclusive trade should prioritize core work skills, skills that are transferable between occupations and skills for modern forms of work organization. The competitiveness of firms in the tradable sectors of developing countries hinges on productivity enhancement and their ability to meet the skills requirements for the transition to a green and digital economy. An important factor in that regard is the extent to which firms use a combination of modern forms of work organization and digital technologies. New forms of work organization not only rely on core

4 The full text of the strategy (in French only) is available from the following ILO web page: www.ilo.org/africa/countries-covered/senegal/WCMS_775643/lang--fr/index.htm.

5 Two examples are: (a) the Advanced Technician Diploma in the Development of Mobile Applications, a two-year programme that prepares students to analyse, design, implement and deploy mobile apps so that they can seize the opportunities created by the expansion of mobile commerce; and (b) the Technician Certificate in Home Automation, which provides training in designing, building and maintaining home automation systems and in improving energy management and home security.

6 The ILO framework of “core skills for life and work in the twenty-first century” is a set of non-technical skills, such as social and emotional, cognitive and metacognitive, basic digital skills and basic skills for green jobs, that are transferable across occupations and professions, as well as between low- and high-level jobs. Core work skills enable individuals to continuously acquire and apply new knowledge and skills; they are also critical to lifelong learning. Various organizations have given different labels to these skills, including “key competencies”, “soft skills”, “transferable skills” and “essential skills”. The ILO uses the terms “core work skills” and “core skills for employability” (ILO 2021c).

work skills, such as teamwork/collaboration, communication, problem-solving, organizational skills and planning skills, but also require strong people management skills for a wide range of managerial occupations and specialized skills such as quality management, enterprise resource planning, quality assurance and control, root cause analysis, maintenance of working areas and troubleshooting. As part of the ILO's work under the STED programme, gaps in core work skills were identified as a key constraint on the competitiveness of companies in the textile and garment sector in Ethiopia. The STED diagnostic research, carried out in 2019, found that a large proportion of garment workers, especially female workers, have not been exposed to formal jobs or industrial environments, and often lack a basic level of education. This lack of core work skills can hinder their ability to transition successfully into workplaces. To address this problem, a number of skills interventions were undertaken as part of the ILO's STED-based projects in Ethiopia, including the development of a comprehensive package to support the country's pre-vocational core work skills programme for the textile and garment sector. This package was designed to help workers with limited core work skills to transition into the industry and be successful in their jobs. In addition, core work skills were mainstreamed into the curricula of three selected institutes: Arba Minch University, Bahir Dar Polytechnic College and Hawassa University. These interventions were developed in response to the fact that graduates often lack core work skills when entering the world of work.

*Technical skills or job/occupation-specific skills:*⁷ As a consequence of the combination of trade, technological advancement and other mega drivers of change, the skills demanded are changing constantly. At the same time, skills shortages and gaps in the quality and relevance of technical skills can constrain the ability of firms in developing countries to succeed in international trade (ILO 2020c). For instance, the ILO's STED-based project covering the agrifood and metallurgy sectors in Tunisia, which was conducted between 2015 and 2017 within the framework of the Aid for Trade Initiative for the Arab States (AfTIAS),⁸ highlighted a number of underlying problems

7 Technical skills or job/occupation-specific skills are specialized skills, knowledge or know-how needed to perform specific duties or tasks (Brewer 2013).

8 AfTIAS is a multi-donor, multi-country and multi-agency programme, designed and launched by the International Islamic Trade Finance Corporation on behalf of the Islamic Development Bank Group in 2013. The ILO's STED methodology was applied in Tunisia (agrifood and metallurgy sectors) and Egypt (food processing and wood and furniture sectors) under AfTIAS Phase 1 (2014–18).

in each sector. In the agrifood sector, business capability⁹ bottlenecks were identified in areas such as product traceability, product quality, international marketing, conformity to international standards and lack of local expertise in tasting olive oil. In the metallurgy sector, gaps were identified in quality control, international certification and international marketing. To address these shortcomings, several interventions were implemented under the project: (a) strengthening technical skills in sensory analysis and food labelling (including company training on compliance with the new European standard on food labelling); (b) mainstreaming of training on quality in TVET programmes in the agrifood sector (including training and certification based on international standards); (c) support for the promotion of exports of oysters from the city of Bizerte through innovative packaging and the establishment of a regional cluster; (d) the creation of a platform for training to achieve certification according to international standards in welding and quality control in the metallurgy sector; and (e) strengthening managerial skills, with a particular focus on designing an international marketing strategy for both sectors. The lack of relevant skills makes it difficult for vulnerable workers to improve their employability outcomes. While core work skills are increasingly important to success in tradable sectors, technical skills remain essential. Across the whole range of sectors addressed through the STED programme in different developing countries, similar shortcomings in business capabilities appear to limit firms' success in trade. However, there are differences in context meaning that similar business capability gaps can have very different skills implications in different sectors and countries (ILO and WTO 2017). Table 8.2 below shows an illustrative sample of the types of occupational skills found through work under the ILO's STED programme to be linked to common business capability bottlenecks (ILO and WTO 2017). An effective strategy to address these bottlenecks must involve skills development as a key component. Depending on countries' skills systems and their skills availability, the exact skills needed differ. Appendix II presents, as a further example, the skills commonly needed to strengthen agrifood value chains in developing countries, based on a synthesis of skills analyses under the STED programme in ten developing countries. It highlights the importance of granular skills analysis at the sectoral and local level through social dialogue and consultations with stakeholders in order to understand,

9 The term "business capability" is used here to clarify that the capabilities under consideration are at the level of the business, not at the level of the individual or team. Business capabilities are characteristics of business organizations, not of workers or individuals (Gregg, Jansen and Uexkull 2012, 57).

anticipate and develop the skills required for firms to enjoy future success in international markets.

Other transferable skills: Many of the skills highlighted by the STED programme lie on a middle ground between core work, technical and digital skills; they are increasingly relevant across multiple occupations in several economic sectors. Examples include managerial skills, organizational skills, customer handling, prioritization of tasks and administrative support. Transferable skills are important with regard to both dealing with the changes in the future of work caused by the ongoing megatrends and multiple crises and making trade more inclusive. Transferable skills are particularly important in the case of workers at risk from employment shocks driven by structural change, including trade-led employment shocks. A relevant example is the follow-up intervention under the STED programme in Tunisia that sought to strengthen managerial skills for international marketing (see below).

► **Table 8.2 Common business capability bottlenecks and related occupational skills areas**

Common business capability bottleneck	Examples of linked occupational skills areas
Efficiency and effectiveness of operations	<ul style="list-style-type: none"> ► Technical skills of machine operators, assemblers, crafts, technicians, etc. ► Production management skills, including people management and engineering ► Core and “soft” skills of workers at all levels required for modern work organization and productivity improvement
Compliance with standards and regulations	<ul style="list-style-type: none"> ► Quality assurance and compliance skills ► Regulatory management skills ► Laboratory scientist and technician skills ► Document management skills
Marketing, sales and channel management	<ul style="list-style-type: none"> ► Marketing skills, channel management skills ► Sales management skills ► Sales skills ► Teleservice skills
Innovation, design and product development	<ul style="list-style-type: none"> ► Development engineering and science skills ► Design skills ► Process engineering skills ► Supply-chain management skills

Common business capability bottleneck	Examples of linked occupational skills areas
Supply-chain management and logistics	<ul style="list-style-type: none"> ▶ Logistics management and work skills ▶ Sourcing and procurement skills ▶ Marketing skills
Value-chain development	<ul style="list-style-type: none"> ▶ Key skills outside the exporting sector that contribute to the sector's success, e.g. for food processing: agronomy, food safety and logistics management skills

Source: ILO and WTO (2017, table 2.2).

Skills strategies at the sectoral level can foster greater participation in trade and GSCs by setting out actionable measures agreed on by stakeholders to address the skills needs that are relevant to success in trade and by promoting their implementation. This would ensure that limited availability of skills does not constrain the ability of firms to expand and engage in trade.

Policies to strengthen capabilities in common business areas can have numerous benefits for firms aiming to succeed in trade, and skills development is an important component of those policies. Some potential benefits include increased productivity and competitiveness, improved compliance with standards and regulations, and better management of sourcing, marketing, sales and supply chains. In addition, enhanced capabilities in innovation, product design and development can lead to the creation of new high-quality products and services. This, in turn, can drive economic growth and create new decent jobs. Furthermore, improved supply chain management, sourcing and procurement allow businesses to reduce costs and increase their efficiency, which can lead to increased profits and greater competitiveness. In general, understanding the skills-related implications of strengthening business capabilities and investing in policies to address those skills needs can help countries to achieve their economic and development goals.

8.2.2.2 Longer-term strategic skills responses

The unequal geographical distribution of high-value activities along GSCs is a key problem for developing countries and for regions in developed countries that have suffered from trade-related employment shocks or have been left behind.

At the same time, high-value production activities such as marketing, services for customers, product development and innovation, together with the underlying technologies and infrastructure, offer opportunities to move up the supply chain and add more value, improve productivity and

create more decent jobs. Applying new technologies and modern practices of business process and work organization to existing activities also presents an opportunity to add value. While these opportunities can help countries to create decent jobs, improve livelihoods and attract investments, harnessing them requires a skilled workforce. More importantly, it requires strategic longer-term and systemic solutions by countries.

Skills are an important factor in gaining a comparative advantage in international trade, and skills development should be used as part of strategic industrial and trade policies to strengthen the social and economic outcomes of trade integration. This can be achieved either by ensuring that skills development systems generally enhance a country's participation in trade or through more targeted skills development aimed at building a comparative advantage in the higher-value-added activities of GSCs.

In that regard, creating a greater number of decent jobs should be a central goal for developing countries, where there is a large volume of low-paid, low-skilled employment. In many cases, businesses in developing countries may not have the capacity to identify skills needs, to effectively use the available skills in their workforce or even to appreciate the potential improvements that could be achieved with a higher-skilled workforce. This means that in order to transform the economic and social performance of firms – in terms of their having a better understanding of the role of skills development and skills utilization (economic performance) and of their offering decent jobs to workers from vulnerable groups (social performance) – policies need to be adopted that influence firms' market, product and service strategies and human resource management practices, such as work organization and job design (Sung and Ashton 2015). The structure of local labour markets is crucial for inclusive growth, as emphasized by Rodrik and Sabel (unpublished), who posit that “producing good jobs is a source of positive externality for society”.

Productivity is the outcome of a combination of factors (innovation, R&D, capital investment, and modern practices of management and work organization, among others), and boosting the supply of skills on its own will not deliver the required structural changes. This points to the need to establish or strengthen institutional mechanisms of skills governance in developing countries with a view to fostering consistent and sustained efforts and bringing together the right institutions to collaborate over the long term. Key features of such mechanisms include integrated policy domains (for example, with skills policies integrated into demand-side policies such as economic development and trade to stimulate weak demand); a central role

for industry; buy-in from stakeholders (notably employers and trade unions); and providing dialogue platforms to meet and shape demand for skills.

At the same time, policies on skills, education and training often do not receive enough attention when governments are planning for structural change. The importance of such policies may be recognized at a high level of policymaking, but this does not always translate into the granularity required to identify skills needs and how these can best be addressed. Governance mechanisms to make skills development systems more responsive and capable of taking actionable measures at the granular level should therefore be established or strengthened (ILO 2020c). This should be done at the local, sectoral and regional levels and should involve relevant ministries and government agencies, employers' and workers' organizations, and providers of education and training (including leading academics and universities).

The ILO developed the STED approach accordingly to contribute to the alignment of skills development policies with policies on trade, economic diversification and industrial development, and to support the enhancement of skills needs anticipation systems. The approach aims to help policymakers in developing countries to work with the private sector, including employers' and workers' organizations, in understanding and anticipating future skills needs and in identifying appropriate skills responses in a strategic manner. STED-based activities enable national and sectoral stakeholders to test and pilot some of the basic functions of skills councils before committing to establishing them formally, or to support the definition and implementation of such councils' strategic functions where a commitment to establish them had already been made. For instance, the STED approach was applied in Ghana between 2019 and 2020 to support the Government's strategy for strengthening the country's TVET sector and making it more responsive to the needs of industry. One of the elements of this strategy is the creation of "sector skills bodies" for key economic sectors, organized under the Commission for Technical and Vocational Education and Training. The ILO and the German Agency for International Cooperation have collaborated to provide the Ghanaian authorities with advice on and technical assistance in establishing sector skills bodies. The ILO's technical assistance involved using the STED approach to support such bodies in identifying and anticipating skills development needs and developing sectoral skills strategies to address those needs.

Effective skills strategies should include initiatives addressing skills utilization through enhanced human resource and people management and use of modern practices of work organization. Firms in developing countries are often unaware of what skills their employees have or how to deploy them effectively. Workers who are enabled to use their skills at work have higher

job satisfaction, show greater personal productivity and are less likely to want to change employers. Skills utilization is about “confident, motivated and relevantly skilled individuals who are aware of the skills they possess and know how best to use them in the workplace, working in workplaces that provide meaningful and appropriate encouragement, opportunity and support for employees to use their skills effectively in order to increase performance and productivity, improve job satisfaction and employee well-being, and stimulate investment, enterprise and innovation” (Braňka 2016, 15). Relevant firm-level actions include understanding what skills will be required in the light of business strategy; planning staff progression and career pathways; matching skills to job openings; redesigning jobs; and making changes to work organization in order to ensure that skills are better utilized.

► 8.3 Conclusion

In an increasingly globalized and digitalized world with multiple and overlapping crises, the extent of the resulting challenges as well as opportunities underlines the need to design comprehensive and effective policies that can make the global economy more inclusive, sustainable and resilient. Inclusive trade and GSCs can undoubtedly catalyse the structural transformation that is required for sustainable development, especially if they are accompanied by relevant national policies and international cooperation.

This chapter emphasizes the importance of having effective policies on skills and lifelong learning as an integral part of industrial and productive development strategies that are designed to build resilience and foster sustainable development. The role of skills development in enhancing the benefits of international trade for decent work has long been recognized. It is well understood that skills mismatches and shortages are among the constraints holding back workers and businesses, and hence also economic development. Skills are part of making trade matter to everybody and promoting opportunities for decent work through trade.

Over the past few years, awareness has increased of the urgent need to address such megatrends as climate change, ever-accelerating digitalization and heightened risks of social, economic and political disruption. The centrality of skills is arguably more relevant than ever, as the skills base of a

country is the foundation not only of productivity but also of equality and the resilience of workers, enterprises and society as a whole. In order to harness the role of skills in promoting inclusive trade, effective measures to support skills development and lifelong learning must be adopted as an integral part of comprehensive economic, fiscal, social and labour market policies and programmes – especially measures targeting vulnerable population groups in developing countries.

Yet inequity in education and skills development is a challenge in many countries, especially in developing countries. Governments, employers and providers of education and training should endeavour to provide equal learning and skills development opportunities for marginalized and vulnerable groups, including low-skilled workers, employees of micro, small and medium-sized enterprises, the self-employed, women, people with disabilities and migrants (ILO 2020c). Targeted measures should be integrated into national, sectoral and regional policies on skills for inclusive trade.

To that end, technical cooperation and knowledge-sharing related to skills and lifelong learning should be promoted among countries and development partners.

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► Appendix I

Policy matrix for achieving inclusive prosperity

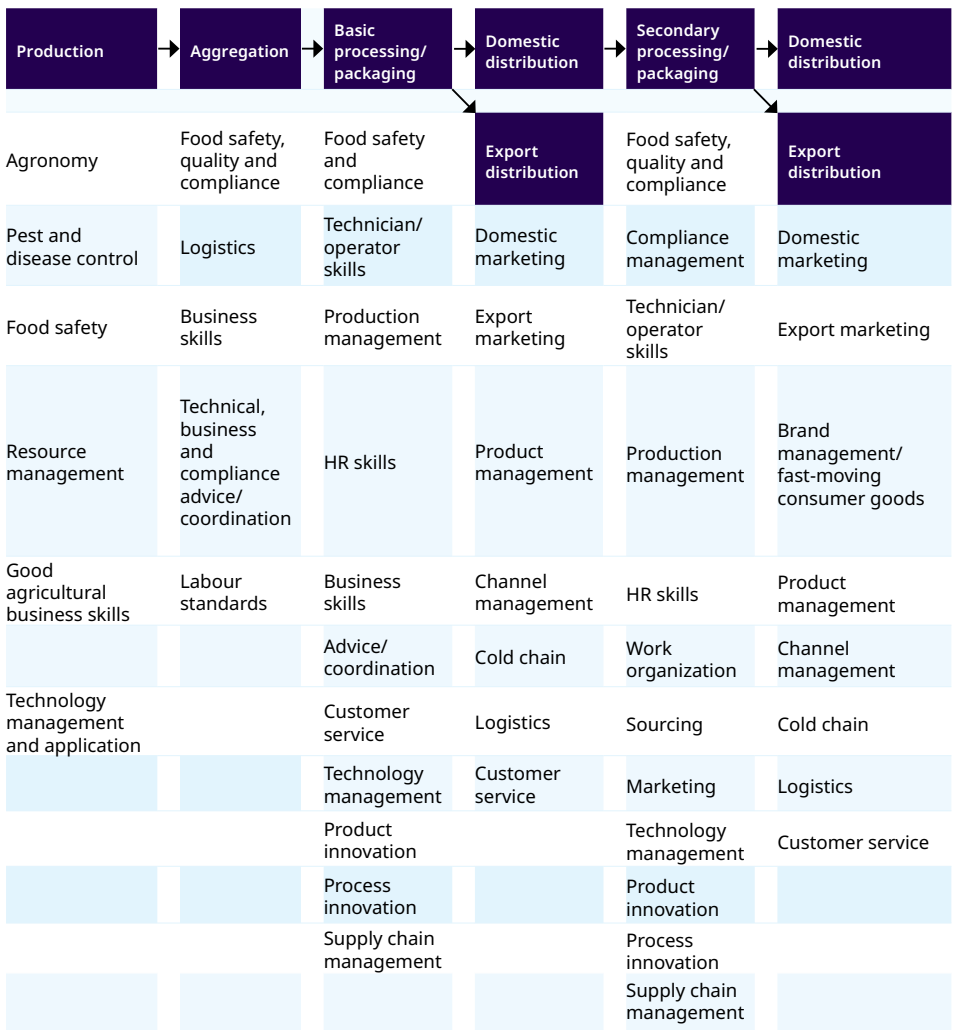
		At what stage of the economy does policy intervene?		
		Pre-production stage	Production stage	Post-production stage
Which income segment do we care about?	bottom incomes	primary education and early-childhood programmes; vocational training	minimum wage; apprenticeships; reduced social security contributions by firms; in-work benefits	social transfers (housing, family, child benefits); guaranteed minimum income; earned income tax credit; full-employment macro stabilization policies
	middle class	public higher education; adult retraining programmes	industrial policies; occupational licensing; on-the-job training; collective bargaining and work councils; trade policies	unemployment insurance; pensions
	top incomes	inheritance, gift and estate taxes	R&D tax credits; competition and anti-trust policies	top income tax rates; wealth taxes; corporate taxes

Note: In the above matrix, Rodrik and Stantcheva present a set of policies for each cell based on combinations of countries' income segments and production stages (Rodrik and Stantcheva 2021c, 327). They argue that the policy discussion of these sets of policies "could be organized around two questions. First, which income group is the target of the policies intended to address inequality?" (Rodrik and Stantcheva 2021a, 1). "Policy priorities differ depending on whether policies are targeted at the poor at the bottom, the middle class or the top segment of the income distribution" (Rodrik and Stantcheva 2021a, 2). Second, at what stage of the economy should the policy intervention take place? "Pre-production stage policies" are those shaping the endowments that individuals and households "bring to the market such as education and skills, financial capital, social networks and social capital. Production stage policies are those that directly shape the employment, investment and innovation decisions of firms" (Rodrik and Stantcheva 2021a, 2); and "post-production stage policies" are redistribution policies that transfer income and wealth once they have been realized.

Source: Rodrik and Stantcheva (2021a, figure 1).

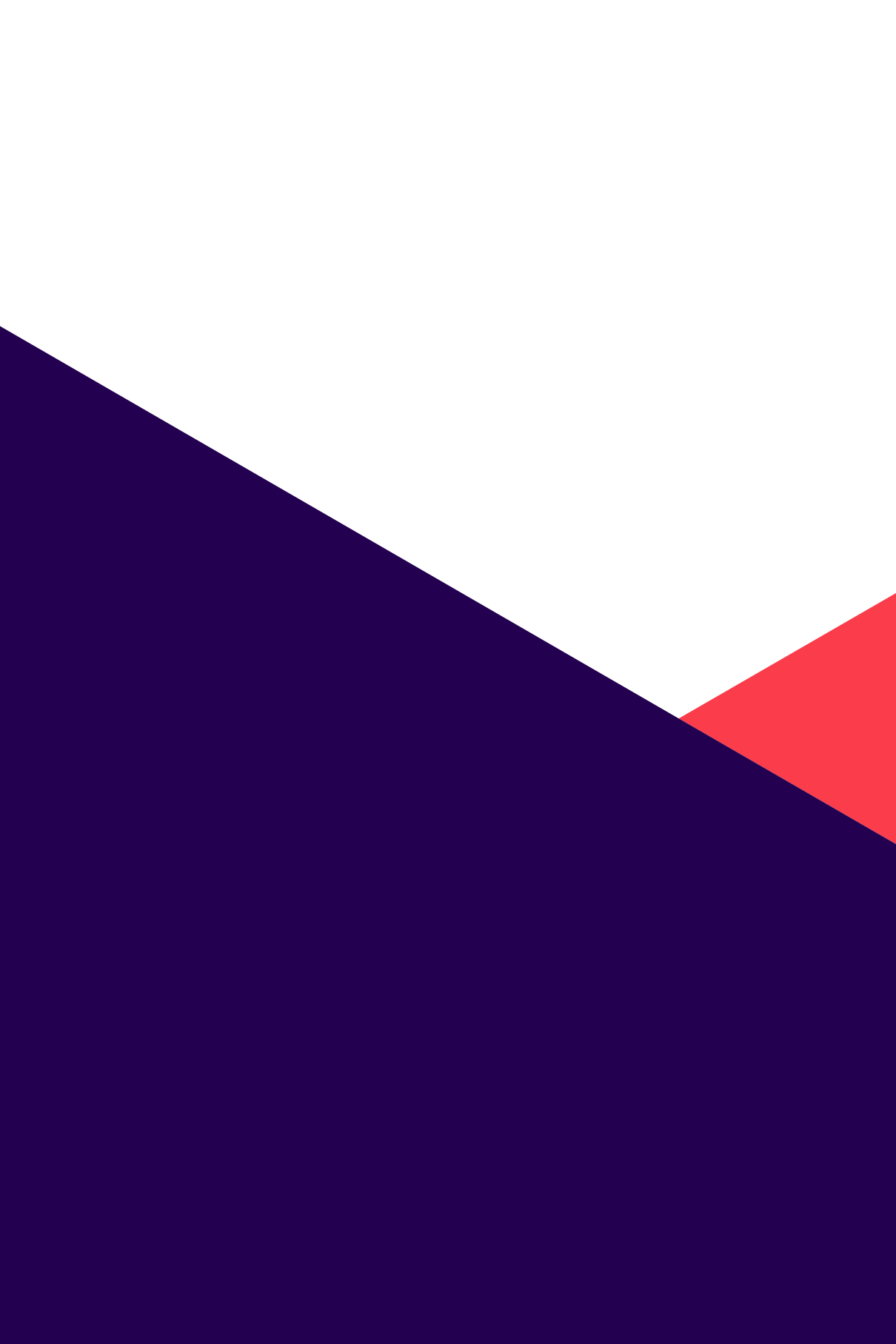
► Appendix II

Areas of skills gaps frequently seen in the agrifood value chains of developing countries



... and entrepreneurship across every stage of the value chain

Source: ILO (2020c, figure 2).

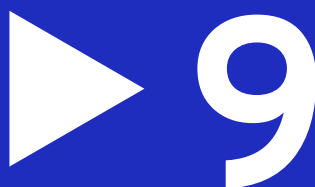


Trade and informality:

Transition to formality and decent work

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► Introduction

Since the 1970s, informality has garnered increased attention, as numerous studies found that “poor people managed to make a living with small-scale activities which were not illegal, but were often not being recognized, recorded, protected and/or regulated” (ILO 1972, cited in ILO 2020, 144). The definition of informality has changed over time. The term “informal sector” used in the early 1970s was replaced by the concept of “informal economy” in 2002.¹ Since then, there has been a continuous and intense debate over the concept and definition of informality. Different interpretations have emerged ranging from informality as pent-up potential to informality as a parasitic organizational structure that hampers economic growth. Scholars have also explored the reasons behind informality’s existence as well as the appropriate measures and policies to tackle it (La Porta and Shleifer 2014) or to promote a development process leading to formal job creation.

One might initially presume that international trade has little to do with the informal economy, given that it is a highly competitive and productive area associated with frontier technologies. Despite the seemingly tenuous link between trade and informality, it is important to acknowledge that trade influences the degree of informality and vice versa (Sinha 2009). Developing countries often export primary products, such as minerals and crops, with minimal processing and a significant involvement of informal workers. Manufacturing activities in the lower tiers of GVCs, such as in the textile sector, are also often performed at home by informal workers in arduous working conditions (Textile Value Chain 2022).

Simultaneously, the engagement in international trade and foreign direct investment has the potential to create learning opportunities by facilitating knowledge transfer and knowledge diffusion,

1 This variation is partly reflective of the discussions held during the 90th Session of the International Labour Conference in June 2002. During this conference, the ILO made the decision to discontinue use of the term “informal sector”. This change was prompted by the realization that the term “sector” denotes a distinct specific industry group or economic activity. Instead the ILO adopted the much broader term “informal economy”, which encompasses a continuum of informal employment found in both the formal and informal sectors, as well as informal enterprises. The International Labour Conference adopted a resolution in 2002 where “informal economy” was taken to refer to “all economic activities by workers and economic units that are – in law or in practice – not covered or insufficiently covered by formal arrangements” (La Hovary 2014). Recommendation No. 204, adopted at the 104th Session of the International Labour Conference in June 2015, uses the same definition and further specifies that the informal economy does not cover illicit activities.

in particular at the local level (Ola-David, Alege and Oyelaran-Oyeyinka 2015). Trade may also play a role in facilitating structural transformation,² as in the case of export-led growth observed in South-East Asia. Structural transformation is a major driver of changes in a country's labour market structure by promoting the transition of segments of informal employment to formality.

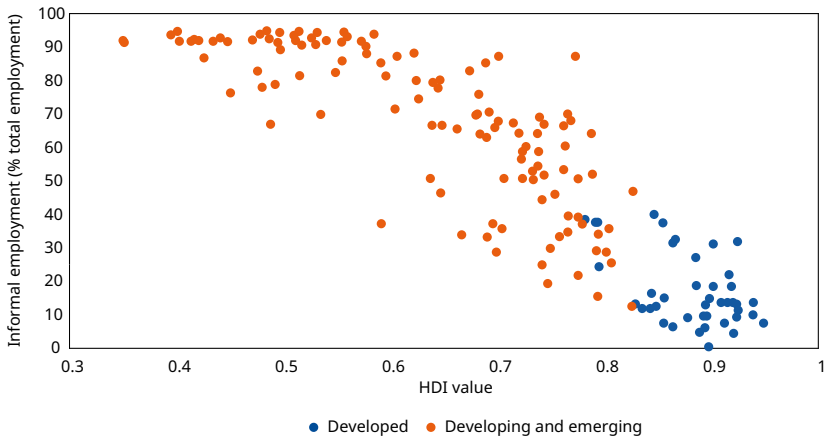
Traditional trade theories (Gopinath, Helpman and Rogoff 2022; Stiglitz 2002) do not allow an adequate analysis of trade and informality, because they typically assume a context of full employment – without making any distinction between formal and informal employment (ILO 2021) – and a costless labour market adjustment. Consequently, these theories generally neglect the painful transition process for enterprises and workers or the overall development impact, which could be quite negative. Even though trade generates aggregate benefits, the gains are often shared unevenly across sectors, subsectors, industries and firms, but also geographically across regions and between factors of production such as capital and labour (Bacchetta et al. 2021). These distributional effects cause rising inequality through the labour market channel. “New” trade theory and “new-new” trade theory focus more on the intersectoral and intrasectoral effects of trade on informality (ILO 2021).

Indeed, international trade, if accompanied by an appropriate policy and regulatory framework, can promote structural transformation, for example through export-led growth shifting the economy from low- to high-productivity sectors (Ghose, Majid and Ernst 2008). Accordingly, trade has the potential to contribute significantly to increasing the share of formal workers in the economy. This transition to formalization would be an important step in improving the gains from trade, fostering decent work and achieving the SDGs.

An international comparison of national data by the ILO (ILO 2018a) demonstrates a negative correlation between informality and the Human Development Index (figure 9.1). In a similar vein, an additional analysis conducted by the ILO (Leung 2021) demonstrates a negative correlation between the level of GDP per capita and the share of informal employment in total employment. Hence, more development and growth goes hand in hand with a decline of informal employment (ILO 2018a).

2 With regard to trade and structural transformation, which in general implies the move from low-productivity agriculture to the higher-productivity manufacturing sector, UNCTAD (2016) distinguishes between three phenomena: (a) “catch-up industrialization” like that of East Asian countries; (b) “stalled industrialization” with pockets of excellence, but limited technical spillovers, as observed in India or Mexico; and (c) “premature deindustrialization”, as experienced in South America or Northern Africa.

► **Figure 9.1** Share of informal employment (percentage of total employment) versus Human Development Index, by level of economic development, selected countries, latest available year



Note: All estimates have a common set of operational criteria, which defines informal employment and employment in the informal sector as a worker's main job. See box 2 in ILO (2018a) for a detailed explanation of how informal employment is measured. The Human Development Index is a measure developed by the United Nations Development Programme (UNDP) that tries to include the overall level of accomplishment in key aspects of human development.

Source: ILO (2018a, figure 17).

In this regard, governments and the social partners have increasingly been prioritizing the transition from the informal to the formal economy in their policies, but with considerable variation in their approaches and even in the terminology used. Indeed, the choice of terminology is very much related to the perception of the problem and thus also influences the policy choice (Chacaltana and Leung 2020). The Transition from the Informal to the Formal Economy Recommendation, 2015 (No. 204) also recognizes the vast heterogeneity of the informal economy, and highlights the fact that there are various reasons why workers end up in informal employment.

Policy options to promote the transition to formality thus depend very much on factors such as the structure of labour markets, the pattern of informality, and institutional and normative settings (ILO 2020). One of the key findings in the main conclusions of a recent ILO study (Chacaltana and Leung 2020) is that labour market composition determines significantly the overall informality rate of an economy. Without modifying labour market structures, it would be highly challenging to lower informality rates in a sustained manner. Informality is more associated with the levels and patterns of development than with choices made by the individual.

Against this background, this chapter will shed further light on the relationship between trade and informal employment, in particular on the circumstances in which trade or increased trade could enhance the transition towards formality. The analysis is based on a review of the literature in section 9.1, together with statistical analysis of recent global trends in trade and labour market data in section 9.2; and policy analysis on transition to formalization through trade policy in section 9.3. Section 9.4 draws the chapter's conclusions.

► 9.1 Trade and informality: What the theory and empirical evidence tell us

9.1.1 Theoretical approaches

In a typical developing country, national demand for products is rather limited and the elasticity of demand for consumption products is low, hampering economic growth (Weisskoff 1969). As a result, there is limited scope for increased revenue from domestic sales, and little incentive to increase productivity, to widen the variety of goods and services, or to improve their quality. Trade presents an opportunity to expand the destination market for nationally produced goods and services, but also to obtain imports of much-needed final or intermediate goods, which may also stimulate national production. Alternatively, increased imports could lead to a decline in the consumption and production of national goods that are less competitive than imported ones, which could have a negative impact on growth and (mostly industrial) development.

Trade indirectly influences informal employment via its impact on productivity and growth. Overall, trade openness is positively correlated with per capita income and economic growth, both of which are loosely tied to the rise of formality. Recent research by Bacchetta et al. (2021) has demonstrated that an increase in trade openness of 1 per cent of GDP is associated with per capita GDP being 2 to 6 percentage points higher; while an ILO study points to a negative correlation, albeit a weak one, between economic growth (generated by trade) and informality (Chacaltana, Bonnet and Garcia 2022). Economic structure and the patterns of growth are aspects which shape informality. In that regard, economic diversification and complexification,

along with the level of technology used, have a strong influence on the transition towards a more formal economy, as discussed further below. The sectoral distribution of GDP and the pattern of GDP growth also matter (Leung 2021). Structural change is considered the key driver of growth and of reduction of the share of informal employment in the economy. The reallocation of jobs across sectors is an important aspect of structural change and productivity upgrading. Informal activities and enterprises are generally less productive than formal ones. The rise in productivity as a result of increased trade may be associated with the structural transformation process – that is, a diversification of the economy moving towards higher-productivity sectors, or towards subsectors within a sector, which leads to a higher share of formal employment and to strong and sustained growth and development (Islam and Lapeyre 2020).

Thus, another (more direct) channel whereby international trade influences informal employment is through the evolution of trade flows at the sectoral level impacting directly on informal units and workers. International free trade in a context of perfect competition may generate net positive welfare and productivity effects worldwide, but increased trade may also have both positive and negative effects on specific firms and countries in the short to long run.³ Trade opening influences trade flows, creating new export opportunities, but it also means having to cope with higher import penetration and competition, and having to address how these changes in exports and imports directly affect informal units and workers.

At the individual level, the effects of trade liberalization will also depend on its sectoral pattern, on where poor and informal workers live (rural versus urban areas), their individual characteristics (skill level, gender), the type of trade policy change (that is, whether it leads to increased import competition or export opportunities) and where individuals work (type of industry, firm size, formal/informal sector) (Bacchetta et al. 2021).

Trade liberalization often leads to stiffer competition for domestic firms. This could result in higher informality because companies shed formal jobs to lower production costs (Fugazza and Fiess 2010; Ulyssea, Bobba and Gadenne 2023). According to Melitz (2003), a rise in competition through

3 However, at present there is far from perfect free trade worldwide owing to various kinds of unilateral trade restrictions and bilateral, subregional and regional trade agreements and preferences, all of which have a distorting effect.

trade opening causes the more productive companies to enter the export market and the least productive ones to exit, leading to a rise in productivity.⁴

Additionally, unilateral trade liberalization, combined with financial deregulation and the retreat of extensive state interventions (UNCTAD 2016), may lead to strong import competition and limited growth in certain sectors, the disappearance of entire sectors and subsectors, and the bankruptcy of some formal enterprises.⁵ Barriers to trade, such as high administrative and quality requirements and challenges related to logistics, transport, language and culture, are even more cumbersome for smaller, informal enterprises and the self-employed in the informal economy than for larger firms in the formal economy. A period of transition towards a new and higher economic equilibrium could be costly and painful for some types of workers and firms and endanger social equality and justice.

Thus, the relationship between trade liberalization and informality is ambiguous from a theoretical point of view.

9.1.2 Empirical evidence

9.1.2.1 Trade and productivity

There is a significant gap in labour productivity between the traditional and modern parts of the economy in developing societies. A key driver of inclusive development is labour flows from low- to high-productivity activities. The empirical results presented by Fugazza and Fiess (2010) suggest that productivity in the informal sector increases after trade opening, but that liberalization also encourages the dissemination of knowledge, innovation and technological upgrading through “learning by exporting” and skills accumulation, which are key channels for raising growth. As pointed out by Bacchetta et al. (2021) and Cerra et al. (2021), solid evidence can be found in the literature showing the positive impact of trade liberalization

4 This was demonstrated by Cisneros-Acevedo (2022) for Peru, where trade liberalization led to the exit of informal companies with low productivity, causing a decrease in informality on the “extensive margin” where workers were hired by unregistered firms. At the same time, formal companies in Peru hired informal workers to cut costs because of stronger competition, leading to a rise in the “intensive margin” of informality. In general, greater labour demand among (old and new) exporting firms may put upward pressure on formal or informal wages depending on which force dominates, possibly leading to a rise in informality.

5 Indeed, the conventional wisdom that import liberalization may lead to job displacement in the short run, but not in the long run, has not been confirmed by empirical results (Görg 2011).

on productivity in the manufacturing sector, which can be explained by the reallocation to more productive companies or by improvements within firms (see also De Loecker and Goldberg (2014); Melitz and Redding (2014); Ahn et al. (2016); Dix-Carneiro et al. (2021)). This would imply that only the most productive informal enterprises remain active and even expand production after trade opening, which confirms the findings of Bacchetta et al. (2021).

A study by McMillan and Rodrik (2011) showed more nuanced results. For countries such as India, China and some other East Asian economies, increased trade led to increased productivity because of structural transformation and growth. Many other countries, mainly in Africa and Latin America, exhibited an opposite trend towards less productive activities and thus a larger informal economy. This can be ascribed to the fact that in those countries structural transformation detracted from overall growth. A large proportion of their exports is accounted for by the extraction of natural resources, which may be highly productive but is not very labour-absorbing.

Indeed, productivity differentials are an important feature in countries with high levels of informality (IMF 2017, 2021; La Porta and Shleifer 2008; Chacaltana and Leung 2020). Recent data have made it possible to better assess such differentials. Estimates by the International Monetary Fund in 2019 show that informal GDP in sub-Saharan Africa was close to 34 per cent of total GDP between 2010 and 2017 (IMF 2021). Meanwhile, the ILO estimates that the rate of informal employment in sub-Saharan Africa was about 89.2 per cent in 2016. This would mean that informal workers, who account for almost 90 per cent of the workforce in sub-Saharan Africa, generate 34 per cent of GDP, while formal workers, who make up the remaining 10 per cent, produce 66 per cent of GDP in that region. The productivity differential between the formal and informal economy is therefore enormous with a value of 17 times (ILO 2020). The same study finds that informal units are in general small and extremely unproductive compared with small, medium-sized and large firms in terms of value added, sales and output per worker. The findings of World Bank Enterprise Surveys in sub-Saharan Africa suggest that the productivity level of informal firms is significantly lower than that of their formal counterparts, as one would expect (IMF 2017). The productivity of informal firms is on average about 25 per cent of that of small formal firms and just 19 per cent of that of medium-sized formal firms in terms of real output per employee. A lower level of physical capital and workers' skills lies behind this productivity differential.

Various country studies have investigated the relationship between trade, productivity and employment:

- ▶ De Loecker and Goldberg (2014) and Melitz and Redding (2014) demonstrate that trade openness raises productivity across countries and particularly benefits sectors in which lower tariffs reduce input costs.
- ▶ Ferreira and Rossi (2003) observed improved productivity in specific industries in Brazil as a result of the trade reforms of the late 1980s.
- ▶ Dix Carneiro et al. (2021) found that in Brazil gains in productivity are understated when the informal economy is omitted. By the same token, while the repression of informality improves productivity, at the same time it has a negative effect on welfare and employment. However, the productivity effect does not depend only on trade changes but also on existing institutions; that is, on labour and product markets (Dix Carneiro et al. 2021).
- ▶ Bacchetta et al. (2021) observed trade shifts in general production towards sectors that have the highest comparative advantage but often not the highest employment potential.
- ▶ Ahn et al. (2016), in a global study, showed that the indirect impact in downstream industries with a high share of informal activities mostly accounts for the rise in productivity, and not the direct effects in targeted upstream sectors.
- ▶ Experience from Latin America suggests that the key factor to productivity growth is not trade but the internal structure of the economy, the availability of skills and the degree of specialization. No virtuous circle could be found between structural change due to trade opening, the rise of product and productivity and the absorption of underemployment (Cimoli 2005).

Countries' experiences show, therefore, a general trend that increased trade does lead to increased productivity and lower informality, but can also negatively affect formal employment. The total effect does not seem very significant and other effects may play an even bigger role (for example, institutions). Therefore, productivity gains in the formal sector do not automatically translate into an overall productivity gain across the economy, including the informal economy, because of overall demand constraints. Whether the gains in the export sector generate activities in the rest of the economy depends on the trajectory and robustness of economic growth.

9.1.2.2 Trade opening and its impact on informal employment

Trade opening, leading to changes in import and export flows, has had different impacts on countries, depending on their level of development and on different segments of the labour market, such as formal and informal workers.

Table 9.1 provides an overview of global studies primarily analysing the impact of trade opening on the labour market, with a particular focus on informality (including wage considerations). The studies do not provide a definitive assessment on whether trade opening has led to a reduction or increase in informality, including from a gender perspective. The impacts of trade opening are contingent upon various contextual factors, such as the sector involved, trade partners, the extent of tariff reductions, non-tariff barriers and others. Additionally, it is crucial to consider the timing and sequence of trade opening, as well as the broader international circumstances during the specific period of implementation.

► **Table 9.1 Trade opening and informal employment: country cases**

Author	Country	Topic	Main finding
Aleman-Castilla (2006)	Mexico	Impact of NAFTA	Lower import tariffs related to lower informality in tradables
Dix-Carneiro et al. (2021)	Mexico	Impact of NAFTA	Informality decreased less in manufacturing with a higher level of import penetration
Ben Yahmed and Bombarda (2020)	Mexico	Tariff cuts and employment, gender	Tariff cuts increased the probability of working formally for both sexes. In the services sector, women were less likely to work formally
Bacchetta, Ernst and Bustamente (2009)	Mexico	Impact of trade liberalization on wages	Trade opening widened the gap between formal and informal wages, and increased the skill premium
Paz (2022)	Brazil	Import penetration from China and RoW	Higher imports led to higher likelihood of manufacturing jobs becoming informal
Goldberg and Pavcnik (2003); Bosch, Goñi-Pacchioni and Maloney (2012)	Brazil	Trade and informality	No significant relationship between informality and trade. Labour market institutions and reforms have a stronger impact on informal employment than trade opening

Author	Country	Topic	Main finding
Bacchetta, Ernst and Bustamente (2009)	Brazil	Impact of trade liberalization on wages	Trade liberalization narrowed the gap between formal and informal wages
Cisneros-Acevedo (2022)	Peru	Increased import competition and informality	Extensive informal employment declined and intensive informal employment increased, which drove the overall effect leading to higher informality
Cruces, Porto and Viollaz (2018)	Argentina	Trade reforms and informality	Reduction in industry tariffs increased labour informality; higher effect in industries with small enterprises
Sinha (2010)	India	Trade reforms and informality	Fall in import tariffs led to a decline in demand for regular labour, and an increase in supply of informal employment
Bacchetta, Ernst and Bustamente (2009)	India	Impact of trade liberalization on wages	Trade liberalization raised informal wages in manufacturing through the reallocation of capital from the formal to the informal sector
Artuc et al. (2019)	India	Increase in exports	Higher exports reduced the level of informality in India, especially for male, urban workers and low-skilled workers, and increased their wages, but also inequalities
Davies and Thurlow (2009)	South Africa	Trade opening and employment	Trade opening lowered employment and affected informal producers and workers negatively; positive impact on informal traders
McCaig and McMillan (2020)	Botswana	Trade liberalization and jobs	Trade liberalization caused a rise in the prevalence of working in an informal firm or being self-employed; mixed effects on unemployment; decline in hours worked and monthly income

Additionally, other studies have found that trade liberalization is sometimes closely associated with deindustrialization, particularly in developing nations. Summarizing various studies on sub-Saharan Africa, Shafaeddin (2005) concluded that trade liberalization has often caused some degree of deindustrialization in that region, mainly due to the fact that many developing countries there are latecomers to industrialization. Their industries are at an earlier stage of infancy than those of other countries and face stiff competition from international firms (Altenburg and Melia 2014). This situation may even result in stalled industrialization, as in the case of Mexico and, to some extent, Indonesia and Thailand in the late 1990s, or even in deindustrialization and increased informality, as shown in several

studies on Latin American countries in the 1980s and 1990s (Bogliaccini 2013; UNCTAD 2016).

On the plus side, trade may lead to new export opportunities for informal workers and units in export sectors with high growth potential in their respective value chains. The challenge is to get from export opportunities to real exports. As formal companies may not be able to fully meet the new export potential, informal companies can seize these opportunities if they manage to overcome certain limitations preventing them from operating as exporters, such as lack of information on the quality requirements of destination countries, logistical bottlenecks and lack of access to export insurance services.

9.1.2.3 Trade and informality in global value chains

GVCs are a prominent feature of international trade. There are different views of the impact of GVCs on informality. According to Rodrik (2018), GVCs are in general biased towards skills and other capabilities, thereby limiting the comparative advantage of developing countries in labour-intensive manufacturing activities and reducing their gains from trade. Second, developing countries face difficulties in using their labour cost advantage to offset their technological disadvantage, since GVCs reduce their ability to substitute unskilled labour for other production inputs.

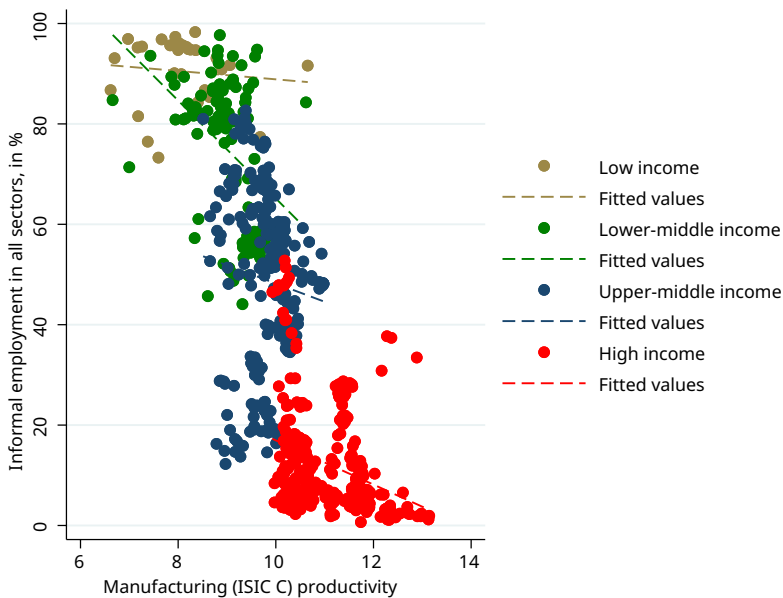
Various studies of deregulation have demonstrated that outsourcing and competitive pressures within GVCs have led, through the shifting of costs and risks down the chain, to increasing levels of informality and poverty in the countries involved (see, for example, Jütting, Parlevliet and Xenogiani (2008); Chen (2007)). In his review of the literature, Görg (2011) similarly noted that offshoring may lead to a reshuffling of employment and labour displacement that affects mostly unskilled workers and workers in the non-tradable sector, in which the bulk of informal labour is to be found. Informal workers often contribute to the extraction or cultivation of primary products and do not participate in processing; they may work informally in formal enterprises or they may work at home and deliver their inputs to formal enterprises, as in the textile sector (Abramo 2022). According to a recent study by Herr and Teipen (2022), social downgrading as a result of participation in GVCs was observed in Bangladesh, India and Viet Nam, but there are also the positive examples of Brazil and South Africa, where accompanying active public policies, together with measures taken by the social partners (in particular trade unions), enabled social upgrading.⁶

⁶ For more positive examples, such as Mexico and Viet Nam, also with a gender focus, see World Bank (2020, 76–91).

9.2 Global trends

An analysis of data from 2009 to 2019, encompassing a large sample of economies, confirms a noteworthy and positive correlation between productivity and exports.⁷ Given that exporting is typically associated with higher productivity, it is pertinent to examine the relationship between productivity and informal employment across countries at different levels of development.

► **Figure 9.2** Informality in all sectors versus manufacturing productivity, by country income group, selected countries, 2009–19



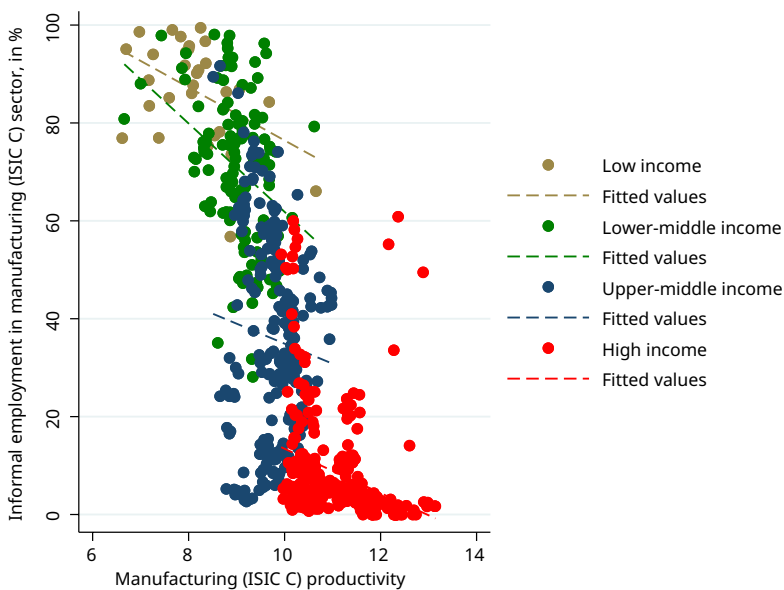
Note: The y-axis shows the share of informal employment in total employment as a percentage; the x-axis shows manufacturing productivity, measured as value added by the manufacturing sector (in current US dollars), divided by the total number of employees (both formal and informal) in the manufacturing sector. Country-year observations: 699. Each marker is one country-year observation for the years between 2009 and 2019.

Source: ILOSTAT database for informality in all sectors and total number of employees in manufacturing; [World Bank World Development Indicators](#) for value added by the manufacturing sector.

⁷ Specifically, a correlation coefficient of +0.48, with $p < 0.001$, for a pair-wise correlation of the natural logarithms of productivity and exports for 2009–19 ($N = 337$, excluding high-income countries).

As can be seen in figure 9.2, informality in all sectors is negatively correlated with manufacturing productivity (value added per employee), with the correlation coefficient (that is, the gradient of the slope) being quite close to that of manufacturing informality versus manufacturing productivity (figure 9.3). The relatively flat slope for low-income countries should be noted here: it can mostly be explained by the high prevalence of agriculture, where the rate of informal employment is over 60 per cent, compared with less than 5 per cent in manufacturing. This becomes clearer if one focuses on the two main sectors, agriculture and manufacturing (see figures 9.3 and 9.4).

► **Figure 9.3** Informality versus productivity in the manufacturing sector, by country income group, selected countries, 2009–19



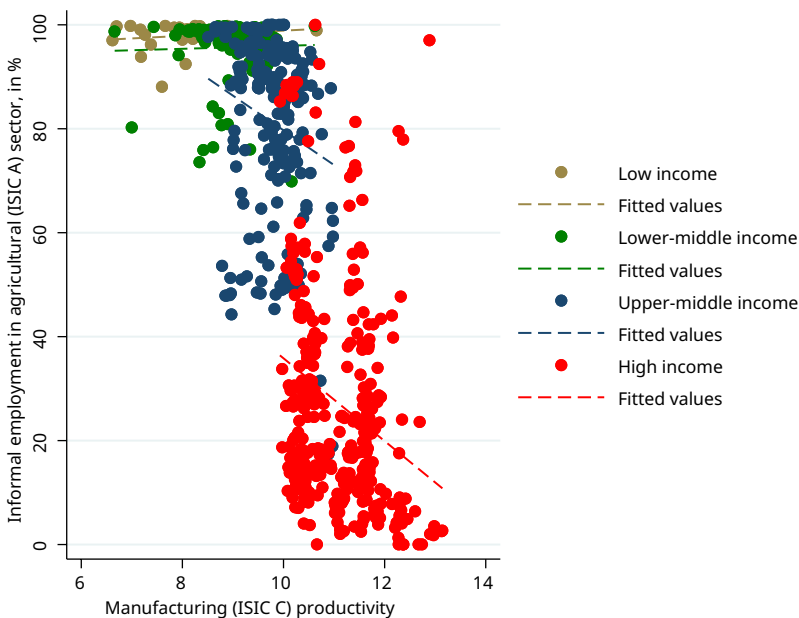
Note: The y-axis shows the share of informal employment in total employment in the manufacturing sector (ISIC Rev. 4, section C) as a percentage; the x-axis shows manufacturing productivity, measured as the value added by the manufacturing sector (in current US dollars), divided by the total number of informal workers in the manufacturing sector. Country-year observations: 696. Each marker is one country-year observation for the years between 2009 and 2019.

Source: ILOSTAT database for informality rate and informal employment in the manufacturing sector; [World Bank World Development Indicators](#) for value added by the manufacturing sector.

Analysis of the manufacturing sector (figure 9.3) reveals a negative correlation between productivity and informal employment. From 2009 to

2019, the countries with higher manufacturing productivity tend to have lower informality. The slope is similar for high-, upper-middle- and low-income countries. The correlation for lower-middle-income countries is more negative than for the other income groups, which we assume may be explained by their lower level of manufacturing development.

► **Figure 9.4** Agricultural informality versus manufacturing productivity, by country income group, selected countries, 2009–19



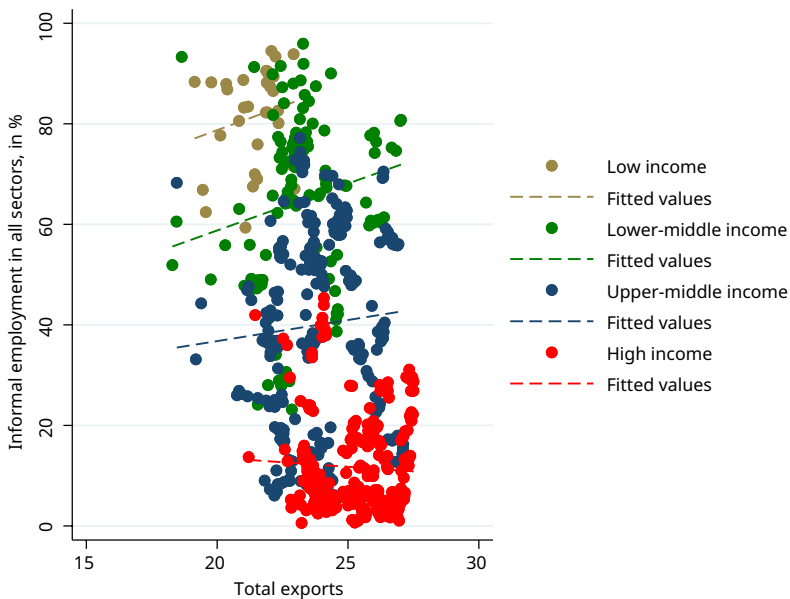
Note: The y-axis shows the share of informal employment in total employment in the agricultural sector (ISIC Rev. 4, section A) as a percentage; the x-axis shows manufacturing productivity, measured as the value added by the manufacturing sector (in current US dollars), divided by the total number of informal workers in the manufacturing sector. Country-year observations: 696. Each marker is one country-year observation for the years between 2009 and 2019.

Source: ILOSTAT database for informality rate in the agricultural sector and informal employment in the manufacturing sector; [World Bank World Development Indicators](#) for value added by the manufacturing sector.

Regarding agriculture (figure 9.4), it may be observed that spillover correlation (between manufacturing productivity and agricultural informal employment) is limited to high-income and upper-middle-income countries, whereas the slope for lower-middle-income and low-income countries is essentially flat.

Figure 9.5 shows the correlation between informal employment in all sectors as a percentage of total employment and total exports of goods in current US dollars over the period 2009 to 2019. One would expect higher exports to reduce overall informality. However, this is not the case for low-income, lower-middle-income and, to a lesser extent, upper-middle-income countries, which exhibit the opposite trend. This could be mainly due to two factors. The first is data limitations (fewer observations), although that is insufficient to explain the same phenomenon for lower-middle-income countries, for which there is a higher number of observations. The second factor is that the majority of informal workers (above 50 per cent) are concentrated in agriculture. Overall informal employment in all sectors (the y-axis) is primarily driven by the agricultural sector in lower-middle-income and low-income countries. Intuitively, as exports increase, the agricultural sector experiences less spillover improvement in terms of formalization.

► **Figure 9.5 Overall informality versus total exports, by country income group, selected countries, 2009–19**



Note: The y-axis shows the share of informal employment in total employment in all sectors as a percentage; the x-axis shows merchandise exports. Country-year observations: 723. Each marker is one country-year observation.

Source: ILOSTAT database for informality rate in all sectors; [World Bank World Development Indicators](#) for data on exports.

As expected, a scatter plot of informality in manufacturing versus manufacturing exports (see figure A1 in the Appendix) reveals a negative correlation. Upper-middle-income countries have a slightly steeper slope than the rest, indicating a stronger correlation between the two variables. This may reflect the process of transition to formality, where export-oriented production itself provides the incentive for labour migration from the agricultural to the manufacturing sector (in which workers are more likely to be in formal employment). However, the formality effect also depends on political and economic institutions, which often reflect a country's development and income levels (see, for example, Acemoglu, Johnson and Robinson (2005)).

A comparable scatter plot for agriculture (see figure A2 in the Appendix) reveals a negative correlation solely for high-income countries, whereas all other countries do not exhibit an increase in formal employment with increased agricultural exports. This observation implies that the backward and forward linkages between agriculture and manufacturing in these countries are relatively limited, indicating a potential for enhancement through the promotion of international trade.

In summary, recent research demonstrates that informality can respond to trade opening either positively or negatively in terms of employment and income, depending on national circumstances and the characteristics of a given industry (Fugazza and Fiess 2010). There is no distinct relationship between trade and informal employment, as other factors – such as the institutional and regulatory setting of each country; the timing, sequencing and extent of trade liberalization; and the time taken to adjust to the new context – significantly impede the relationship.

► 9.3 Policies promoting transition to formality through trade

9.3.1 Diversification and informality

Economic diversification through trade is key to economic development as a country moves to a more diverse production and trade structure, leading to reduced economic volatility, less dependency and sustained growth.

Diversification also means moving labour from low-productivity, informal jobs, traditionally in agriculture, to higher-productivity, formal ones, often though not exclusively in urban areas. Indeed, a recent ILO study drawing on country data from 1991 to 2019 found that the degree of formalization depends on a country's economic structure and pattern of growth (Chacaltana, Bonnet and Garcia 2022). Public policies should therefore promote diversification, sectoral complexification and technological sophistication to increase the number and quality of jobs, thereby fostering the transition to formality (Brenton, Gillson and Sauvé 2019). A good example is provided by countries in East Asia that achieved such a growth transition in the 1990s by adopting an export-led strategy, which began with the exporting of labour-intensive manufactured goods.

According to Usman and Landry (2021), economic diversification also leads to fiscal diversification, which means expanding the sources of government revenue and raising public expenditure targets. Such diversification may be essential to facilitate broader economic transformation through the expansion of activity in specific sectors, subsectors, industries or geographical areas.

Some studies have suggested that diversification in most developing regions, especially in Africa, should focus on agriculture and mining, as these two sectors account for a large share of regional GDP. Countries in such regions should, it is argued, follow an industrialization strategy based on backward and forward linkages from and to these sectors – in particular, agricultural demand-led industrialization through agro-processing and input supplies and spillovers (Altenburg and Melia 2014). As a result, increased agricultural productivity would have a positive impact on non-farm employment in the rural area. This is a strategy with considerable potential to benefit many poor people in rural areas.

During a mission to Africa in 2017, the then Managing Director of the International Monetary Fund, Christine Lagarde, mentioned some countries that had successfully shifted their resources into higher-productivity sectors (including sectors outside the natural resources industry):

- Rwanda, which had experienced a rapid shift of employment and output from basic agricultural production to higher-value activities, in particular services.
- Botswana, which had built on its comparative advantage in diamonds by moving up the value chain into diamond cutting, polishing, trading and retailing.

- ▶ Mauritius, which had switched from single-crop farming in the 1960s to more sophisticated agriculture, tourism, manufacturing and financial services (Lagarde 2017).

Greater diversification does not automatically mean further inclusion of informal workers in the labour market, but a recent study by Moyo (2016) has shown precisely that in the case of two of the above-mentioned countries, Botswana and Mauritius. Key policies used to that end were the provision of intensive support to micro, small and medium-sized enterprises and local contractors (through, for instance, the Local Enterprise Authority in Botswana), including support to achieve higher productivity and thus competitiveness (through, for example, skills policies that also targeted low-skilled and unskilled workers); the use of local resources (including innovation and technology); the support of domestic demand for those enterprises' products; and regional trade integration schemes. In both countries, the state played a crucial role in promoting a long-term development strategy oriented towards exports, and in combining trade and industrial policies with enterprise development and labour market policies, together with associated policies in the fields of energy, transport and communications, with a special focus on labour market inclusion.

Rwanda increased its exports by about 20 per cent annually from 2000 to 2016 thanks to a new policy framework for the diversification of its export portfolio (including services, apparel and leather products, mechanical appliances and beverages, and agro-processing products), while at the same time improving the quality of traditional commodity exports (such as coffee). Regional markets have played a key role in supporting this diversification (Brenton, Gillson and Sauvé 2019).

Chile is also an example of a country that has followed a two-track diversification strategy in the mining and agricultural sectors: (a) diversification "within" the industry, for example, improving the quality of copper extraction and exporting processed goods, thus increasing the value added (this is complemented by the development of domestic ancillary and logistics services); and (b) diversification "across" industries (for example, the development of the salmon industry and increased exporting of high-value-added agricultural products, in particular wine, fruit and vegetables) (WTO and OECD 2019). Moreover, Chile has a structural fiscal surplus rule and sovereign funds so that the revenue from mineral extraction can be saved and invested in areas that are critical for the country's growth. This has freed up resources to promote the development of advanced skills, but also to facilitate the creation of high-growth start-ups in promising sectors, such as salmon farming (Brenton, Gillson and Sauvé 2019).

9.3.2 Global and regional value chains

Recent country experience has shown that GVCs have the potential to create new and better jobs for informal workers, but that they can also lead to casualization and higher employment insecurity. Within GVCs, the lead firm does not, in general, transfer key competencies to suppliers as that would be a way of creating future competitors and would be at odds with its profit-maximizing goal. Integration into global markets therefore requires active public policies to trigger economic catch-up through economic and social upgrading. Otherwise, developing countries will find themselves trapped in low-tech and labour-intensive production with a high level of informality according to their comparative advantages (Herr and Teipen 2022).

Instead of pursuing immediate global expansion, regional integration can serve as a viable strategy to mitigate the challenges faced by small and less developed economies. This is particularly relevant as neighbouring countries often have similar demand conditions, which are comparatively less challenging for local producers to fulfil than exporting to industrialized countries.

An interesting example is the Better Work programme launched by the ILO and the International Finance Corporation in 2007 with a view to improving the labour situation of both informal and formal workers in GVCs in the textile sector, especially that of women, who are often employed informally in formal enterprises (ILO n.d.). The programme has succeeded in continuously improving compliance with core labour standards and national legislation (for example, on compensation, contracts, OSH and working time), leading to better working conditions at factories and greater productivity and profitability.

As always, much depends on the policy and regulatory framework set up by each country, as well as on the international context. Nadvi (2004) and the World Bank (2020) stress the importance of attracting global buyers and thus foreign direct investment, but also of ensuring that these are committed to promoting the upgrading of skills and improving the returns to local firms so as to facilitate their integration into more advanced GVCs. The aim should be to remove the barriers preventing informal workers from participating in GVCs so that they can access job opportunities with higher added value in the world market (AfDB, OECD and UNDP 2017).

In some Latin American countries (Brazil, Ecuador, Mexico and Peru), efforts have been made to develop value chains that link the informal parts with the formal ones – for example, by making the formalization of employment a prerequisite for supplier firms to participate in public procurement (Abramo 2022).

Through consumer pressure and related institutional pressure, various frameworks and norms have been designed with the final aim of formalization, for example, on regular working hours, the respect of minimum wages, OSH or working conditions (Meagher 2019). Under its new regulatory approach to GVCs, the EU has been paying particular attention to due diligence legislation,⁸ including in its more recent trade agreements. The focus is on preventing human rights abuses (Rudloff 2022), which in this context also applies to informal employment within GVCs. Unfortunately, the implementation of such due diligence laws has not been so effective: they have ignored some important aspects (such as freedom of association) or exhibited monitoring and enforcement deficits (Madhav and von Broembsen 2021). Additionally, various multinationals have demonstrated a commitment to eliminating the use of precarious and informal types of employment in their GVCs, but sometimes with the perverse effect of excluding informal workers from the value chain instead of trying to improve their working conditions.

Regional value chains (RVCs) are different from GVCs, as countries export finished, but also intermediary products primarily within the region or sub-region. This allows them to climb up the ladder in value chains by using the region for enhancing their competitiveness when they start producing and exporting goods and services of higher value. The regional market can also serve as a stepping stone for subsequent expansion to other countries and the creation of RVCs, which can link more effectively with GVCs, thereby also improving these countries' bargaining power vis-à-vis multinationals (UNCTAD 2018). RVCs offer interesting new opportunities for the development of trade and employment creation, not least for lower and unskilled workers, in supplying a less competitive regional market. However, there are only a few specific examples, mainly from Asia, that can be considered a clear success so far.

UNCTAD (2018) presents a useful illustration of a regional opportunity by looking at the leather sector in Africa. The region has a comparative advantage in this sector owing to the abundance of raw material, low-cost processing capabilities and export opportunities for leather products. Nevertheless, Africa's potential is still far from being fully tapped because of low regional integration and hence limited intraregional trade in leather goods (about 14 per cent of the region's global exports), severely limiting the scale of production and lowering the region's cost competitiveness.

8 The European Commission, for example, has adopted a directive on corporate sustainability due diligence to promote sustainable and responsible corporate behaviour throughout GVCs, not least with regard to the use of informal and precarious employment (EC 2022).

It is hoped that the promotion of RVCs will make African countries more cost competitive and increase their bargaining power in negotiations with multinationals, as well as improving their capability to climb up the GVC for leather and additional products (see, for example, MacLeod in Volume 2).

9.3.3 Digital transformation of trade and formalization

The penetration of digital technologies in trade and formalization offers another angle from which to look at the relationship between the two and its implications for policymaking. Digital trade,⁹ especially e-commerce, involves cross-border sales and therefore contributes to international trade; its most relevant contribution is turning non-tradable services into tradable ones in the form of digital products.

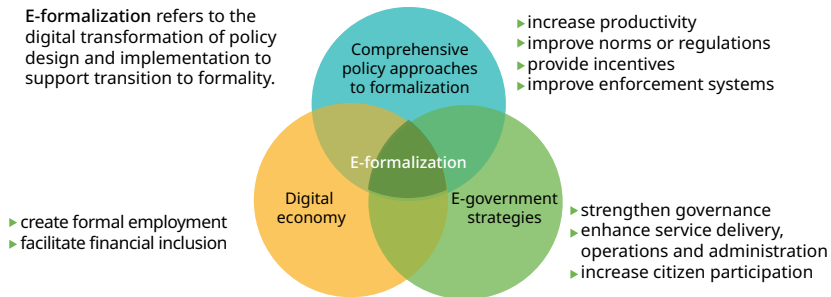
While the extent to which e-commerce contributes to international trade depends very much on the nature of the product to be delivered physically or digitally, some analysts argue that e-commerce is still expected to create new employment opportunities directly and indirectly, including high-skilled jobs. It may also destroy some jobs by changing the traditional way of doing business (ECLAC 2002). Others have argued, though, that e-commerce increases informality in the short term because operational and financial risks are often allocated to weaker participants in the value chain who are employed by subcontractors and mainly operate informally, creating unfair transnational competition among workers with different levels of social protection (Spatari 2019). That is why policymakers need to understand better what type of e-commerce activities and related policies can ensure that the positive impact of digital trade on employment and labour productivity extends to informal workers and facilitates their transition to formality.

Before and during the COVID-19 crisis, developing and developed countries around the world – for example, in Colombia (Olivera 2022), the Republic of Korea (Kring and Elder 2022) and Estonia (Divald 2021), and at the regional level in Europe (Williams 2021) – were using digital technologies to facilitate formalization, thus increasingly including workers in the informal economy. The concept of “e-formalization” can be described as the aggregate effect of three interlinked approaches and actions: (a) coordination across a range of government policy areas that are relevant for transitions to formality; (b) support for the digital economy, of which digital trade, especially

9 According to UNCTAD (2022), “digital trade” refers to both digitally ordered trade in goods and services (cross-border e-commerce) and digitally delivered trade (services delivered internationally through the internet or other networks) (see also UNCTAD (2021)).

e-commerce, forms an important part; and (c) development of e-government services (figure 9.6) (Kring and Leung 2021).

Figure 9.6 Policy spheres linked to e-formalization



Source: Kring and Leung (2021).

Although informality is a persistent problem in rural areas in developing countries, the case of China shows that e-commerce offers employment opportunities for semi-skilled workers and other vulnerable groups in rural areas who face barriers to entry into the formal labour market. The findings of a survey of “Taobao villages” in the country (that is, villages participating in e-commerce via the Taobao online platform) suggest that digital trading has created such opportunities through three main channels: (a) fostering entrepreneurship (such as self-employed e-shop owners); (b) creating jobs directly related to e-commerce (such as e-shop workers and jobs that directly serve e-shops, including website designers, models to advertise products and photographers); and (c) creating jobs indirectly related to e-commerce with upstream or downstream linkages (such as logistics services and providers of materials and intermediate inputs for e-shops). The Taobao village model has revitalized rural areas and reduced poverty levels among the local population (World Bank and Alibaba Group 2019).

The experience of different countries confirms that the success of e-formalization very much depends on the extent to which supporting policies, including the delivery of public services through digital technologies, focus on improving conditions and expanding opportunities for informal workers. The beneficial effects of digital transformation on trade and formalization can only be realized fully if the process is managed properly and geared towards pro-poor, inclusive outcomes. It is important to maximize the potential of e-commerce and develop coordinated strategies with the right

mix of economic and institutional policies that are tailored to each national context (Leung 2021).

► 9.4 Conclusion

As this chapter has made clear, increased trade and exports will not automatically lead to a universal transition to formality and a higher share of formal employment. Trade may increase the demand for national products, improve a country's economic diversity and, thereby, increase production and productivity. It may open up new export opportunities and help to integrate national producers effectively into RVCs or even GVCs. On the other hand, export expansion may also imply greater vulnerability to external factors (Shafaeddin 2005) and thus higher economic volatility. Increased import competition can even lead to a deindustrialization process; countries may find themselves stuck in a "low-level" specialization or at the bottom of the value chain with poor working conditions and potentially a rise in informality.

Successful trade depends on a number of factors: the regulatory and institutional framework and the macroeconomic context; the setting of policies (not just labour market policies, but also industrial, trade and associated policies) at the national and international level;¹⁰ the timing and sequencing of trade reforms and associated reforms;¹¹ the (previous) level of development; and various intersectoral and intrasectoral factors. These policies must be first of all coherent and integrated, but also inclusive, proactive and designed to tackle the specific challenges faced by informal units and workers when it comes to participating in international trade and in global and regional value chains.

The aim should be to enhance domestic absorptive capacity, which is key to innovation, productivity growth and output (Ola-David, Alege and Oyelaran-Oyeyinka 2015). This is very much related to the promotion of

¹⁰ This implies, among other things, political stability, the enforcement of contracts, property rights, standards for certification, and respect for labour rights. Developing countries also benefit from privileged access to industrialized countries through the international trade system and its mechanisms (including RTAs, WTO rules, tariff escalation and rules of origin), but this rarely translates into higher exports, so those mechanisms should be reviewed and strengthened.

¹¹ As emphasized by Altenburg and Melia (2014), such reforms should be implemented at a slow pace, giving even informal workers and units time to learn and adapt their productive activities to the new circumstances, and they need to be accompanied by a series of focused support measures (policies, regulations, institutions).

informal apprenticeship and the recognition of prior (informal) learning (Hofmann et al. 2022; ILO 2018b). Such efforts tie in with capacity-building for small informal enterprises, including capital mobility and formalization of credit. Linkages between firms should be reinforced across subsectors of the private sector and modern investments should be used for technology diffusion. There are various ethical trade initiatives that aim – through networking and alliances between companies and/or non-governmental organizations in developed countries and local producers in developing countries – at facilitating informal and small producers' access to international markets, improving trading conditions, raising income, and enhancing consumer awareness with the help of networks between local firms in developing countries and international firms and non-governmental organizations at the international level (ILO 2007 and Chant 2008).

Other labour market policies (such as public employment services, regulations on OSH and working conditions, and special targeted interventions for young people and women) could complement these support measures. Respect for the labour rights of informal workers has to be guaranteed and their participation in social dialogue promoted. Trade, accompanied with a right and integrated policy mix could therefore provide a positive contribution to inclusive development.

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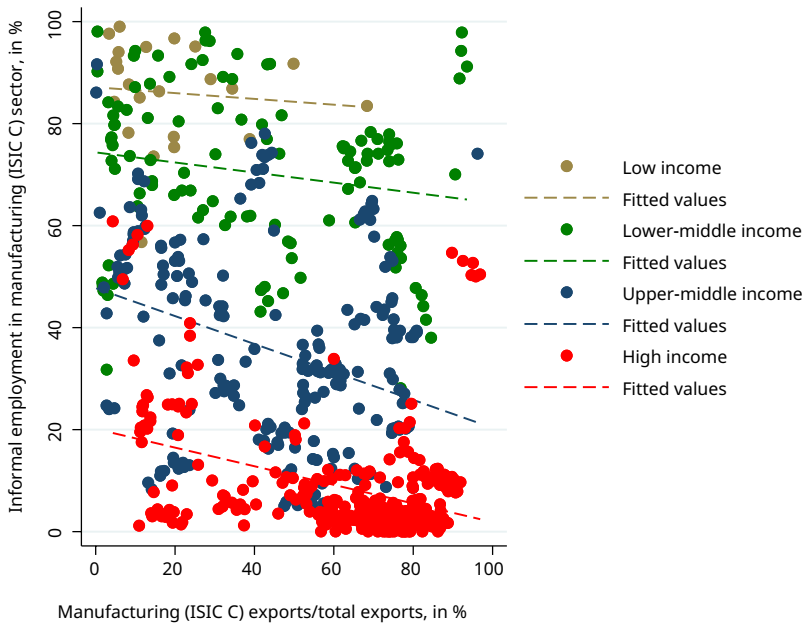
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► Appendix

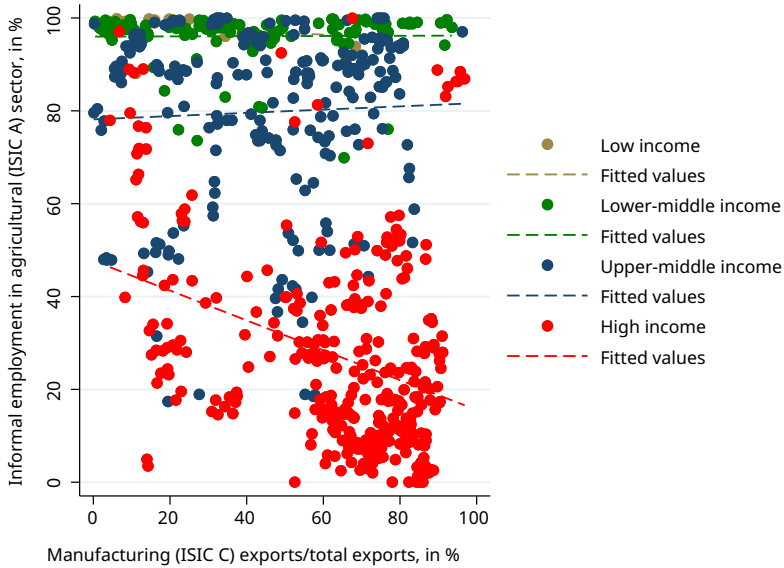
► **Figure A1** Manufacturing informality over share of exports in manufacturing (scatter plot), 2009–19



Note: y-axis is informal employment in the agricultural sector (ISIC Rev. 4 section level A), in percentage, 100 = 100%; x-axis is manufacturing exports (as % of merchandise exports) of country in year t (this is essentially a proxy for manufacturing focus of export), 100 = 100%. Country-year observations: 694. Each marker is one country-year observation, 2009–19.

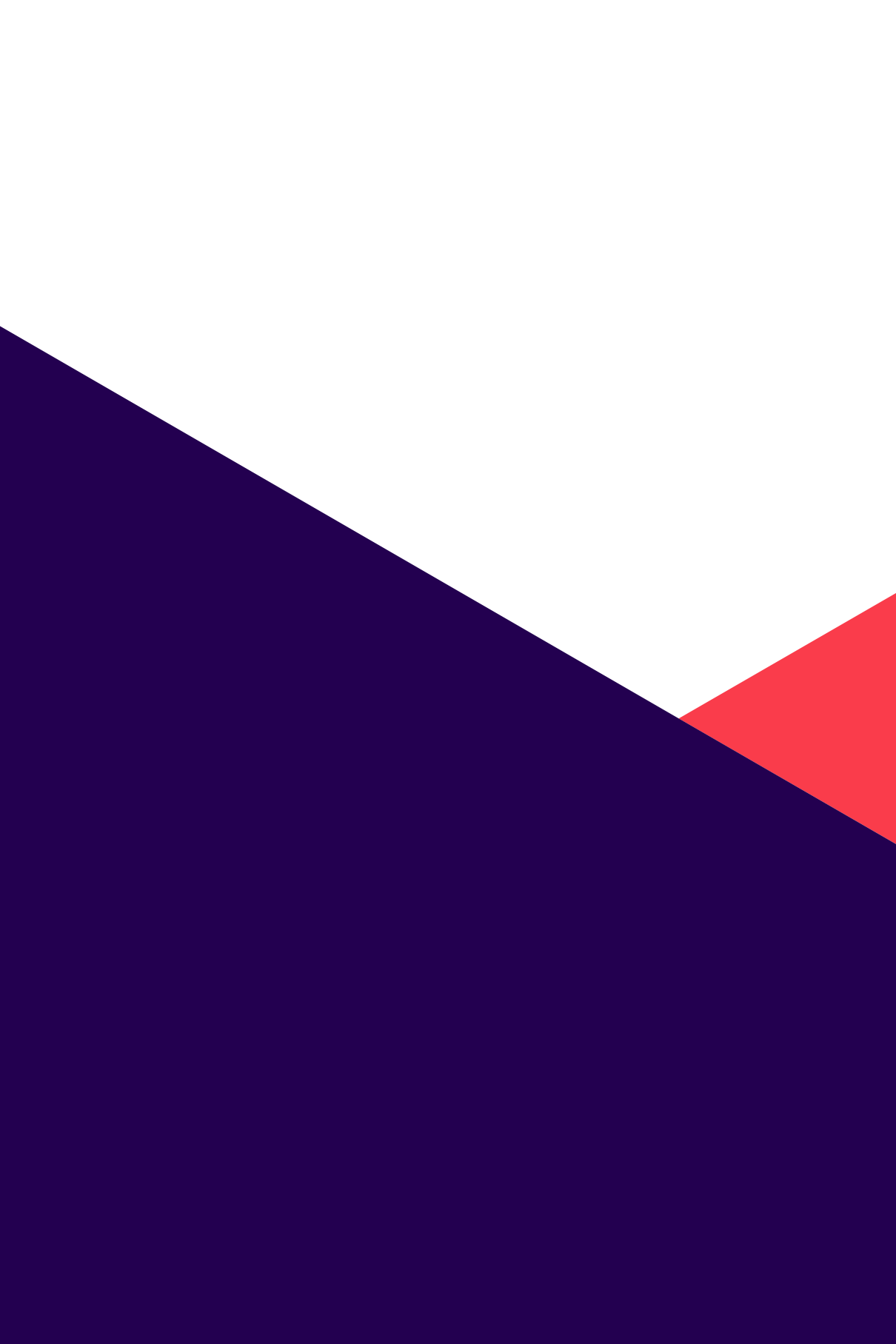
Source: ILOSTAT, [World Bank World Development Indicators](#).

► Figure A2 Agricultural informality over share of exports in manufacturing (scatter plot)



Note: y-axis is informal employment in the agricultural sector (ISIC Rev. 4 section level A), in percentage, 100 = 100%; x-axis is manufacturing exports (as % of merchandise exports) of country in year t (this is essentially a proxy for manufacturing focus of export), 100 = 100%. Country-year observations: 691. Each marker is one country-year observation, 2009–19.

Source: ILOSTAT, [World Bank World Development Indicators](#).



The ILO's support on labour commitments in trade agreements

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► Introduction

The ILO is the lead organization in the setting, promotion, ratification and supervision of international labour standards. It also has the mandate to assist Member States in the effective implementation of these standards. ILO Conventions, Recommendations and Protocols to the Conventions, unlike any other international standards, are developed through a global tripartite procedure and lay down obligations mainly for ratifying Member States of the ILO while providing guidance to all interested States. Yet these instruments (or the principles deriving from them) are increasingly part of private initiatives and mechanisms of international economic law, such as trade agreements (Delautre, Echeverría Manrique and Fenwick 2021). Indeed, references to international labour standards in trade agreements have increased since the turn of the twenty-first century, with recent agreements providing for various roles to be played by the ILO – either through explicit mention of the ILO in the text of an agreement or through Member States' requests for ILO assistance in the negotiation and implementation of agreements (Raess and Sari 2018; Corley-Coulibaly, Postolachi and Tesfay 2019; ILO 2017).

In line with its normative mandate, the ILO may assist Member States using all its means of action, including technical advice and development cooperation, which should always take into account specific circumstances and the national context. Experience has shown that trade policy and trade agreements can act as catalysts for countries' engagement with the ILO to enhance the implementation of labour standards on the ground, be it through the ILO's support for the ratification of international labour standards, the provision of advice on the legislative and policy reforms required to implement such standards, the use of innovative strategies targeting tradable sectors at the country level, or a combination of these.

Building on the existing literature, but drawing mostly on practitioners' insights into the specific cases examined, the present chapter studies the various strategies and means of action used by the ILO, in line with its normative mandate, in relation to diverse trade arrangements entered into by Member States. This analysis is undertaken mainly through the lens of the ILO's ongoing Trade for Decent Work (T4DW) project, which covers countries in Asia, Africa and Latin America benefiting from unilateral trade preferences or trade agreements. It is followed by a discussion of an innovative area of ILO action, namely observation of workplace democratic processes prompted by labour reforms in Mexico and supported by the USMCA. The examples considered offer food for thought on various ways of strengthening the ILO's

work to advance social justice through the labour provisions integrated into the new generation of trade agreements.

► 10.1 The ILO's mandate on trade and labour standards

In its Declaration of Philadelphia (1944), subsequently annexed to the original ILO Constitution from 1919, the International Labour Conference recalled that “lasting peace can be established only if it is based on social justice” and affirmed the ILO’s responsibility to “examine and consider all international economic and financial policies and measures in the light of this fundamental objective”. Furthermore, it tasked the ILO with “further[ing] among the nations of the world programmes which will achieve ... the effective recognition of the right of collective bargaining, the cooperation of management and labour in the continuous improvement of productive efficiency, and the collaboration of workers and employers in the preparation and application of social and economic measures”.¹

This mandate was subsequently strengthened through various instruments and discussions at the ILO, in particular through the intense discussions on the linkages between trade and labour standards and through the development of the ILO Declaration on Fundamental Principles and Rights at Work (1998).² More specifically, the Declaration³ reaffirms the ILO’s mandate to promote fundamental rights at work and the obligation of ILO Member States to respect, promote and realize, in good faith, the following principles underlying those rights: “(a) freedom of association and the effective recognition of the right to collective bargaining; (b) the elimination of all forms of forced or compulsory labour; (c) the effective abolition of child labour; (d) the elimination of discrimination in respect of employment and occupation; and (e) a safe and healthy working environment” (para. 2). This obligation on Member States is irrespective of the status of ratification of

1 Declaration concerning the aims and purposes of the ILO, Part II(d) and Part III(e).

2 For an overview of the linkages between the [ILO Declaration on Fundamental Principles and Rights at Work](#) and the general debate on trade, see, for example, Hansenne (1999), Tapiola (2018) and Servais (2020).

3 The 1998 Declaration was amended in 2022 to include “a safe and healthy working environment” as a fifth fundamental principle and right at work. In that regard, an area for further research is the incorporation of rights related to OSH into present and future trade agreements.

the related ILO Conventions. The preamble to the Declaration underlines that guaranteeing these fundamental principles and rights is of particular significance in that “it enables the persons concerned to claim freely and on the basis of equality of opportunity their fair share of the wealth which they have helped to generate, and to achieve fully their human potential”. In addition, the Declaration makes it clear that “labour standards should not be used for protectionist trade purposes” and that “the comparative advantage of any country should in no way be called into question” (para. 5). Given its universal nature in the sense of being applicable to all ILO Member States, the 1998 Declaration has become a reference point for trading partners interested in ensuring compliance with the above-mentioned fundamental principles. Indeed, 79 out of the 109 existing trade agreements with labour provisions refer to the Declaration.⁴

A decade later, the ILO Declaration on Social Justice for a Fair Globalization (2008) emphasized that the fundamental principles and rights at work are enabling conditions for the ILO and its Member States to fully realize the four strategic objectives embedded in the Decent Work Agenda: employment, social protection, social dialogue and rights at work. These objectives are “inseparable, interrelated and mutually supportive” (Part I (B)). The Declaration also calls upon the ILO to “provid[e] assistance to Members who wish to promote [the] strategic objectives jointly within the framework of bilateral or multilateral agreements, subject to their compatibility with ILO obligations” (Part II (A) (iv)). Furthermore, the Social Justice Declaration notes that “the violation of fundamental principles and rights at work cannot be invoked or otherwise used as a legitimate comparative advantage” (Part I (A) (iv)).

The ILO’s mandate to support decent work, including through trade policy, has more recently been reaffirmed in various instruments adopted by tripartite consensus in response to the new challenges facing the world of work. In 2019, on the occasion of the ILO’s Centenary, the International Labour Conference asserted that “[o]n the basis of its constitutional mandate, the ILO must take an important role in the multilateral system, by reinforcing its cooperation and developing institutional arrangements with other organizations to promote policy coherence in pursuit of its human-centred approach to the future of work, recognizing the strong, complex and crucial links between social, trade, financial, economic and environmental policies”.⁵

4 ILO Labour Provisions in Trade Agreements Hub, consulted on 24 April 2023.

5 ILO Centenary Declaration for the Future of Work, Part IV(F).

In view of the transformations faced by employers and workers worldwide as a result of the COVID-19 crisis, which has had an impact on all economic activities, the ILO was called upon by the International Labour Conference in 2021 to “coordinate decent work objectives and capacity-building assistance more closely with international trade and investment policies to widen the benefits of international trade and investment and promote decent work” and to “promote fiscal, monetary and trade and investment policies that aim at achieving inclusive, sustainable and resilient economic growth as well as full, productive and freely chosen employment and decent work”.⁶ In addition, the ILO was instructed to step up its support for Member States, including by “strengthening policy advice, capacity-building and technical assistance in support of ... sound labour relations and the promotion of legal and institutional frameworks based on international labour standards, including fundamental principles and rights at work”.⁷

The ILO executes its mandate by various means of action. First and foremost, it does so by supervising the application of international labour standards through regular and special procedures. The regular procedures comprise the work of the Committee of Experts on the Application of Conventions and Recommendations (CEACR) and the Conference Committee on the Application of Standards. The special procedures include the submission of representations and complaints pursuant to, respectively, articles 24 and 25 and articles 26 to 34 of the ILO Constitution, and cases brought before the Committee on Freedom of Association, which examines specific violations of standards or principles related to freedom of association, irrespective of whether the country concerned has ratified the relevant Conventions (ILO 2019; Curtis and Wolfson 2022).⁸

The ILO supervisory bodies monitor compliance with international labour standards and identify gaps in law and practice at the national level that hinder the full realization of the rights guaranteed and protected by these standards. They examine, through regular or special procedures, information provided directly by governments and employers’ and workers’ organizations, and highlight areas that warrant particular attention and

6 [Global Call to Action for a Human-Centred Recovery from the COVID-19 Crisis That Is Inclusive, Sustainable and Resilient](#), Part II (14)(d).

7 [Global Call to Action](#), Part II (13)(b)(i).

8 “The Committee’s existence derives from the fundamental constitutional obligation and the desire of the ILO’s constituents to contribute to the effective implementation of the principles of freedom of association. ... Since its creation in 1951, the Committee has been given the task to examine complaints alleging violations of freedom of association whether or not the country concerned has ratified the relevant ILO Conventions. ... The mandate of the Committee consists in determining whether any given legislation or practice complies with the principles of freedom of association and collective bargaining laid down in the relevant Conventions” (ILO 2018a, paras 4, 6 and 9).

sectors in the economy (including tradable sectors) where there are challenges in the realization of the rights protected by international labour standards. In addition, the ILO supervisory bodies can rely on other means of action to assist Member States in complying with their obligations as set out in international labour standards. For instance, the CEACR has noted that “[t]he combination of the work of the supervisory bodies and the practical guidance given to Member States through development cooperation and technical assistance has always been one of the key dimensions of the ILO supervisory system” (ILO 2022a, para. 121). The Committee on Freedom of Association often reminds Member States of this possibility and invites them to avail themselves of the ILO’s technical assistance to align their laws and practice with principles and standards on freedom of association and collective bargaining.⁹

Development cooperation programmes supported by the ILO can help to promote action to address gaps in law and practice related to compliance with international labour standards and principles that are frequently embedded in trade agreements (ILO 2016; Corley-Coulibaly, Grasselli and Postolachi 2023). Indeed, the ILO’s research shows that one in three trade agreements currently in force includes a reference to labour standards,¹⁰ in particular to the fundamental principles and rights at work (70 per cent), and provides for various means of implementation, including cooperative activities, institutional arrangements (some with the participation of a range of stakeholders) and procedures for dispute resolution (see Corley-Coulibaly, Grasselli and Postolachi in Volume 2).

An important example illustrating engagement in cooperative activities is the ILO’s T4DW project, co-funded by the EU and Finland, which will be examined later in this chapter. The project started in 2019 covering three Asian countries; by 2021 it had expanded to cover six Asian and five African countries and was supporting ad hoc activities in two Latin American countries. Overall, the project has contributed to aligning labour law and relevant practice in line with international labour standards; increasing the institutional capacity of public administrations, the social partners and other relevant stakeholders to support legal reforms and fulfil reporting obligations in relation to international labour standards; and enhancing institutional frameworks to support social dialogue and dispute resolution. Another example of such support, also examined in this chapter, is the ILO’s involvement, upon request, as an observer of the workplace democratic processes that have been initiated following the activation of

9 See, for example, Case Nos 2988 (Qatar), 3386 (Kyrgyzstan), 3385 (Bolivarian Republic of Venezuela), 3339 (Zimbabwe), 3337 (Jordan), 3321 (El Salvador) and 3334 (Malaysia).

10 [ILO Labour Provisions in Trade Agreements Hub](#).

the Facility-Specific Rapid Response Labor Mechanism under the USMCA. Insights into the ILO's role in both mechanisms are provided in the following sections.

► 10.2 Enhancing respect for labour standards through trade agreements

10.2.1 The impact of the ILO's Trade for Decent Work project

10.2.1.1 Promoting the ratification and application of international labour standards

The T4DW project was launched by the ILO in 2019, with funding from the European Commission's Directorate-General for Trade (later joined by Finland as a donor), to focus ILO support on Bangladesh, Myanmar and Viet Nam, with which the EU was engaged in a variety of trade arrangements. The complementarity between these trade arrangements and commitments to international labour standards provided fertile ground for strengthened ILO technical cooperation with the beneficiary countries, with a view to demonstrating that trade can foster decent work. This is in line with long-standing EU policy to promote decent work through trade and investment arrangements, including unilateral trade preferences (see, for example, EC (2015)). The EU has intensified its collaboration with trading partners to ensure adherence to universal values, in particular the promotion and protection of human rights, including core labour standards (EC 2021).

In a recent communication entitled "The Power of Trade Partnerships: Together for Green and Just Economic Growth", the European Commission, after commending the work of the ILO and its Member States "to strengthen and expand such core principles", pledged to step up its "engagement with trade partners in a cooperative process to foster compliance with international labour and environmental standards" and, where necessary, to provide "incentives and support to trade partners for reform processes and capacity building through technical and financial assistance" (EC 2022,

2, 5). The European Commission has called for country-specific priorities to be identified with a view to strengthening, where needed, implementation in a particular field, such as respect for an ILO principle or Convention. To that end, road maps can be adopted and implemented by the EU and its trading partners with the ILO's support. In the above-mentioned communication, the European Commission emphasized that the EU would "continue to promote the ratification of fundamental ILO Conventions", adding: "It [the EU] will focus ratification efforts in support of the identified implementation priorities. This will need to be assessed on a case by case basis, concentrating on issues with a major impact on the effective implementation of fundamental rights" (EC 2022, 6).

Bangladesh benefits from the Everything but Arms initiative, a trading arrangement for least developed countries that grants duty-free, quota-free access to the EU market for all exports except arms and ammunition.¹¹ Following the collapse of the Rana Plaza building in Dhaka in 2013, which resulted in the deaths of over 1,000 workers, the EU, the United States and Canada worked together with Bangladesh to develop the Sustainability Compact, which is anchored on three interconnected pillars calling for action to ensure: (a) respect for labour rights; (b) structural integrity of buildings and OSH; and (c) responsible business conduct (EC, n.d.).

In 2019, under the T4DW project, the ILO provided Bangladesh with technical support and advice to bolster implementation of the Sustainability Compact, including support with the development of a road map and the establishment of a dedicated unit within the Ministry of Labour and Employment to coordinate the national action plan on the labour sector (Bangladesh, Ministry of Labour and Employment 2021). The project further supported the development of standard operating procedures for trade union registration and for dealing with complaints about unfair labour practices and anti-union discrimination.

Despite the support provided, worker delegates to the International Labour Conference in 2019 filed a complaint against the Government of Bangladesh over non-observance of the Labour Inspection Convention, 1947 (No. 81), the Freedom of Association and Protection of the Right to Organise Convention, 1948 (No. 87) and the Right to Organise and Collective Bargaining Convention, 1949 (No. 98), and called for the establishment

11 The Everything but Arms initiative is part of the EU's Generalised Scheme of Preferences (GSP). The GSP comprises three strands: a general arrangement (standard GSP); a special incentive arrangement for sustainable development and good governance (GSP+); and the Everything but Arms initiative. In the event of serious and systematic violations of human rights and labour rights, preferences may be withdrawn temporarily. More details are available from the GSP hub, <https://gsphub.eu/about-gsp/gsp-review>.

of a Commission of Inquiry.¹² The Governing Body of the International Labour Office subsequently requested the Government to develop, in full consultation with the social partners concerned and with the support of the ILO and the secretariat of the workers' and employers' groups, "a time-bound road map of actions with tangible outcomes to address all the outstanding issues mentioned in the complaint".¹³ Since then, the Governing Body has regularly reviewed the progress made by the Government on the road map while deferring its decision on whether to set up a Commission of Inquiry.

The Sustainability Compact and the road map of the Government of Bangladesh in relation to the above-mentioned complaint have complementary and interconnected objectives, all of which have been supported in one way or another by the ILO within the framework of the T4DW project. One recent deliverable under the road map that was supported by the project was the launching of a pilot employment injury insurance scheme in the ready-made garment sector, with a view to ensuring appropriate responses to workplace accidents (ILO 2018b). Numerous activities to increase employers' knowledge and capacity with regard to responsible business conduct have also been carried out. The ILO provided support towards the ratification by Bangladesh, in 2022, of the then outstanding fundamental instruments – the Protocol of 2014 to the Forced Labour Convention, 1930 (No. 29) and the Minimum Age Convention, 1973 (No. 138) – and it is in the process of helping Bangladesh to build the institutional capacity for effective monitoring of and reporting on the implementation of these instruments.

Like Bangladesh, Myanmar has been a beneficiary of the Everything but Arms initiative. In 2018, the EU stepped up its engagement with Bangladesh to assess the country's compliance with 15 core conventions on human rights and labour rights. The T4DW project provided for enhanced support on the ground in Myanmar while the assessment of compliance with those conventions was under way. Up until the February

12 "A Commission of Inquiry is the ILO's highest-level investigative procedure and is generally set up when a Member State is accused of committing persistent and serious violations and has repeatedly refused to address them." Once a decision to establish a Commission of Inquiry is made, the Governing Body appoints three independent members to investigate all of the matters set out in the complaint and make time-bound recommendations on any steps necessary to ensure full compliance with the Convention. For more information, see the ILO web page on its complaint procedure, from where the preceding quotation is derived: www.ilo.org/global/standards/applying-and-promoting-international-labour-standards/complaints/lang--en/index.htm.

13 See *Minutes of the 341st Session of the Governing Body of the International Labour Office* (GB.341/PV); Complaint concerning non-observance by Bangladesh of the Freedom of Association and Protection of the Right to Organise Convention, 1948 (No. 87); the Right to Organise and Collective Bargaining Convention, 1949 (No. 98); and the Labour Inspection Convention, 1947 (No. 81) (GB.341/INS/11(Rev.1)), para. 420.

2021 coup, the activities conducted under the project focused on legal and institutional reforms, building the capacity of the Government, trade unions and employers' organizations, and supporting alternative dispute resolution in the garment sector. Myanmar's ratification, in 2020, of the Minimum Age Convention, 1973 (No. 138) was supported by the project, with further work planned to support steps towards ratification of the Right to Organise and Collective Bargaining Convention, 1949 (No. 98). Moreover, the ILO prepared a compilation of questions and answers on key provisions of international labour standards relevant to the evolving COVID-19 outbreak, and worked with the Danish Embassy and Vision Zero Fund on OSH regulations in Myanmar.

Following the 2021 coup, however, the Governing Body of the International Labour Office decided to appoint a Commission of Inquiry to examine Myanmar's non-observance of the Forced Labour Convention, 1930 (No. 29) and the Freedom of Association and Protection of the Right to Organise Convention, 1948 (No. 87).¹⁴ All work by the ILO on the ground has since then been limited to support for the social partners and civil society organizations in accordance with the United Nations system guidance. Briefings are held with key stakeholders, including embassies and the Myanmar Centre for Responsible Business. The T4DW project was brought to a close in Myanmar at the end of 2022 owing to the restricted space for action, but in the first two years after the coup it supported efforts for the restoration of labour rights on various fronts, including reporting within the United Nations system and before the Governing Body of the International Labour Office, the conduct of research, the promotion of labour standards, and ensuring ready access to information in the Burmese language for the social partners.

Viet Nam also received technical cooperation assistance from the ILO under the T4DW project, in line with the expectations raised by its free trade agreement with the EU, which was signed in June 2019 and entered into force on 1 August 2020. This "new generation" trade agreement highlighted that economic benefits should go hand in hand with guarantees of respect for labour rights enshrined in enforceable provisions of the agreement's Trade and Sustainable Development chapter, which are designed to ensure that there is no "race to the bottom" in terms of standards to attract trade and investment. In the agreement, the Government of Viet Nam committed itself to ratifying and implementing the fundamental Conventions of the ILO and to establishing a domestic advisory group to keep under review the implementation of the Trade and Sustainable Development chapter and to meet regularly with the corresponding group established by the EU (see also

¹⁴ See [Decisions Adopted by the Governing Body at the 344th Session \(GB.344/Decisions\)](#), "Institutional Section", No. 12.

Marslev and Staritz in Volume 2).¹⁵ With the support of the T4DW project and on the basis of a clear timeline, the Government ratified the Right to Organise and Collective Bargaining Convention, 1949 (No. 98) in June 2019 and the Abolition of Forced Labour Convention, 1957 (No. 105) in July 2020. Again, with support provided under the project, a work plan is in progress for ratifying, in the near future, the remaining fundamental Convention, namely the Freedom of Association and Protection of the Right to Organise Convention, 1948 (No. 87). Meanwhile, the foundations have been laid with the revision of the Labour Code in 2019 and ongoing work on the 2012 Trade Union Act. The National Industrial Relations Commission has been reformed and given a broader mandate to ensure stronger tripartite engagement.

Ongoing activities under the T4DW project in Pakistan and the Philippines are aimed at strengthening compliance with the fundamental Conventions, including in the framework of the EU's GSP+, while those in Mongolia are supporting the goals of the EU's Partnership and Cooperation Agreement with that country, which highlights the parties' commitment to decent work and social dialogue. Mongolia adopted a new Labour Act on 2 July 2021, and though many issues remain, the CEACR, in its latest examination of the application of Convention No. 98, welcomed the inclusive scope of the new legislation covering all workers.¹⁶

While different economic arrangements govern the relations between the EU and several African countries, the expansion of the T4DW project to that continent, with the additional support of Finland, testifies to the importance of decent work for all aspects of development and to the interconnectedness of social, economic and environmental rights. In 2022, the activities under the project were extended to reflect the guidance provided by international labour standards with regard to: (a) facilitating a just transition to a green economy; (b) capacity-building to enable the social partners to develop appropriate policy guidance for lifelong learning in a context where certain jobs may be phased out; and (c) ensuring decent work as part of a just transition. Intensified collaboration with relevant United Nations agencies has further increased the project's impact in terms of promoting decent work.

15 See also Chapter 13 of the [Free Trade Agreement between the European Union and the Socialist Republic of Viet Nam](#), specifically articles 13.1–13.5 and 13.10–13.17.

16 [CEACR direct request concerning the application of Convention No. 98 by Mongolia](#) (adopted in 2021 and published at the 110th Session of the International Labour Conference in 2022).

10.2.1.2 Lessons learned from the project

As shown in the preceding section, strengthened technical cooperation within the framework of a diversity of trade arrangements has achieved notable results, including ensuring an enforceable commitment to respect for international labour standards that is subject to robust public review.¹⁷ Although issues may remain, this sustained assistance has facilitated gradual progress, especially where clear timelines were set by the beneficiary country. The ILO's support to governments in their reporting on the application of international labour standards to the ILO supervisory bodies, together with its assistance in building the capacity of the social partners so that they can effectively provide information on implementation from their perspective, has been key to enabling independent and credible review at the international level of the progress made. This cooperation has also created many opportunities for national and global tripartite discussion.

Although the COVID-19 crisis prevented the timely completion of national work plans under the T4DW project, the flexible approach adopted by the ILO enabled rapid and effective adaptation of the project, refocusing the work on communication and sharing with stakeholders the lessons learned from the crisis and examples of effective responses. Significantly, the challenges posed by the crisis served to highlight the importance of a safe and healthy working environment, even before that had been officially recognized as a fundamental principle and right at work. The complementarity between efforts in this area and the work being done to advance a just transition will need to be explored further.

Important substantive developments – such as the ratification of fundamental instruments by Viet Nam and Myanmar, the revision of labour laws in Bangladesh, Mongolia and Viet Nam, and the strengthening of institutions to combat impunity for labour rights violations in the Philippines – were all made possible by the regular assistance and support provided by the ILO through the T4DW project.¹⁸

However, technical cooperation cannot be effective in all circumstances; regrettably, in the case of Myanmar, the project activities based on tripartite dialogue and debate were forced into abeyance by the military coup. Nevertheless, with support from the EU, the ILO managed at first to adapt and find appropriate avenues to advocate for labour rights without giving legitimacy to the coup. By monitoring the situation on the ground

¹⁷ For more information on the ILO supervisory system, see ILO (n.d.).

¹⁸ See further details on the ILO web page on the T4DW project, https://www.ilo.org/global/standards/WCMS_697996/lang--en/index.htm.

and maintaining close contact with the social partners, the ILO was able to provide up-to-date information to guide subsequent policy decisions on Myanmar within the United Nations system.

A key strength of the T4DW project in all the countries in which it has been launched is its adaptability. As noted by the European Commission, the project has become “a crucial instrument to support the advances in the implementation of labour commitments in TSD [Trade and Sustainable Development] Chapters as well as for enacting pre-implementation efforts” (EC 2020).

10.2.2 The ILO's experience in supporting Member States' implementation of labour commitments under the United States–Mexico–Canada Agreement

10.2.2.1 National and international background

The effective implementation of labour standards very much depends on strong and representative democratic institutions, including trade unions and employers' organizations. The application of labour standards is particularly important at the local level, where employers and workers should be able to count on an environment conducive to the exercise of the fundamental rights of freedom of association and collective bargaining. Free, independent and democratically elected trade unions provide workers with a stake in the community and a voice in the workplace, which helps them to defend their rights and advance their interests, improve their wages and working conditions, and tackle economic inequality (ILO 2022b). In certain contexts, especially where the voice of workers has been ignored or suppressed for a long time, supporting workers in the exercise of their rights is critical to rebuilding trust in the procedures and institutions established to protect them.

Against this background, the present section looks at an innovative use of the ILO's means of action, namely observation of workplace democratic processes in connection with the far-reaching labour reforms recently implemented in Mexico. The justification for the ILO's support, upon request, in the observation of workplace democratic processes is to be found in the responsibilities incumbent on Member States that have ratified the Freedom of Association and Protection of the Right to Organise Convention, 1948 (No. 87) and the Right to Organise and Collective Bargaining Convention,

1949 (No. 98), as well as in the specific commitments undertaken within the framework of the USMCA,¹⁹ which has been in force since 1 July 2020.

One of the obligations of the three countries that are party to the agreement is to adopt and maintain in their laws and regulations, and in the practices deriving from them, the rights and principles contained in the 1998 ILO Declaration on Fundamental Principles and Rights at Work (art. 23.3). In two annexes to Chapter 31 (“Dispute Settlement”) of the agreement, provision is made for a bilateral Facility-Specific Rapid Response Labor Mechanism applicable between the United States and Mexico and a similar mechanism applicable between Canada and Mexico (USMCA, Annexes 31-A and 31-B). Each mechanism includes a presumption of good faith in favour of either party if it files a complaint alleging that workers at a covered facility²⁰ are being denied the right of freedom of association and collective bargaining (art. 31-A.2). As stipulated by article 31-A.4, the complainant party must first request that the respondent party conduct its own review of whether a denial of rights has occurred and, if the respondent party determines that to be the case, it must attempt to remediate the denial of rights within 45 days of the request. If the respondent party determines that there is no denial of rights, the complainant party may either agree that the issue is resolved or request the formation of a Rapid Response Labor Panel to conduct a separate verification and determination (arts 31-A.5 et seq.). At the time of writing, the mechanism applicable between the United States and Mexico had been invoked on a total of seven occasions to review alleged denials of rights at covered facilities located in Mexico.²¹

Mexico not only implemented the labour justice reforms detailed further below, but also ratified Convention No. 98 on 23 November 2018 for various reasons. These included prominent complaints brought before the Committee on Freedom of Association – in particular, Case No. 2694 regarding “employer protection contracts” (collective bargaining agreements between employers and non-representative trade unions; that

¹⁹ The full text of the agreement can be accessed from the USTR website, <https://ustr.gov/trade-agreements/free-trade-agreements/united-states-mexico-canada-agreement/agreement-between>.

²⁰ As defined in Annex 31-A of the USMCA, the term “covered facility” refers to “a facility in the territory of a Party that: (i) produces a good or supplies a service traded between the Parties; or (ii) produces a good or supplies a service that competes in the territory of a Party with a good or a service of the other Party, and is a facility in a Priority Sector”. A “priority sector” is one “that produces manufactured goods” (which “include but are not limited to aerospace products and components, autos and auto parts, cosmetic products, industrial baked goods, steel and aluminium, glass, pottery, plastic, forgings and cements”), “supplies services, or involves mining” (art. 31-A.15).

²¹ As of March 2023. The relevant requests may be found in USTR (2021a; 2021b; 2022a; 2022b; 2022c; 2023a; 2023b).

is, unions not chosen by the workers themselves)²² – and the discussion at the Conference Committee on the Application of Standards regarding Mexico's implementation of Convention No. 87.²³ In addition, the appeals made by democratic unions in the country over many decades also played an important role in the ratification of Convention No. 98 (Bensusán 2020; Bensusán in Volume 2).

As mentioned above, one of the issues commented on by the ILO supervisory bodies was the widespread use of “employer protection contracts”, or “protection agreements”, in Mexico. These agreements are often made without the knowledge of the workers concerned and do little more than reiterate the minimum standards already established by the Federal Labour Act. In Case No. 2694, the Committee on Freedom of Association examined instances of the use of such agreements and issues of representativeness in the automotive, oil, air transport and manufacturing sectors, among others, together with allegations by the complainants regarding the lack of impartiality of the federal and local conciliation and arbitration boards and the excessive length of their proceedings. This case has been examined on six occasions by the Committee on Freedom of Association, which referred the legislative aspects to the CEACR. After its most recent examination (2018), the Committee was confident that, “in the development and implementation of the constitutional reform and its secondary legislation, in consultation with the most representative workers’ and employers’ organizations, and the national organizations that have supported this complaint, all the necessary measures will be taken to address the different dimensions of the problem of protection agreements and protection unions that have been presented in this case” (ILO 2018c, para. 34).

On numerous occasions in its examination of Mexico's application of Convention No. 87, the CEACR requested the Government to take and to continue taking all necessary legislative and practical measures to tackle the obstacles to the exercise of freedom of association posed by the “protection unions” and “protection contracts”, including reforms to prevent the registration of trade unions that cannot demonstrate that they enjoy the support of a majority of the workers whom they claim to represent.²⁴

The implementation of the labour law reform in Mexico – reflecting the application in law and practice of Conventions Nos 87 and 98 – required the building of new institutions and the strengthening of existing ones. As noted by several authors (see, for example, Bensusán (2020)), it implied a

22 Detailed information on the case is available in the ILO's [NORMLEX database](#).

23 See the discussion and the Conference Committee's comments from 2015, 2016 and 2018.

24 CEACR observations concerning the application of Convention No. 87 by Mexico (2015, 2017, 2018, 2019, 2022).

transformation of the country's industrial relations model. Employers' and workers' organizations, regardless of the new legislative framework, needed to improve their understanding and application in practice of the principles of freedom of association and collective bargaining, and to develop the trust required for a climate conducive to strong labour relations and effective and legitimate collective bargaining.

The comments by the ILO supervisory bodies, along with efforts on other fronts such as the negotiation of trade agreements (including the initial discussions on the Trans-Pacific Partnership Agreement²⁵ and the USMCA) and long-standing pressure from the independent trade union movement and global union federations, triggered first a reform of Mexico's Constitution and subsequently amendments to the Federal Labour Act and associated regulatory reforms. On 24 February 2017, the amendments to articles 107 and 123 of the Constitution entered into force. As a consequence, the Federal Labour Act was amended in 2019 and implementing regulations were issued by the various relevant authorities. The legislative reforms have paved the way for a new labour justice system in the country and enshrined in law the principles of freedom of association and collective bargaining. In particular, the reforms are aimed at ensuring the representativeness of trade union organizations, certainty in the negotiation and conclusion of collective bargaining agreements, and trade union democracy by guaranteeing the personal, free, direct and secret vote of workers.²⁶

On 1 May 2019, the amendments to the Federal Labour Act entered into force, incorporating the above principles. To ensure the representativeness of trade union organizations and legal certainty in the signing and registration of collective bargaining agreements, a process to legitimize existing agreements was put in place. In accordance with the decree amending the Federal Labour Act, all existing collective agreements must be legitimized at least once before May 2023. The legitimization process involves approval of the collective agreement by a majority of the workers covered, through a personal, free, direct and secret vote. If a collective agreement is not approved by the majority of workers or is not legitimized within the established time frame, it is considered to be terminated, in which case the workers retain any benefits and working conditions set out in the terminated

25 The original Trans-Pacific Partnership never entered into force because of the withdrawal of the United States. It was succeeded by the Comprehensive and Progressive Agreement for Trans-Pacific Partnership, which was signed in March 2018.

26 For further information on the legislative reforms in Mexico, see Bensusán in Volume 2.

agreement that are superior to those provided for by the Act, but they are no longer bound to representation by the union concerned.²⁷

In accordance with the Protocol for the Legitimization of Existing Collective Bargaining Agreements,²⁸ the Ministry of Labour and Social Security was in charge of legitimizing collective agreements until the Federal Centre for Labour Conciliation and Registration (CFCRL), a new institution established by the labour reform, began to function in July 2021.²⁹ The CFCRL has its own protocol for the legitimization of collective agreements, which is guided by the principles of “legality, certainty, loyalty, impartiality and efficiency”.³⁰ A public notary may be brought in to support the legitimization process, in addition to the verifying personnel from the CFCRL. The Federal Centre will not issue a legitimization certificate and will declare the process null and void if there is evidence of irregularities that constitute a violation of the rights of freedom of association and collective bargaining, or of acts of deceit, violence or coercion having been committed to affect the outcome of the vote. Moreover, any relevant sanctions under the Federal Labour Act would be applied as well. Similarly, the labour reform requires that the conclusion of new collective bargaining agreements and the mandatory renegotiation of existing agreements, which must take place every two years, be also approved by a majority of the workers covered (Federal Labour Act, art. 390 *ter*).

Another legislative measure adopted to tackle the problem of “protection contracts” and non-representative trade unions is the requirement for unions to be in possession of a certificate of representativeness when seeking to conclude a collective agreement for the first time (Federal Labour Act, art. 390 *bis*). In order to claim exclusive bargaining rights, a trade union must submit an application to the CFCRL, which arranges for the workers concerned to cast their personal, free, direct and secret vote on whether the union is to be issued with such a certificate.³¹

27 Decree amending the Federal Labour Act and other legislation (*Official Gazette*, 1 May 2019), transitory art. 11.

28 Published in the *Official Gazette* on 31 July 2019. The Protocol was subsequently amended to incorporate a mechanism for addressing issues arising during the legitimization process (*Official Gazette*, 4 February 2021).

29 However, the Ministry of Labour and Social Security continued to oversee any legitimization proceedings initiated under its aegis until they were concluded.

30 Protocol for the Procedure to Legitimize Existing Collective Bargaining Agreements (*Official Gazette*, 30 April 2021), art. 15.

31 Article 390 *bis* of the Federal Labour Act sets out the rules for the process. It also indicates which workers may participate in the vote. Workers in positions of trust or those who join the enterprise after the application has been submitted are excluded, while workers who have been dismissed during the three months preceding or following the submission are eligible to participate, except for those who have terminated their employment relationship or whose termination is being examined by a court.

In its first examination of Mexico's application of Convention No. 98, the CEACR, recalling its previous comments related to Convention No. 87, noted the Government's indication "that the necessary legislative and regulatory adjustments have been made to implement a new labour relations model that guarantees the full exercise of freedom of association and workers' representation in collective bargaining, leaving behind the use of protection contracts to promote free and voluntary bargaining". In particular, the CEACR noted with interest the mechanisms for the promotion of collective bargaining introduced as part of the labour law reform, including the specific regulations to ensure the representativeness of trade unions. Moreover, the CEACR requested the Government "to include in the broad tripartite consultation relating to the implementation of the labour reform the treatment of the problem of protection contracts from the perspective of the promotion of collective bargaining, and to provide information on the results, including the identification of any further measures that may be necessary for the application of Article 4 of the Convention, and to continue to provide information to the Committee on the number of collective agreements legally validated and the workers covered".³²

More recently, in August 2022, the Government of Mexico issued General Guidelines for Trade Union Democratic Procedures³³ to complement the existing regulations. For instance, although the CFCRL's legitimization protocol already provided for observers duly accredited by the Centre to be present at workplace votes, their role was somewhat vaguely defined in the previous regulations. The new Guidelines set out the principles that observers should adhere to in their conduct (namely, impartiality, neutrality, objectivity, certainty and legality), along with their rights and obligations.³⁴ In accordance with article 44 of the Guidelines, the CFCRL may invite national and international public, private and social institutions or agencies to participate as observers in the trade union democratic processes organized

³² CEACR direct request concerning the application of Convention No. 98 by Mexico (adopted in 2021 and published at the 110th Session of the International Labour Conference in 2022).

³³ Published in the *Official Gazette* on 17 August 2022.

³⁴ The rights and obligations of observers include: (a) being present before, during and until the conclusion of the consultations, in accordance with the timelines approved by the CFCRL; (b) being present at the place where the voting and the counting and tallying of votes are carried out; (c) observing the proper implementation of the procedures of union democracy; and (d) preparing a report on their activities and submitting it to the CFCRL within five days of conclusion of the consultations (the report should contain, among other things, a description of the process observed and the activities carried out). Observers must also refrain from obstructing the trade union authorities in the exercise of their functions or interfering in any way with the process. In particular, they should not attempt to influence the workers' vote (*General Guidelines for Trade Union Democratic Procedures*, art. 43).

by the Centre, with the invitation to be issued no later than the same day on which the holding of consultations is announced. Observers are obliged to prepare a report for the CFCRL. Although not binding, the report can be used by the labour authorities for the resolution of any complaints arising from the process (art. 43). The Guidelines lay down the requirements to be fulfilled by individuals to be accredited as observers by the CFCRL. However, the trade union or enterprise concerned may request the Centre to withdraw the accreditation if the above-mentioned principles for the conduct of observers are violated. In addition, the CFCRL must immediately withdraw observer accreditation if a conflict of interest comes to light (arts 41 and 42).

10.2.2.2 The ILO as an observer in the legitimization of a collective bargaining agreement at the General Motors factory in Silao, Mexico

On 20 and 21 April 2021, the Miguel Trujillo López Union, an affiliate of the Confederation of Mexican Workers, called upon workers at the General Motors factory in Silao, in the state of Guanajuato, to participate in the legitimization of the collective bargaining agreement that it had concluded with the company. The notice triggering the legitimization process was registered with the Ministry of Labour and Social Security on 23 March 2021. A total of 15 labour inspectors and 9 national observers became involved.³⁵ In their reports, the labour inspectors flagged various irregularities that had occurred before and during the workers' vote, such as the destruction of ballots and ballot boxes. The Ministry received two complaints regarding the process on 24 and 28 April 2021, of which the first was rejected because it did not comply with the procedural requirements established in the relevant legal framework. The second complaint was accepted for review on 3 May 2021.

The Ministry of Labour and Social Security proceeded to analyse the complaint, drawing on the reports by the labour inspectors and requesting statements and other evidence from General Motors. In its ruling, issued on 11 May 2021, the Ministry found that there had indeed been serious irregularities, such as the destruction of ballots kept on the trade union's premises. Accordingly, the Ministry declared the legitimization process null and void and ordered the union to initiate a new process (Mexico, STPS 2021a).

³⁵ More specifically, there were four observers from the Directorate General for Federal Labour Inspection of the Ministry of Labour and Social Security, one observer from the Ministry's Liaison Unit for the Reform of the Labour Justice System and four observers from the CFCRL.

The following day – that is, on 12 May 2021 – the US Government, acting on a complaint submitted under the Rapid Response Labor Mechanism of the USMCA, requested the Government of Mexico to establish whether a denial of the rights of freedom of association and collective bargaining had occurred at the General Motors plant in Silao (USTR 2021a). The Mexican and US Governments reached agreement on 13 July 2021 on a “course of remediation” to strengthen democracy and transparency in the new legitimization process at the facility (USTR 2021c). In line with this agreement, and as a result of consultations with both the trade union and General Motors, the Government of Mexico, in a letter dated 7 July 2021, requested the ILO to participate as an international observer of the vote. The Confederation of Mexican Workers and the US Government subsequently confirmed their interest in the ILO’s involvement as an observer of the legitimization process.

The remediation agreement stipulated that the ILO observers had to be recognized ILO officials who were neither representatives of the employers’ or workers’ sector, nor affiliated to any Mexican trade union. The ILO observers were to be present at the General Motors plant every day from the day on which the vote was called by the union until all the votes had been counted (USTR 2021c). In addition, they were to be present during the voting on 17 and 18 August 2022 at each of the five polling stations and at the place for the counting of votes. The Mexican and US Governments agreed that, at the end of the observation process, the ILO would submit a report outlining its mandate as an observer, the methodology used and the observations made.

Among other requirements in the remediation agreement, it was stipulated that the employer would provide all the necessary facilities to the trade union and the Ministry of Labour and Social Security to enable the vote to be carried out. The employer was also required to disseminate a declaration of neutrality and a statement confirming its zero-tolerance policy regarding any reprisals in connection with the vote, and to guarantee that, ten days before the vote, it would deliver to all workers with voting rights a printed copy of the collective agreement and relevant information materials developed by the Ministry. Any information materials developed by the employer itself had to be reviewed and approved by the Ministry prior to dissemination. In addition, it was agreed that the employer would work with the Ministry to create an environment free from intimidation and coercion, ensuring that its personnel did not engage in any such acts before, during or after the process of legitimization. It was also agreed that the employer would not undertake any reprisals against workers in connection with the process (including transfers, demotions and changes in working hours). If the employer became

aware of such reprisals, it would inform the Ministry so that they could be duly investigated and remedial action taken (USTR 2021c).

The ILO observer team was composed of 15 officials with relevant expertise and experience drawn from ILO headquarters in Geneva; the Regional Office for Latin America and the Caribbean; the Office for Central America, Haiti, Panama and the Dominican Republic; the Office for Mexico and Cuba; and the Office for the United States and Canada. The terms of reference drawn up by the ILO were based on its organizational mandate and in line with the applicable regulations, including the standards of conduct for the international civil service (ICSC 2013). The observation focused on verifying that the legitimization process was carried out in a transparent and timely manner and that the result was communicated in the same manner. To ensure consistency, the ILO prepared an internal guide for its observer team. The ILO also took into account the procedures established in the legitimization protocols issued by the Ministry of Labour and Social Security and the CFCRL, and was guided by the remediation agreement between the Mexican and US Governments and by international best practices in dealing with similar situations. The ILO had a clear mandate as an observer and if any irregularity was brought to its attention, it would make the information available to the labour authorities for their follow-up.

A series of questionnaires to be used before and during the voting process were developed for conducting interviews with workers. The ILO observers emphasized to the interviewees that their answers would be treated confidentially. In total, 677 out of 6,494 workers eligible to vote were interviewed throughout the process to ensure a statistically significant sample. The ILO and the Ministry of Labour and Social Security acknowledged that, as an essential part of its observer role, the ILO needed to have a clear understanding of the context of the legitimization process and of the workers' situation and perceptions. The interviews were aimed, in particular, at collecting information on whether workers had been accurately informed of the process and whether they had experienced acts of intimidation or received incentives to cast their vote in a specific way.³⁶

The ILO observers were present throughout a period of 15 days before the actual vote; however, the enterprise suspended work from 8 to 16 August 2021 (owing to a lack of semiconductors for the vehicles produced by the plant as a result of pandemic-related supply chain disruptions).³⁷ The observer team visited the plant at various times and during all work

³⁶ The interviews are not publicly available.

³⁷ This was one of several interruptions of work caused by pandemic-related disruptions. See, for instance, Espinosa (2021).

shifts to facilitate communication with workers, to observe the general environment and facilities, and to identify public notices referring to the voting process, including their content, visibility and the locations where they were posted. The observers noted that information on the forthcoming legitimization process was visible in the workplace every day. Moreover, they found the announcements broadcast on both radio and television to contain clear and correct information on the voting procedures. General Motors issued and posted a neutrality letter that was visible at all times to workers in various locations throughout the plant. During the suspension of productive activities at the facility, the ILO adapted by conducting interviews in the various population centres where workers lived, with workers coming forward voluntarily to talk to the ILO team.

The ILO observed that the workers received from General Motors a copy of the collective bargaining agreement to be legitimized, as provided for in the relevant protocol. They also received an information sheet prepared by the Ministry of Labour and Social Security that specified the way in which the voting was to be carried out (that is, with workers exercising their personal, free, direct and secret vote), together with information on the consequences of accepting or rejecting the agreement.

In accordance with the legitimization protocol, the trade union was in charge of organizing the vote, while the labour inspectors were responsible for verifying the process and ensuring its legality. The union performed all the steps mandated by law, including the printing of the ballots, transportation of the ballot boxes and counting of the votes. Labour inspectors, international observers from the ILO and national observers from the National Electoral Institute were present at all times in their respective roles.

During the voting on 17 and 18 August, which went on for a continuous period of 34 hours, the ILO observed that at no time were there actions that would have encouraged workers to vote in one way or another; nor were there any acts of violence or intimidation. Finally, the ILO also observed the counting of the votes, where it emerged that, out of the 6,494 workers eligible to vote, 5,876 had cast their vote, resulting in 2,623 votes in favour of the collective agreement, 3,214 against and 39 null votes. Hence, more than 90 per cent of the eligible workers exercised their right to vote and 55 per cent of those who voted rejected the agreement (Mexico, STPS 2021b).

10.2.2.3 The ILO as an observer of a workplace democratic process concerning trade union representativeness at the Manufacturas VU plant in Piedras Negras, Mexico

On 21 July 2022, the Government of Mexico, specifically the Ministry of Economic Affairs, received a request from the USTR for review of an alleged denial of freedom of association and collective bargaining rights at a Manufacturas VU plant in Piedras Negras, in the state of Coahuila. This request triggered the Rapid Response Labor Mechanism under the USMCA. The United States was concerned that, since at least June 2022, workers had been denied those rights because one trade union,³⁸ an affiliate of the Confederation of Mexican Workers, had been given opportunities to conduct organizing activities at the plant, whereas another union, the Mexican Workers' League, had not. The request for review encompassed "all actions, statements, and omissions related to these activities or to any efforts by any person or entity to interfere with the right of workers at the Facility to organize, form, and join the union of their choice or to otherwise exercise their right to freedom of association and collective bargaining" (USTR 2022c).

The Ministry of Economic Affairs accepted the request on 29 July 2022 and coordinated with the Ministry of Labour and Social Security to review the case and determine whether or not there had been a denial of labour rights (Mexico, Ministry of Economic Affairs 2022). The examination was carried out in the light of the recent labour law reform, and the course of action eventually decided upon by the Government included the holding of a vote at the plant so that the workers there could freely and democratically elect the trade union that would represent them.

On 12 August 2022, the Government of Mexico, through the CFCRL, requested the ILO, in view of its impartiality and professionalism, to participate as an international observer during the voting, which was to take place on 31 August 2022 from 5 p.m. to 10 p.m. and was to be followed immediately by the counting of votes. Two unions, the Confederation of Mexican Workers and the Mexican Workers' League, were seeking to obtain the majority of votes to become the most representative trade union at the enterprise. The union which had thus obtained a certificate of representativeness would then be entitled to negotiate the first collective agreement with Manufacturas VU.

³⁸ The union for workers in the maquila industry of the State of Coahuila. The term "maquila" refers to an offshore processing or assembly plant on the Mexican side of the US–Mexican border.

On 19 August 2022, the ILO accepted the CFCRL's invitation to participate as an independent and impartial international observer. To that end, the ILO coordinated with the CFCRL on the terms of reference for the observation, which was to be conducted in line with the framework provided for by the Federal Labour Act, the General Guidelines for Trade Union Democratic Procedures (issued on 14 August 2022) and international best practices in dealing with similar situations based on the ILO's experience (in particular, its experience with the complaint involving General Motors in Silao), among other guidelines and applicable protocols. In the credentials granted by the CFCRL to the ILO team, it was stipulated that the observers: (a) were to be present before, during and until the conclusion of the process on 31 August 2022, for which purpose they had to carry their accreditation and valid photographic identification with them at all times and to display those documents if so requested by the labour authorities, the trade union committee and, where appropriate, other trade union election observers participating in the process; (b) would be assigned a specific space at the place where the voting and the counting of votes were to take place; and (c) would observe the proper conduct of trade union democratic procedures. The ILO and the CFCRL agreed that the ILO could meet with the company, the other observers and the contending unions in advance of the event to obtain further information on the context.

It was also agreed that the ILO would submit a report to the Government of Mexico outlining its mandate as an observer, the methodology used and the observations made. Significantly, in the Government's original request it was emphasized that the ILO's participation as an international observer would help to safeguard the principles of freedom of association and collective bargaining, together with the interests of workers and employers in general.

The ILO observer team was composed of six officials with relevant expertise and experience, selected from various regions and departments, including ILO headquarters in Geneva; the Office for Central America, Haiti, Panama and the Dominican Republic; and the Office for Mexico and Cuba. In addition, there were national observers from the National Electoral Institute, along with observers from NGOs and academia.

The scope of the observation was narrower than for the ILO observation at the General Motors factory in Silao. In particular, the observation lasted only one day – the day of the vote – and applied only to the voting, counting and tallying processes. In this case, the ILO was not mandated to observe activities carried out by the unions or the company before the voting. Therefore, the ILO was not in a position to observe whether facilities were granted to both unions on an equal footing, which was one of the concerns expressed in the request for review submitted by the US Government under

the Rapid Response Labor Mechanism. However, any issues related to that matter fell under the competence of the labour authorities.

During the voting, the ILO observed that any situations that might have led to an irregularity were promptly resolved by the CFCRL verifiers. In that regard, the ILO's main role was to observe all the remedial actions taken to ensure that all workers eligible to vote could do so under adequate conditions. The counting of the votes was carried out at the place of voting, publicly and in the presence of all observers. At the end of the count, the results were immediately announced and recorded in a report signed by the CFCRL verifiers. A summary of the proceedings was posted in various areas of the workplace for publicity purposes. Some 68 per cent of the eligible workers exercised their right to vote, of whom 64 per cent voted in favour of the Mexican Workers' League. After the results had been announced, the CFCRL verifiers gave the representatives of both unions the opportunity to make statements on the process and the results. Neither union made any statements.

The ILO was thanked by the authorities, the company and the plant's workers as a whole for its participation. As far as workers were concerned, the ILO's mere presence served to reassure them that their right to democratically elect the union to represent them would be respected.

10.2.2.4 Lessons learned and impact of the ILO's observation

As noted in section 10.1, the ILO has a mandate to support governments in implementing ratified international labour standards and safeguarding the fundamental principles of freedom of association and collective bargaining, and to foster the social partners' capacities in that regard. The ILO's observation of trade union voting in connection with the legitimization process at the General Motors factory in Silao and the representativeness vote at the Manufacturas VU plant in Piedras Negras was carried out in response to requests from the Government of Mexico and with the support of the social partners. The ILO's functions are not meant to overlap or interfere with, or substitute for, the functions of national institutions. In particular, the role of observers was clearly distinct from that of verifiers – a role vested in federal and state-level labour inspectors or in public servants from the CFCRL. These institutions are in charge of providing appropriate guidance and supervising the process as a whole on behalf of the state. The ILO's observation was therefore complementary to the work of the Mexican authorities and national observers, as envisaged by the relevant regulations

– the General Guidelines for Trade Union Democratic Procedures, in particular, lay down clear rights and obligations for international observers.

In its capacity as an observer, the ILO supports the processes of trade union democracy – something that has been consistently emphasized by the beneficiaries of its observation; that is, by workers in the companies concerned, their employers and governments. The requests made for the ILO to become involved are informed by the trust and confidence that tripartite constituents have in the Organization's neutrality, impartiality and independence, as evidenced by its long history of tripartite and independent review of whether and how freedom of association is being respected and by its role in fostering relevant capacity-building. Such observation has spillover effects in that it has encouraged workers in other enterprises, especially in the automotive sector following the General Motors case in Silao, to express their voice freely. The value of the ILO's participation has been confirmed by further requests for observation in different sectors, including non-tradable ones.

Overall, very little has been written about the effects of the ILO's participation in the legitimization process in Silao. However, the Mexican and US Governments have both publicly recognized how the ILO's presence as an observer is a crucial element, together with the work of the Mexican authorities, in the development of future workplace democracy in Mexico and part of the good practices that trade unions in the country may wish to adopt in the wake of the labour law reform (see, for example, Mexico, PROFEDET (2021); USTR (2021d)). Ocampo Merlo (2022) argues that it was essential to have international and national observers to ensure that the legitimization process took place in a correct manner. As noted by De La Cruz (2022), trade union democracy continued subsequently to be ensured at the General Motors facility: on 3 February 2022, the workers there elected a new trade union to represent them, the National Independent Union of Automotive Industry Workers. The new collective bargaining agreement negotiated by that union with General Motors was approved by the majority of workers covered, as stipulated by the amended Federal Labour Act, and provided for an 8.5 per cent rise in wages, a 2.5 per cent increase in allowances, and increases in other benefits such as grocery vouchers, rewards for attendance and productivity bonuses (Mexico, CFCRL 2022).

The ILO's ability to draw on the experience and expertise of a wide range of officials from multiple departments and offices of the Organization was a key factor in the success of its observation mission to Silao. As the labour law reform in Mexico is still at an early stage, the observers noted that there was scope for continuing the ILO's involvement, which should be coupled with

activities to enhance workers' and employers' knowledge of their rights and obligations in exercising freedom of association and engaging in collective bargaining.

While the duration of its participation as an observer was limited in the workplace democratic process in Piedras Negras, the introductory meetings with the unions and the company allowed the ILO to gain a better understanding of the areas in which further action and capacity-building are required. In particular, a clear need was identified with regard to improving the social partners' understanding of the principles of non-interference and the granting of facilities to trade union representatives. This conclusion is supported by the fact that another petition under the Rapid Response Labor Mechanism of the USMCA was filed by the Mexican Workers' League on 29 December 2022 in connection with alleged violations by Manufacturas VU, including the refusal to bargain collectively in good faith and discrimination in treatment (especially with regard to the granting of facilities), with the minority union favoured to the detriment of the Mexican Workers' League, the most representative union (see USTR 2023a).³⁹

In both of the case studies discussed above one can identify various likely effects of the ILO's recent observation activities in Mexico. Some effects on the representativeness of unions may well be expected. For instance, the traditional "protection unions", faced with the fact that they now have to conduct observed elections so as to ensure that workers are able to cast a personal, free, direct and secret vote, may strive to reach out to their base more effectively and become more representative. With regard to areas of improvement identified by the observation missions, it would be useful to raise the social partners' awareness of the synergies and differences between workplace cooperation and collective bargaining. It would also be helpful to provide trade union organizations, including newly formed independent trade unions and employers' organizations, with training in collective bargaining techniques. As for further research and follow-up, it is worth noting that the conduct of a democratic event (vote) is generally but the first step in the exercise of freedom of association and the right to collective bargaining. The development of labour relations in workplaces over time should therefore be studied, especially once a first collective agreement has been concluded and throughout the years as a relationship of trust is forged between employers and representative trade unions.

39 After this chapter was written and a remediation course was negotiated between the Government of Mexico and the Government of the United States, Manufacturas VU decided to close its operations in Piedras Negras, Coahuila (USTR 2023c). The authors consider that this consequence and lessons learned should be the subject of further research and analysis.

► 10.3 The way forward for social justice: The ILO's role in trade policy and trade agreements

Now in its second century, the ILO as a tripartite organization is uniquely well placed to promote social justice in uncertain times. The Director-General of the ILO emphasized how:

[O]ur ambition must be to reinvigorate the social contract that gives working people a fair deal and a just share of economic progress. That guarantees respect for workers' rights and protection against risk. That delivers economic security, equal opportunity, and social justice – and ultimately reinforces the fabric of our societies. This renewal can only take place with the full engagement and firm leadership of ILO tripartism and social dialogue towards the common good of society (ILO 2022c).

The ILO is well equipped to achieve this objective by its various means of action – in particular, through its normative role and its expertise in supporting the Organization's tripartite constituents in realizing the content of international labour standards.

This chapter has looked at how ILO technical assistance and technical cooperation projects that provide support to governments and the social partners can help to bring about change on the ground. Such change may include the adoption and implementation of labour law reforms to align legislation with international labour standards, and building the social partners' capacity to participate in workplace democratic processes. The experience gained in conducting the T4DW project and the two observation missions to Mexico shows that the ILO's efforts should be tailored to specific contexts, be it as part of a technical cooperation project or in response to a Member State's request. Efforts undertaken at different levels, including the national and workplace levels, are more likely to achieve better and more sustainable outcomes. Both the T4DW project and the ILO observation missions analysed in the preceding section provide for this two-level approach in applying the ILO's various tools and means of action to make the international labour commitments and national policy and legal frameworks negotiated and adopted by Member States a reality in the workplace.

In addition, the T4DW project showed that the ratification of international labour standards and the ongoing dialogue between the ILO supervisory bodies make it possible to identify issues that can be addressed with the help of ILO technical assistance. This is the case irrespective of the type of trade arrangement with labour provisions in place, whether unilateral preferences or a trade agreement. Almost all the countries that have benefited from the T4DW project have undertaken legal reforms (for example, Mongolia and Viet Nam) and launched programmes to foster compliance with the international labour standards ratified (for example, Bangladesh).

Exemplifying a different and new way of engaging with tripartite constituents, the ILO's observation missions present an opportunity to gain first-hand experience of national challenges through interactions with workers, employers and governments. Through such missions the ILO has helped to identify areas in which the capacities of its tripartite constituents need to be strengthened – in particular, with regard to freedom of association and collective bargaining. A good example would be improving understanding of such principles as non-interference and protection against discrimination, and of specific aspects such as the provision of facilities for workers' representatives. The ILO already has numerous tools that can help to enhance the understanding of tripartite constituents in that regard. For instance, the Industrial Relations Toolkit is an integrated resource package that supports ILO constituents in strengthening key industrial relations institutions and building capacities in such areas as workplace cooperation, collective bargaining, grievance handling, negotiation skills and conflict management. It comprises diagnostic tools, training materials, methodologies and other resources that can be adapted and tailored to the needs of participants and countries (ILO 2022d).

While the ILO has built up extensive knowledge of the effects of trade on working conditions and of the different types of labour provisions that may be found in trade agreements, the impact of its related observation missions has yet to be fully explored. As for the T4DW project, its impact in various countries will be assessed in December 2023, which will inform the design of further project activities to effectively support the implementation of labour provisions in trade agreements. As ILO constituents increasingly turn to the ILO for support with the application of labour standards set out in trade agreements, including through observation missions, many new avenues of research are emerging. Such research is critical in elaborating evidence-based advice and developing policies that can advance social justice for all ILO constituents.

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International trade is widely viewed as an engine of growth and carries implications for the hundreds of millions of workers whose livelihoods rely on trade-oriented industries. Undoubtedly, it has generated job opportunities, including for young people and women, helping to lift millions out of poverty. At the same time, the benefits of trade have not been distributed evenly, across countries, sectors, firms or workers.

These two volumes advance knowledge on how to better align trade and labour market policies to achieve decent work outcomes. This **first volume** develops and executes a comprehensive framework for assessing the impact of trade on the labour market, using a set of decent work indicators applied to commonly used methodologies. It also highlights the role of labour market policies and programmes, including ILO interventions, to ensure that trade contributes to – rather than hampers – decent work. The second volume focuses on trade policies and how they can also be used to address labour market challenges, especially in the area of labour rights.

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