

Shared Harvests: Agriculture, Trade and Employment

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David Cheong, Marion Jansen, and Ralf Peters

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FOREWORD

The world is still reeling from the effects of the global food, fuel price, and financial crises in the second decade of the 21st. century. Almost a billion people are suffering from chronic hunger, 200 million people are out of jobs, and markets are in disarray. Agriculture has both played a role in and been affected by these global crises. As a consequence, many countries have refocused attention onto the agricultural sector and seek new policy responses to enhance food security, employment creation and structural transformation.

Almost half of the developing-country workforce is employed in agriculture - often in informal, low-paid or unremunerated jobs and under poor working conditions - because few alternative employment opportunities exist. Agriculture provides a livelihood directly to these workers and their families and indirectly to other members of their rural communities as well as those in related sectors such as fertilizer production and retailing. Most developing-country farmers have low yields from their crops and limited access to markets from which they can source agricultural inputs and to which they can supply their harvests.

Agricultural trade, as a share of domestic agricultural production and consumption, has been increasing despite relatively high trade distortions. Agricultural trade is an opportunity for many developing countries and at the same time a sensitive area. It appears that trade policy has not always been very development friendly. In some cases, rapid liberalization with a parallel dismantling of extension services for farmers has led to a drying up of investment in the agricultural sector. In many countries, particularly in sub-Saharan Africa, agricultural production has been almost stagnant. Coupled with expanding rural populations, this has resulted in falling farm incomes and increased poverty. Some countries subsidize and protect their farmers, preventing other more competitive producers from selling their agricultural products.

Agriculture is key to the structural transformation agenda. Without productivity improvements in agriculture, resources will mostly be used to meet basic food demands instead of being allocated towards “modern” agricultural products, manufacturing and services. Vulnerable employment, concentration in a narrow range of products, food insecurity, and high poverty rates can be linked to low agricultural productivity. Therefore, development is likely to be catalyzed and sustained with increases in agricultural productivity, which may come through national or international channels. However, the short- and medium-term adjustments, particularly in labour markets, will have to be managed.

Shared Harvests: Agriculture, Trade and Employment

The work on this edited volume grew out of a technical cooperation project entitled “Assessing and Addressing the Effects of Trade and Employment” managed jointly by the European Commission and the International Labour Office (ILO) with funding from the European Union, and collaborative work between the ILO and the United Nations Conference on Trade and Development (UNCTAD). The research findings in this volume emphasize the need to make agriculture (or re-establish it as) a high policy priority, particularly in the domains of trade and employment. This volume suggests that policymakers can maximize the development benefits from agriculture by carefully considering agricultural trade policy and its effects on employment within the context of national development strategies that aim at economic diversification, sustainable growth, and social inclusion.

The ILO and UNCTAD have collaborated on this edited volume given their shared interests in how the agricultural sector affects the world of work and broad development processes. It is hoped that, even though we are quickly approaching 2015, this volume can still contribute in part to work in line with the targets set under the first Millennium Development Goal of eradicating poverty and hunger through poverty relief, productive employment, and food security.



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SHARED HARVESTS: AGRICULTURE, TRADE AND EMPLOYMENT

An Overview

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This is a chapter from "Cheong, D., Jansen, M. and Peters, R (eds.). 2013. *Shared Harvests: Agriculture, Trade, and Employment*. International Labour Office and United Nations Conference on Trade and Development". The edited volume was produced with the support of the European Union. The contents of this chapter are the sole responsibility of the authors and can in no way be taken to reflect the views of the ILO, UNCTAD, or the European Union.

Agriculture provides a livelihood for more people worldwide than any other sector. In developing countries the sector employs 1.3 billion workers, representing around 50 per cent of total employment (FAO, 2011a). In the Least Developed Countries (LDCs), agricultural employment represents as much as 72 per cent of total employment (table 1). In many countries, policy changes affecting agriculture are therefore likely to affect the incomes of a large share of the population.

Those affected by policy changes targeting agriculture are also often particularly vulnerable. Over 60 per cent of the global agricultural work force is estimated to be informally employed (Bacchetta et al., 2009). The World Bank estimates that three out of every four poor people live in rural areas in developing countries, and most of them depend on agriculture for their livelihoods (World Bank, 2008). Policy changes affecting agriculture are therefore likely to have a significant impact on poverty.

New factors are contributing to a rapidly changing and globalizing political economy of agriculture. These include an increasing role of trade in agriculture, population growth, high unemployment rates, expansion of biofuel production, market speculation, changing nutrition in emerging markets, food insecurity, land-grabbing, and climate change (Karapinar, 2010). These factors as well as the food price crisis in 2007 have revitalized an interest in agriculture as an important sector of activity in the world economy.

This book focuses on one of these drivers of change - agricultural trade – and it looks at how this driver affects agricultural employment, mainly in developing countries. The contributions to this book analyse to what extent trade and trade liberalization in agriculture creates or destroys jobs in developing countries and what kind of jobs would be affected. It discusses how concerns about agricultural employment are reflected in national trade policies and regional and multilateral trade agreements. Furthermore, the book attempts to shed light on how such factors as food and job security, rural–urban migration, skill mismatch, and domestic regulation affect the relationship between trade and employment in this important sector.

¹ Marion Jansen contributed to this Overview during her stay at the International Labour Office (ILO) as the Head of the Trade and Employment Programme of the ILO's Employment Sector. The opinions expressed in this chapter can in no way be taken to reflect the views of the ILO or the World Trade Organization (WTO).

This volume contains 10 chapters in addition to this introductory chapter. The first three chapters are survey chapters that set the stage for the country- and region-specific studies that follow. Chapter 1 provides a synthesis of the economic literature that analyses the relationship between employment, productivity, and international trade in the agricultural sector. Chapter 2 focuses on legal aspects as it examines the role of agriculture in trade agreements, both multilateral and regional. Chapter 3 then provides a framework for the quantitative analysis in this volume by reviewing the different methods used to estimate the effects of agricultural trade on employment. Chapters 4 to 10 provide a rich body of country- and region-specific evidence with individual chapters dedicated to each of the following countries: Bangladesh, Benin, Bosnia and Herzegovina, Guatemala, Indonesia and Mexico. Chapter 8 is dedicated to agricultural trade in Africa.

Through its focus on employment, this volume adds to a relatively extensive literature that examines the role of agriculture in the development process and to the quantitative literature assessing the welfare effects of agricultural trade. The contributions to this volume provide insights into the mechanisms through which agricultural trade affects the distribution of income (for instance across types of workers) and into the labour market adjustments that relevant changes in trade policy may trigger. Given the importance of employment as a source of income for the poor, the volume also provides useful insights into the possible effects of agricultural trade on poverty through its effect on employment.

AGRICULTURE: IMPORTANT AND SENSITIVE

Agriculture is a sector of utmost importance and sensitivity. This is natural, given its primary purpose of producing food, which is essential to human life. In addition, agriculture has economic functions such as providing employment and supporting livelihoods in rural areas; social functions such as conserving tradition and community engagement; and ecological functions such as environmental protection and preserving biodiversity and watershed areas. Agriculture is also linked to the concept of self-sufficiency, as food production provides producers with control over access to a requisite for survival. In the history of many societies, the distribution of land for agriculture has both reflected and determined the distribution of wealth and the nature of economic growth.

These reasons help to explain why agricultural production has played and continues to play a special role in the economic policy of many countries. It also explains why agricultural trade has tended to be dealt with as “an issue apart” in trade negotiations.²

² An example of a controversial question discussed in the WTO negotiations and regional trade agreements is whether agriculture’s multifunctionality, i.e. the numerous functions of agriculture besides producing food, justifies trade interventions.

Importance of agriculture in terms of employment, gross domestic product, and trade

Agriculture is an important sector in developing countries and the sector's evolution will figure among the major challenges for developing countries in the coming decades. As mentioned before, in developing countries an average of about 50 per cent of the work force is employed in the agricultural sector (see chapter 1). Regional differences are substantial. In 2010, employment in agriculture reached 75 per cent of all jobs in East Africa, for example, whereas, the sector accounted for only 13 per cent of employment in South America. In terms of contribution to gross domestic product (GDP), the sector is generally less important. As shown in table 1, agriculture accounts for only 2 per cent of GDP in high-income countries and 9 per cent in middle-income countries. Agriculture's smaller share in GDP, compared to the shares of industry and services, mainly reflects the relatively lower level of labour productivity in the sector. In least developed countries the sector nevertheless accounts for 32 per cent of GDP on average.

As countries grow richer, both the share of agriculture in GDP and the share of agricultural employment in total employment decrease (table 1). Variations among the six countries specifically discussed in this volume reflect this general pattern. The shares of agriculture in GDP and in total employment are the highest in the two least developed countries, Bangladesh and Benin, while in Bosnia and Herzegovina, Guatemala and Indonesia these shares are lower. In Mexico, which has the highest GDP per capita among these six countries, the share of agricultural value added approximates the sector's significance in high-income countries, even though Mexico still has a large rural territory and population.³

Table 1: The share of agriculture in gross domestic product (GDP) and employment

Countries	Value added in agriculture (per cent of GDP)	Employment in agriculture (per cent of total)
High income	2	4
Middle income	9	40
Least developed	32	72
World	4	37
Bangladesh	18	48
Benin	32	43
Bosnia and Herzegovina*	9	18
Guatemala	11	33
Indonesia	17	38
Mexico	4	14

Source: World Development Indicators, World Bank, latest available year. * Employment share data from chapter 9.

³ Among OECD countries, Mexico has the largest population living in predominantly rural areas. Rural poverty is high; 56 per cent of the people in rural areas live in poverty (OECD, 2007).

Chapter 1 of this volume reports that between 1980 and 2010 the shares of agriculture in GDP and in total employment shrunk in most developing countries. These trends reflect an economic transition from being agrarian to becoming more manufacturing- and services-driven. This structural transformation away from agriculture is often challenging because a large share of agricultural workers are particularly vulnerable. Evidence reported in Bacchetta et al. (2009) suggests that informal employment is widespread in developing-country agriculture, as own-account workers and contributing family members - who together account for 62 per cent of the agricultural workforce - are often informally employed. Informality is one of the main sources of vulnerability of significant parts of the population living in rural areas. Many agricultural workers are employed on a seasonal basis. Undernourishment is another source of vulnerability, and, of the world's one billion undernourished people, 70 per cent are estimated to live in rural areas (World Bank, 2007).

Developing countries that undertake the transition away from being agrarian economies often do so in the context of markets that are affected by international trade, which could make the task even more complex but which could also provide opportunities. Agricultural trade, as a share of domestic agricultural production and consumption has been increasing despite relatively high trade distortions in agriculture. The average annual volume growth in agricultural trade between 1950 and 2010 was about 4 per cent, higher than the annual growth in global agricultural production which was about 2 per cent.⁴

FAO projections suggest that trade in agricultural commodities will expand considerably until 2050 (FAO, 2009) and that the structure of trade will continue to change. Developed countries are likely to continue to provide a growing share of developing countries' food needs and will in return import other agricultural products such as tropical beverages. Developing countries' imports of cereals, for example, are expected to increase threefold to account for 14 per cent of their consumption, up from 9 per cent in 2006/08 (FAO, 2009). This pattern can also be seen in countries analysed in this volume. Mexico, for instance, is importing more staple crops and meats from the US while exporting more beverages, seasonal fruits, and vegetables to the US (chapter 10).

Recent growth in agricultural trade is to a large extent driven by increasing trade in processed agricultural products. This change often goes hand in hand with an increased role of transnational firms with global production and distribution systems (FAO, 2003). The shift towards increased trade in processed agricultural products can be observed in both developed and developing countries and it implies that there has been greater specialization in the value-added process. Most low-income countries, however, continue to have a very low share of processed products in their agricultural exports.

⁴ Volume growth calculated by authors based on WTO (2011), Table A1. Growth in production calculated by authors refers to 1961 to 2010 and is based on FAOstat gross production index and gross production value at constant prices.

Figure 1: Share of developing-country agricultural exports and imports in world exports and imports



Source: UNCTADstat.

For many developing countries, revenue from agricultural exports is a major source of income. In Latin America, excluding Mexico, the share of agricultural export revenue in total merchandise export revenue is as high as 30 per cent. In LDCs, exports of agricultural products account for about 21 per cent of total merchandise exports. In some sub-Saharan African countries and several other low-income countries, agricultural products account for almost half of merchandise export revenue.

As a group, developing countries are net-agricultural exporters although the surplus is considerably lower than it was before the 1980s. They account for 37 per cent of global agricultural trade, a share that has increased from about 30 per cent in 2000 (figure 1). Trade among developing countries (or South–South trade) is increasing and, thus, developing countries are becoming important and dynamic markets for other developing countries. About 43 per cent of developing country agricultural exports go to other developing countries, and 48 per cent of their agricultural imports originate from other developing countries.⁵

LDCs as a group import more agricultural goods in absolute value than they export and most LDCs are in fact net food-importing countries, which is an important consideration when the economic effects of trade liberalization are analysed. Another

⁵ Paragraph based on UN Comtrade data and World Development Indicators, World Bank.

important aspect is the concentration of their exports in a narrow range of products, mostly primary commodities. This concentration is very high for LDCs, where the weighted average of the top three export products accounts for 76 per cent of the share of total merchandise exports (UNCTAD, 2002, p. 108). The lack of diversification is a concern because it leaves countries exposed to the risk of commodity price fluctuations.

Food security: a concern when markets are open?

High levels of price volatility in recent years, accompanied by extreme forms of price hikes in agricultural commodities, have put the issue of food security very high on the policy agenda.⁶ However, concerns over the link between food security and trade were already raised during the Uruguay Round and before. Contributing to these concerns were the globalization of agricultural markets, with increasing specialization of the South in export crops such as sugar, coffee, and palm oil, coupled with, often subsidised, surpluses from some Northern countries.

“Food security [is] a situation that exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life” (FAO, 2002).

This definition implies that attention should go to both the demand and supply sides of the food security equation.⁷ Given that employment is an important means of reducing poverty, which is particularly widespread in rural areas, it makes sense for job-creation to occupy a central place in national food security strategies to address the demand side.

In closed economies, the supply side of the food security equation depends above all on local productivity levels and climatic conditions. History offers many examples of populations suffering from the consequences of bad harvests. The main challenge that policy-makers face in closed economies is to bring productive capacity up to levels that can sustain food security and to build buffer systems that would prevent food scarcity in times of bad harvest.

Trade in agricultural commodities makes it easier to deal with bad harvests, as food can be imported when enough cannot be produced at home. At the same time, however, fears have often been expressed about an increased dependency on food imports that may lead to loss of technical knowledge (WTO, 2006) or the capacity to produce food at home in case a country is cut off from world markets (e.g. in a situation of war).

Openness to agricultural trade also exposes countries to the price fluctuations of global markets. Some have argued that such fluctuations have increased in recent years, and recurring price hikes have been an important concern to policy-makers.

⁶ The FAO food price index, which is a monthly measure of international prices of a basket of food commodities, registered record levels in June 2008 and October 2010. See also FAO (2011b).

⁷ According to FAO, food security has four pillars: availability, access, utilization and stability.

Poor households tend to spend a large share of their income on food which makes them particularly vulnerable to price fluctuations. ILO (2011a) reports that in the majority of a sample of 72 developing countries the share of food expenditure in total income among households in the lowest quintile is more than 60 per cent. In periods of high prices local populations may not be able to afford enough food, even if it is in principle available. This leads to increases in poverty and also to social unrest, as occurred during the Great Recession. The World Bank (2011) has, for instance, estimated that rises in food prices between June and December 2010 pushed an additional 44 million people below the US\$1.25 poverty line.

Some argue that greater self-sufficiency is advantageous in achieving food security. This view appears to have become more popular after the recent food-price crisis. Others argue that the dependence on food imports does not necessarily imply a higher risk of food insecurity, and inversely that a higher rate of food self-sufficiency is not always a viable solution to food insecurity. Although a higher rate of food self-sufficiency can help to increase a country's food security, efforts to promote food self-sufficiency can have high opportunity costs in countries that have neither a current nor a potential comparative advantage in food production. Evidence shows that the majority of countries that depend on food imports are not affected by food insecurity, whereas a large number of countries that have a relatively large agricultural sector tend to be affected by food crises (Herrmann, 2007).

Guaranteeing food safety when markets are open

Although recent hikes in food prices have also affected consumers in high-income countries, concerns about food safety rather than food security have been high on the policy agenda in those countries. Indeed, as consumers become rich enough not to worry about access to food, the quality of food becomes an issue of concern. The bovine spongiform encephalopathy (BSE, or "mad cow disease") crisis in the late 1990s, the 2011 E. coli outbreak, and bird flu transmission through poultry trade in the past decade are only a few examples of how health risks could be transmitted from country to country through trade in foodstuffs. Concern about health risks explains why the conclusion of the WTO Agreement on Agriculture during the Uruguay Round was accompanied by the conclusion of the Agreement for Sanitary and Phytosanitary Measures (SPS Agreement). The SPS Agreement allows countries to use food safety (and other) measures in order to protect consumers, while at the same time it disciplines the use of food safety measures that distort trade (see chapter 2).

Food safety measures represent a major challenge for developing countries, as it is often costly for them to adhere to standards in potential export markets. In recent years, therefore, substantial amounts of trade-related technical assistance, notably under the umbrella of the Standards and Trade Development Facility, have been directed towards helping developing-country exporters to become familiar with foreign food safety measures and to be able to meet foreign standards.

The existence of different food safety standards at the global level creates an additional layer of complexity. Therefore, the SPS Agreement encourages countries

to adhere to international food safety standards, notably those set by the Codex Alimentarius, and to support the work of relevant standard setting bodies. Participation in such bodies can help developing countries to contribute to the design of international standards and to obtain up-to-date information on food safety matters. Unfortunately, developing countries continue to be under-represented in relevant expert bodies (Jansen, 2010).

Agriculture and the environment: a problem or an opportunity?

Agriculture and agricultural trade are also strongly linked to environmental challenges. In many countries — particularly developing countries — climate change threatens to damage the natural resource base upon which agriculture depends. At the same time, agriculture accounts for about 13 to 15 per cent of greenhouse gas (GHG) emissions (Hoffmann, 2011). Sustainable agriculture has the potential to lower GHG emissions while also having a positive employment effect. Hoffmann (2011) argues for a large-scale shift away from conventional, industrial, monoculture-based production highly dependent on external inputs and towards mosaics of sustainable production systems. This would transform agriculture from being part of the climate change problem to becoming an essential part of the solution. However, the choice of adaptation and mitigation actions in agriculture to tackle climate change would not only depend on a country's resources and its prioritization of environmental amenities but, due to the global nature of climate change, also on international cooperation. It has been argued that rising competition resulting from trade liberalization could increase incentives towards the industrialization of agricultural production and the exploitation of scale economies, which would run counter to sustainable production.

Sustainable agriculture has been shown to be a way for small-scale farmers to increase their productivity and profitability. Organic production is typically dominated by small-scale farmers, for example, in Mexico. Sustainable agriculture relies on such techniques as crop rotation, composting, and biological pest control to increase soil productivity. Yields increase without the need for expensive inputs such as agro-chemicals but using locally available inputs and technologies instead. Also, organic products receive a price premium in important markets. To benefit from this, it is important that these farmers are connected to regional and global markets. Sustainable production is more labour-intensive than conventional agriculture, thus creating more jobs and reducing poverty (UNCTAD/UNEP, 2008).

Few studies attempt to determine the potential environmental impact of agricultural trade liberalization, but the net environmental effect is likely to vary by agricultural activity and country (Cooper, 2005). Some argue that increased trade and economic growth will contribute to the exhaustion of natural resources. Yet if agricultural trade liberalization raises a country's income, then there may be higher demand for environmental amenities such as cleaner air and water and a push for regulations on production processes that cause environmental damage. Liberalizing international agricultural trade may actually facilitate the diffusion of cleaner pro-

duction technologies and be a means for developing-country farmers to learn about consumer tastes in international markets for “green” agricultural products. However, agricultural trade liberalization may lead countries with lax environmental standards to specialize in highly polluting agricultural activities or to lower their environmental standards in order to attract international capital investment, which in turn may lead to a “race to the bottom” in environmental protection.

AGRICULTURE: UNEQUAL AND DISTORTED

Agriculture is an unequal sector ...

The agricultural sector is in many respects a highly diverse sector that is often characterized by situations of polarization. In many developing countries large and highly productive plantations or farms coexist with smallholders and landless farm workers who barely manage to make a living. An increase in landlessness over the past 50 years (IFAD, 2010) has contributed to this phenomenon. The polarization of land ownership has also been aggravated by rapid population growth, which has reduced average farm sizes among smallholders. Land ownership among indigenous populations, ethnic minorities, and women is limited and shrinking, as laws and social norms tend to be unfavourable towards these groups (FAO, IFAD, and ILC, 2004; UN, 2009). The inequality in land ownership is mirrored in holdings of livestock and farm equipment.

Employment in agriculture is characterized largely by self-employment (which is often in informal, smallholder farming) and wage labour (frequently on temporary contracts). Among developing-country agricultural workers, own-account workers constitute the largest group, at an average share of 38 per cent of all agricultural workers; wage workers are the second largest group (30 per cent); and about one-quarter are contributing family workers (see chapter 1). Unpaid family work is a phenomenon that affects above all women. It accounts, for instance, for 34 per cent of women’s informal employment in India and for 85 per cent of women’s informal work in Egypt (FAO, IFAD and ILO, 2010). Agricultural employment is physically demanding but often poorly compensated. Many developing-country workers engage in it by default, as employment opportunities in other sectors of the economy are either unavailable or inaccessible.

In most developing countries income inequality remains high, and agricultural wage workers tend to be at the extreme lower end of the income distribution. To take the case of Guatemala, 96 per cent of agricultural wage workers in 2010 had a monthly income less than the minimum wage, set at Quetzales 1930 (US\$240) for that year (Linares, 2012). In Mexico, wages in the primary sector are about one fifth to one quarter of wages in other sectors (see chapter 10). Very few agricultural workers are covered by public social insurance schemes. In a study on African agriculture, Mwamadzingo (2003) found that workers in the agricultural sector formed the majority of the working population in Africa but were excluded from social security schemes because of informal and self employment. In Guatemala, according to the

country's 2006 Labour Force Survey, only 5.2 per cent of agricultural workers are members of the country's national social security scheme (see chapter 6).

Working conditions differ across agricultural workers and for wage workers often depend on the type of employer. In a study of African rural labour markets, Oya (2010) found that "smaller, resource-poorer employers (e.g. small-scale farmers and small traders) would offer worse working conditions in comparison with larger-scale, more technologically dynamic and productive employers (usually large plantations, sometimes foreign-owned, featuring greater crop specialization and strong links with global markets)." Agricultural wages and working conditions are also related to the types of crops grown and tasks performed, a segmentation that has often emerged because of skill and socio-cultural barriers. For example, in the Riau region of Indonesia small tractor operation is limited to workers who have been taught by family members or other operators (Paman et al., 2012) and in Sri Lanka tea plucking is considered a female activity because of the "aptitude" of women for doing careful work (Samarasinghe, 1993).

As rural residents, smallholders and agricultural workers are often the victims of geographic isolation and the economic and political power held by "rural elites" (Bardhan, 2002). Through privileged relations with their urban counterparts, rural elites control access to public services as well as to input and output markets for rural residents which provides them with opportunities to extract significant rents. The lack of proper housing, medical services, and schooling in rural areas affects smallholders and agricultural workers, who, along with most of their neighbours in these rural communities, are susceptible to disease and have little education. Bad roads and poor communications infrastructure in rural areas worsen the detachment of smallholders and agricultural workers from sources of financial capital, agricultural inputs, technology, know-how, and markets for their agricultural output.

Last but not least, actors in the agricultural sector also differ greatly in their ability to influence policy-making, for instance, in the context of trade negotiations. For this purpose four interest groups can be distinguished: large land owners, smallholders, landless workers employed on large farms or plantations, and landless workers active elsewhere. Anecdotal evidence shows that it is mainly the first group that exerts direct influence on the positions of trade negotiators. Smallholder interests tend to be indirectly represented in trade negotiations through the agriculture ministries. Landless workers instead find it hard to organize unless they work on large farms or plantations where it is – at least logistically – easier to form unions and organize their activities. However, even if they can form unions, organized labour in the agricultural sector of developing countries does not necessarily find it easy to influence trade negotiations. Indeed, the working and living conditions of plantation workers have been a continued source of concern according to ILO (2011b).⁸ In order to strengthen the bargaining position of the vulnerable population in rural areas, efforts have been made in recent years to create alliances between trade unions and small

⁸ See also ILO (2008) for a detailed discussion on labour standards applied on plantations.

farmers' organizations. The Confederação Nacional dos Trabalhadores na Agricultura (CONTAG) in Brazil, for instance, represents both agricultural wage earners and self-employed farmers and is the largest national organization of this nature.⁹

... and distorted

Agriculture is among the most distorted sectors in international trade with relatively high tariffs and subsidies that are not allowed in other sectors. Despite the tariff reductions agreed at the Uruguay Round, there remains a considerable degree of tariff protection for agricultural products, especially compared to tariffs on non-agricultural products (see chapter 2).

In addition to relatively high average tariffs, tariff peaks and tariff escalation distort agricultural trade. Tariffs are very high for some sensitive products, e.g. above 500 per cent. They tend to be higher for processed products than for unprocessed products. This phenomenon of tariff escalation is one of the obstacles that keep developing countries from adding more value to their exports and establishing processing industries for exports. Tariff peaks occur mainly in major agricultural staple foods such as meat, sugar, milk, butter and cheese, cereal, and tobacco products. Also, tariff escalation persists in a number of product chains, often those of importance to developing countries such as coffee, cocoa, oilseeds, vegetables, and fruits.

The Uruguay Round (UR) did not succeed in changing the tariff structure described above. Although the UR was successful in binding all agricultural tariffs (i.e. agricultural products have a ceiling above which tariffs cannot be applied), the formula chosen to reduce tariffs still allowed countries to maintain very high tariffs on sensitive products to protect their farmers and food processing industries.

Tariffs, however, are not the only and often not even the most important trade barrier. Market entry conditions are determined by the legal and administrative conditions imposed by the importing countries under internationally agreed trade rules as well as private standards and market structures, including the characteristics of the supply chains. Thus, market access, i.e., the absence of (quantitative) import restrictions and sufficiently low tariffs, is generally a prerequisite for market entry but is not sufficient. Evidence shows that, especially for smaller countries and smaller producers, non-tariff measures (NTMs) highly restrict market entry opportunities. Safety standards such as hygiene requirements that protect consumers' health are legitimate rights of countries but, nevertheless, can constitute an obstacle to trade. Furthermore, for agricultural products private standards imposed by supermarkets, for example, often go beyond nationally applied standards. In high-income countries NTMs are on average three times more restrictive than tariffs.¹⁰ Furthermore, for agricultural products NTMs

⁹ See ILO (2008). This publication also contains a reference to the International Union of Foodworkers' "Land and Freedom Project" that helps trade unions and small farmers to work more closely together.

¹⁰ See UNCTAD (2012a) and references given therein for more information on definitions and measurement of the trade restrictiveness of NTMs.

are almost three times more restrictive than those for industrial goods. Thus, costs to comply with NTMs are higher in agriculture than in other sectors.

Distortions also arise from the structure of agricultural input and retailing markets. The production of agricultural inputs often involves high research and development costs. This tends to result in higher market concentration among sellers of agricultural inputs. Fuglie et al. (2011) report that by 2009 the largest four firms in the crop seed, agricultural chemical, animal health, animal genetics/breeding, and farm machinery sectors accounted for more than 50 per cent of global market sales in each sector. For certain agricultural products, farmers tend to have less market power than intermediaries and final retailers due to the large number of farmers, the seasonality of agricultural production, and the perishability of agricultural output. For example, Hossain et al. (2004) in an analysis of several supply chains in Bangladesh found that jute producers received around 54 per cent of the consumer price of jute while rice and wheat farmers received 71 and 66 per cent of the consumer prices of rice and wheat respectively. In food markets, the increasing appearance of supermarkets has led to increasing downstream concentration along food supply chains. Private cooperatives and government institutions such as marketing boards have emerged as a response to these distortions in agricultural output markets. Appropriate competition policies are important to ensure competition and a balance in market power.

Domestic support and export subsidies further distort agricultural trade. The UR was the first round to discipline agricultural subsidies. As a result of the UR, certain types of support are subject to reduction commitments and are capped at ceiling levels. Other types of support have to fulfil certain criteria, with the objective that they are not or only minimally trade-distorting. However, allowed subsidies are still very high, especially in a couple of developed countries (see chapter 2). One deficiency arising from the UR is that allowed support can be shifted between products and so can become concentrated on a few products. Some countries have also changed support measures, mainly by “decoupling” the support from current production, so that they fall into the allowed non-capped category. Whether such support does not distort trade or is only minimally trade distorting is controversial and debated. Furthermore, reduction commitments were made on the basis of spending during the base period of the UR. Thus, developed countries that had high subsidies during that period have higher allowances for certain types of support than most developing countries. This creates an imbalance in the international trading system, weighted against developing countries.

The OECD (2012) estimates that the “total support to agriculture” in OECD countries amounts to US\$366 billion in 2010. Although the OECD measure is different from domestic support as defined by WTO terminology, it shows that, despite the reduction commitments, the level of support remains high in OECD countries. Chapter 2 in this volume reports that in some OECD countries support to producers is as high as 50 to 60 per cent of the value of their agricultural production.

Anderson (2009) finds that assistance to agriculture – as indicated by domestic-to-border price comparisons adjusted for transport costs and quality differences, among others – is slowly decreasing in high-income countries but increasing in de-

veloping countries. In the period 1985–89 developing countries had a negative nominal rate of assistance to agriculture, indicating in effect a tax on agriculture rather than subsidization. However, in 2000–04 developing countries had a positive nominal rate of assistance to agriculture. There are differences between developing countries in this regard. African countries still have policies in place that tend to discourage rather than encourage agricultural production, while increasingly Asia is supporting agriculture, although still considerably less than many developed countries (Herrmann and Peters, 2010).

The distortions remaining show that, despite the achievement of the UR of incorporating agriculture into the international trading system, it did little to meaningfully improve market access for developing countries or to remove distorting subsidies. Given the lack of progress in multilateral trade negotiations, most trade liberalization has taken place in the context of Regional Trade Agreements (RTAs) in recent years. But RTAs appear to contribute little to reducing distortions in agricultural trade. First, agricultural tariffs are more often excluded from RTAs or governed by different rules than are industrial tariffs. Second, domestic support cannot be, or is not, addressed in RTAs (see chapter 2). Third, from the perspective of developing countries, particularly the least-developed ones, RTAs with developed countries are redundant as many developing countries already have preferential access to developed-country markets for their agricultural exports through existing agreements such as the Generalized System of Preferences (GSP) and duty and quota free market access schemes for LDCs such as the EU’s “Everything But Arms” initiative. Lastly, South-South RTAs do not appear to significantly increase agricultural trade (Grant and Lambert, 2008).

AGRICULTURAL TRADE AND EMPLOYMENT: CHALLENGES AND OPPORTUNITIES

The role of agriculture in development and growth has been debated over decades – and with this also employment and trade in the sector. Agriculture is often considered to be a sector of low productivity that can only provide limited contributions to overall economic growth. Indeed, despite the significant share of agriculture workers in the world’s total labour force (around 40 per cent), agricultural labour productivity (i.e. agricultural value added per worker) is very small so that agriculture’s share in global gross domestic product is only 4 per cent. The world’s labour productivity in services and industry are both more than 10 times higher than the one in agriculture.¹¹

Low productivity levels in agriculture are particularly prevalent in LDCs where growth in agricultural productivity has lagged behind that in other economies.

¹¹ Calculation based on world employment figures by sector (ILO, Global Employment Trends, 2011) and current world value added by sector (UNCTADstat).

Agricultural labour productivity in LDCs is just 46 per cent of the level in other developing countries and below one per cent of the level in developed countries. Labour productivity grew by only 18 per cent in LDCs between 1983 and 2003, by 41 per cent in other developing countries and 62 per cent in developed countries (Herrmann and Peters, 2010). In addition, the contribution of agriculture to real GDP growth is relatively low. For the world as a whole, it varied between 2.3 per cent and 4 per cent between 1971 and 2009 (UNCTAD, 2011, table 2). As a consequence, agriculture has often been considered a sector that countries should try to diversify away from in order to speed up growth.

Another reason to diversify away from agriculture is linked to the observed long-term decline of the terms of trade for agricultural products. Until 2002 there was a secular falling trend in the relative price of commodities to those of manufactured goods. These declining barter terms of trade for commodity exporters, which were historically developing countries, implied that on world markets primary commodities were effectively being exchanged for ever smaller quantities of manufactured goods. This may explain why authors like Stiglitz (2006) warned that countries whose static comparative advantage lay in agriculture risked stagnation.

Both of the arguments presented above would lead to the conclusion that policy-makers in developing countries should focus on facilitating the contraction of the agricultural sector while providing support to growth in other sectors. Successful development processes have indeed tended to go hand-in-hand with a shrinking of the agricultural sector.¹² However, the size of agriculture in developing countries and strong linkages with the rest of the economy imply that any negative impacts on the sector could have harmful repercussions for the rest of the economy. There is also evidence that growth in agriculture is likely to have a stronger effect on poverty reduction than growth in other sectors.¹³ Indeed, in the past agricultural productivity growth has often preceded the industrial development of countries. In today's industrialized countries rapid agricultural growth was the precursor to industrialization. More recently, in countries such as China and Vietnam agricultural growth again preceded the rise of industry (World Bank, 2007). Productivity gains in agriculture have freed labour that could be employed in other sectors, mainly manufacturing and increasingly also services, laying the ground for structural change. Thus, productivity growth in agriculture has been and remains important.¹⁴

In addition, two important recent developments have changed the image of the sector as a 'low productivity sector' and altered the sectors' possibilities to contribute to growth through exports. First, the agricultural sector grew more dynamically

¹² For example in countries where production and exports of manufactures became the engine of growth, such as the Asian economies, the share of agriculture in GDP fell considerably. It fell from almost 30 per cent in 1980 to less than 12 per cent in developing countries in East Asia and the Pacific (authors' calculation based on World Development Indicators, World Bank).

¹³ Ligon and Sadoulet (2007, cited in World Bank, 2007) found that the expenditure gain of the poorest decile is more than twice as high as the average gain from growth in agriculture while their benefit is disproportionately low from growth in non-agriculture.

¹⁴ See also World Bank (2012) on this argument.

than the average non-agricultural sector in recent years, indicating the sectors' changing importance in growth particularly in Africa and some agricultural exporters (UNCTAD, 2011). The production of high value agricultural products in certain developing countries has contributed to this development. In addition, the modern agro-processing industry can in many cases be considered a high productivity sector. While it is not necessary for the processing industry to rely on domestic agricultural production, the presence of local production can facilitate the development of processing activities.

Second, rapidly growing demand for commodities has led to rising commodity prices – including the prices of many agricultural products, while a rapidly increasing supply of manufactures often from developing countries produced at low costs, has led to a falling price of many manufactures (UNCTAD, 2008). Since 2002 the terms of trade of commodity exporters have been increasing, fuelling the discussion about opportunities in agriculture, especially staple food. High food prices can provide an impetus for agricultural production, as more farmers in developing countries may find it lucrative to invest and to increase agricultural production.

These two recent phenomena have arguably contributed to a rethinking about the role of the agricultural sector in growth and development. While long-term trends of shrinking agricultural employment are likely to persist, policy-makers may want to remain open to the possibility that the sector can play a driving role in countries' growth processes. Creating an environment that allows productive segments of the agricultural sector to flourish could be highly beneficial for the economy. As for the long-term reduction in agricultural employment, this transition deserves policy-makers' attention, as the sector's role in poverty reduction is undeniable.

Challenges regarding agricultural trade ...

Given the extent and the vulnerability of agricultural employment in many developing countries, it is easy to see why a transition from a rural to an urban society can pose important challenges. The additional challenge of international trade is that it may put economies under pressure to undertake the transition more rapidly. One of the results of large-scale adjustments is that they may lead to bottlenecks in labour markets. This phenomenon has been analysed in the theoretical literature (Davidson and Matusz, 2004) but also in qualitative case studies.

A case that has received particular attention in the economic literature is the effect of the North American Free Trade Agreement (NAFTA) on the Mexican corn sector (Levy and van Wijnbergen, 1995; and chapter 10 in this volume). Farm employment in Mexico has dropped dramatically in recent decades. This development coincides with a trade policy that has led to more open markets, especially within the NAFTA region, and significantly increased trade in agricultural products. Corn is of particular interest, as both Mexico and the United States grow corn. At the signing of NAFTA, Mexican producers were concerned about being flooded with cheap imports of corn following the removal of tariffs. Corn prices were twice as high in Mexico before NAFTA came into effect. Furthermore, corn growing is sub-

sided in the US – by up to 16 per cent. For corn in Mexico the NAFTA agreement had a 14-year phase-in period of tariff reductions to protect the Mexican market from imports of US corn. Still, imports of corn were 670 per cent higher in 2008–10 than in 1991–93. Almost all of the imported corn comes from the US. The self-sufficiency ratio, i.e. the share of local production to consumption, declined from 91 per cent in 1991–93 to 77 per cent in 2005–07.

Adjustment processes accompanying the shrinkage of the agricultural sector are rendered difficult by a relative lack of mobility of rural populations, though mobility between agricultural sectors appears to function (discussed in more detail in chapters 1 and 3). Rural residents are often hesitant to move to towns or cities because they fear losing the easy access to food in rural areas. These concerns can be particularly strong among smallholders, as leaving the rural area often means giving up land ownership. Rural workers also tend to be less skilled than the average member of the workforce, which puts them at a competitive disadvantage when looking for work in the city. Urban areas also have difficulties absorbing large-scale migration. Accompanying measures facilitating rural-urban mobility can have high pay-offs in this context.

... and opportunities

Agricultural trade does not only present threats for developing countries; it also offers real opportunities in terms of exports and jobs in competitive agricultural sectors. Several countries such as Argentina, Brazil, Canada, and New Zealand have demonstrated that agriculture can be a major sector contributing to export revenue and employment. Success stories in other developing countries confirm this potential. For example, despite competition from its northern trading partners, Mexico has managed to utilize its preferential access for beverages, seasonal fruits, and vegetables. Agricultural exports from Mexico to the US, its major trading partner, are increasingly concentrated in these products, and revenue from these exports increased from US\$3 billion in 1993 to almost \$14 billion in 2010. Other countries such as Colombia and Kenya have successfully increased exports of high-value horticultural products, such as cut flowers and tropical fruits. These successful strategies are based on agricultural trade.

Industrialization today needs to be understood more broadly. It can include modern agriculture and related services activities. Exploiting high value added products including horticulture, technology-intensive processing, and integration into value-chains can provide important opportunities (UNCTAD, 2012b). Increasing value addition through higher processing of agricultural products before exporting (e.g. processing and exporting cocoa butter or even chocolate instead of exporting cocoa beans) could also contribute to the much needed structural change in developing countries. The processing industry would link the agricultural and industrial sectors as well as the services sectors, which would expand and create the capabilities to meet the requirements of agricultural supply chains. In fact, there is a need to strengthen not only primary agriculture but also upstream activities of the farm in seed multiplication, soil enhancement, and production and distribution of fertilizer and other inputs, as

well as downstream activities such as storage, processing, marketing, and food quality and safety standards (FAO, 2011b).

Smallholders play a critical role, as they constitute a large group of farmers in developing countries. Often, those farmers are not linked to regional or international markets. Improving such linkages could contribute to commercialization, i.e. producing more for markets, which could improve their incomes and livelihoods. Interesting initiatives in this direction exist. In Viet Nam, for instance, the Chamber of Commerce and Industry has assisted a large cashew farmer's organization in providing members with market price information updated through radio bulletins (ILO, 2008). The Chamber also introduced business partners to their provincial counterparts in order to establish sustainable market linkages.

Meeting the required health and safety standards in international markets is a challenge, however. Globalization, despite its problems, can contribute to development of the knowledge required to meet these standards. Knowledge on food safety standards is increasingly transmitted through global value chains, i.e. the geographical fragmentation of production brings knowledge from one country to another; in this particular case often from developed to developing countries. Swinnen and Maertens (2007), for instance, illustrate how integration into a global value chain helps local suppliers to meet international standards, because international buyers in the chain transmit relevant knowledge. Furthermore, Colen et al. (2012) show that infrastructure and training of workers to comply with GlobalGAP requirements, a major private standard, improve employment conditions at GlobalGAP-certified firms compared with other firms.

LINKS BETWEEN AGRICULTURAL TRADE AND EMPLOYMENT: COMPLEX BUT STRONG

The contributions to this book focus on the relationship between agricultural trade and employment, and thus on only one of the many facets of the agricultural sector discussed above. Most of the chapters provide quantitative assessments of the impact of agricultural trade on employment, often based on simulation methods.

The book reveals a complex picture even within this relatively narrow area of analysis. It illustrates that the effects of trade reform on employment will very much depend on the nature of trade reform and, in particular, on whether trade liberalization is multilateral, regional, or unilateral. The effects on employment will differ across types of employment, i.e. agricultural versus manufacturing, or high skilled versus low skilled. The contributions to this book also make it possible to compare the effects of productivity increases with those of trade reform, a comparison important from a development perspective.

There is no simple conclusion regarding the links between trade and employment, and there can be no simple conclusion about the employment effects of trade liberalization in agriculture. Trade liberalization can have a demand-creating effect, as it may lower prices, shift production from less to more competitive countries as

well as from less to more competitive farms, and increase productivity. Higher agricultural demand raises demand for labour. However, increasing productivity has the opposite effect on labour demand for a given level of output. Trade liberalization also can have indirect effects, such as income effects that lead to changing consumer behaviour such as purchasing more meat and processed food products (see chapter 3). Nevertheless, some important observations can be made from the assessments presented in this volume.

Assessing the employment effects of agricultural trade reform

Nine of the chapters in this volume provide assessments of the impact of different policies, particularly trade policy, on employment in developing-country agriculture. Most chapters analyse individual countries; others focus on regions or on global agricultural trade. Table 2 provides an overview of the studies and information about the models and data used for the quantitative work. The technical reader will notice that this volume covers a rich set of modelling approaches and information regarding quantitative assessments of the employment effects of agricultural trade.

The robustness of quantitative analyses depends to a large extent on data quality. In the case of the assessments of employment impacts of trade, employment statistics are often the weak element, in particular in studies focusing on developing countries. This well-known problem is aggravated for studies focusing on the agricultural sector. Rural employment statistics, particularly of agricultural workers, are often collected using methods that are deficient and inadequate given the peculiarities of rural labour markets. Oya (2010) emphasizes that employment statistics in developing countries suffer from infrequent labour force surveys and problems in the employment modules of household surveys. Concerning the latter, he notes that the employment modules rely on a 7-day reference period, which may fail to capture an agricultural worker's employment given seasonality. He also observes that the conventional dichotomy of paid versus own employment is difficult to operationalize in survey work in developing countries because "own-account work" is often simply conflated with informal employment even if certain informal activities should be classified as paid employment. In agricultural employment statistics it is therefore difficult to accurately distinguish between formal/informal agricultural workers and wage/non-wage agricultural workers because of the survey problems mentioned above. This makes it particularly difficult to provide thorough quantitative assessments of the employment effects of changes in agricultural trade.

Almost all studies in this volume implement computable general equilibrium (CGE) models, and most of them use information from social accounting matrices (SAMs). Despite the limitations and shortcomings of these approaches, CGE models are useful for the analysis of the effects of trade in agriculture on employment because they can take into account economy-wide effects (see chapter 3).¹⁵ Since agriculture

¹⁵ See Piermartini and Teh (2005) for a discussion of different quantitative methods to assess the economic effects of trade reform.

accounts for such a large share of the economy in developing countries, economy-wide models are important. They also capture complex linkages such as, for example, the effects on the production of industrial goods when wages in the agricultural sector increase.

Two modelling assumptions are particularly important when it comes to the assessment of the employment effects of agricultural trade. One is the assumption regarding the substitutability between imported and domestically produced agricultural goods. The other is the set of assumptions regarding the functioning of the labour market in developing countries, in particular, of the agricultural labour market.

The studies in this volume illustrate that assumptions regarding the substitutability between imports and domestic goods have an important impact on findings about the employment effects of agricultural trade.¹⁶ Agricultural goods tend to be homogeneous commodities. Therefore, models focusing on agricultural trade liberalization typically assume that imports and domestically produced goods are highly substitutable. One consequence is that consumers switch more quickly from domestic to foreign agricultural products in cases of liberalization than they do with manufactured imports. This results in less demand for domestic agricultural output and a stronger impact on agricultural employment.

Modelling assumptions regarding the functioning of the labour market tend to affect simulation outcomes in terms of the extent of employment or wage effects. As a rule of thumb, the less mobile labour is assumed to be, the lower the effect on sectoral employment levels but the higher the effect on wages. Standard simulation models tend to assume that economies are characterized by full employment and variable wages. But it is possible to model labour market frictions, such as search and matching frictions, which lead to unemployment (see chapter 2). Chapter 3 discusses and compares various labour market assumptions in models evaluating employment impacts of agricultural trade.

Table 2 provides an overview of the labour-market assumptions that underlie the models used in the nine chapters of this volume that contain quantitative assessments. The approaches chosen vary significantly across chapters. The assumption that wages are fixed for certain types of labour reflects a supposed surplus of this type of labour. In the studies of Bangladesh and Mexico, as well as in the global study in chapter 3, this assumption is made with respect to unskilled labour, given that unskilled labour is expected to be overly abundant in those countries. Most of the studies in this volume have assumed that there is some degree of immobility, particularly of unskilled labour. This assumption is pertinent to conditions in developing countries where the majority of workers, especially in rural areas, are low skilled and have few opportunities for employment except in agriculture.

¹⁶ This substitutability is contained in the Armington elasticity parameters of CGE models. In CGE-based analyses, these parameters are important determinants of how trade reforms affect output and welfare (see Valenzuela et al., 2008).

Shared Harvests: Agriculture, Trade and Employment

Table 2: Agriculture, trade, and employment: Methodologies used in the quantitative studies

Chapter	Country/region	Model	Source data	Labour market assumptions	Scenarios
1	Representative developing country and global	Satchi and Temple (2009) GE and GTAP CGE	Satchi and Temple (2009) GTAP Version 7	- In Satchi-Temple model: search and matching frictions in manufacturing sector and underemployment in urban informal sector - In GTAP: Fixed total labour supply and flexible wages	1) Increase in agricultural productivity in Satchi-Temple model 2) Global removal of all import tariffs in GTAP model
3	Global	GTAP CGE	GTAP Version 8	Four labour-market scenarios: 1) Standard: fixed total employment and flexible wages 2) Fix: Fixed real wages for unskilled labour 3) Primary: Standard closure with doubling of elasticity of substitution between primary factors 4) Intermediates: Standard closure with substitution between intermediate inputs	1) Unilateral agricultural trade liberalization in Bangladesh, Indonesia, and Guatemala 2) Global trade liberalization under Doha 3) Subsidy policy
4	Bangladesh	GTAP CGE	- GTAP Version 7.1 Database - Social Accounting Matrix of Bangladesh for 2007 - Employment Satellite Matrix (data from Labour Force Survey 2005-06) - UN COMTRADE	Fixed wage rate of unskilled labour and a flexible wage rate of skilled labour (supply of unskilled labour is not fixed)	1) Global Trade liberalization under Doha 2) FTA between Bangladesh and India 3) Unilateral agricultural trade liberalization 4) Subsidy policy 5) Growth in agricultural productivity
5	Benin	Benin CGE	- INSEA - RGP3 - Social Accounting Matrix of Benin for 2003	Unemployment exists for each type of worker and depends on the wage rate	1) Signing an EPA with the EU 2) Export restrictions on cotton seeds 3) Common external tariff (ECOWAS) 4) Tariff reductions on agricultural products
6	Guatemala	Regression and Leontief Multiplier Model	- Labour data from Guatemalan Institute of Social Security - Social Accounting Matrix of Guatemala for 2006	Fixed wages and surplus labour	1) Regional FTA with the rest of Central America, the Dominican Republic, and the United States (DR-CAFTA)
7	Indonesia	GTAP, then Indonesian CGE	- Indolab database, Indonesian 2008 Input Output tables & 2005 Social Accounting Matrix - SAKERNAS for wage data	- Fixed labour supply - Wages of farmers and operators are identical in every agricultural sub-sector - Wages of administrators and professionals are equal to wages in the manufacturing sector - Labour substitution between alternative occupations, industries and regions (elasticity of 0.5)	1) ASEAN-China FTA: all existing 2007 tariffs between ASEAN and China are removed (except on highly sensitive goods) 2) Likely Doha Outcome: tariff reductions in agricultural and non-agricultural sectors 3) Labour productivity increase in the agricultural and non-agricultural sectors 4) Enhanced skills in the agricultural or non-agricultural sectors: 1% increase in the number of skilled workers and decreasing the number of unskilled workers accordingly, -0.02% for agriculture only and by -0.57% for non-agriculture
8	Africa	MIRAGE Dynamic CGE	- GTAP Database Version 7, 2004 data - MacMap-HS6 database version 2 (protection structures)	- Full employment of labor, wage flexibility - Perfectly mobile skilled labor - Unskilled labor: imperfect mobility between agricultural and non-agricultural sectors but the mobility is perfect within each sector	1) Two Regional FTAs implemented by 2017 - full elimination of tariff barriers on goods within two regional groups 2) Continental FTA implemented by 2017 - all tariff barriers on goods are fully removed within the African continent
9	Bosnia-Herzegovina	GSIM Partial Equilibrium	- WITS bilateral trade flows - FAOSTAT (production) - GTAP Database Version 8 (using Bulgaria since BH is not available), 2007 data - AMAD (export subsidies) - UNCTAD's ATPSM (demand & supply elasticities)	Labour is assumed to be used in fixed proportions with other inputs (changes in employment proportional to the changes in output)	1) EU accession: Removal of tariffs on Bosnia-Herzegovina-EU trade, and change in Bosnia-Herzegovina tariffs on Rest of World imports to EU levels 2) WTO accession: Reduction in Bosnia-Herzegovina tariffs on imports from Rest of World to 5%
10	Mexico	GTAP CGE	- GTAP Database Version 8, 2007 data	- Mobile skilled labour but fixed in supply, with no surplus labour - Semi-flexible unskilled labour market - Wages are fixed	1) Increasing tariffs on agricultural imports from NAFTA countries to MFN levels 2) Increasing support on output to 5% 3) Removing payroll tax on agricultural labour 4) Funding R&D to increase agricultural productivity

Notes: (i) In Model column: GE = general equilibrium, CGE = computable general equilibrium, GTAP = Global Trade Analysis Project, and GSIM = global simulation model.

(ii) In Source data column: INSAF = National Statistical Institute of Benin, RGP3 = 3rd. General Population and Household Survey of Benin, and SAKERNAS = National Labour Force Surveys of Indonesia.

(iii) In Scenarios column: EPA = Economic Partnership Agreement, EU = European Union, ECOWAS = Economic Community of West African States, DR CAFTA = Dominican Republic-Central America-United States Free Trade Agreement, ASEAN = Association of Southeast Asian Nations, FTA = Free Trade Organization, NAFTA = North-American Free Trade Agreement, WTO = World Trade Organization, MFN = Most Favoured Nation.

Table 3: Summary of employment and wage results from simulations of policy scenarios in the quantitative studies

Chapter	Reg ion/Country	POLICY SCENARIOS				Other scenarios
		FTAs	Unilateral tariff changes	Global tariff changes	Productivity increase	
1	Representative developing country and global			Global removal of all import tariffs Developing country skilled agricultural employment (+) Developing country unskilled agricultural employment (+)	Agricultural productivity increase in representative developing country Agricultural employment (+) Agricultural wages (+) Manufacturing employment (-) Manufacturing wages (+) Urban informal employment (-)	
3	Global		Unilateral agricultural tariff removal in Bangladesh, Indonesia, and Guatemala Unskilled agricultural employment (+) Unskilled non-agricultural employment (+) Real wages all workers (+)	Global trade liberalization under Doha Developing countries unskilled agricultural employment (+) Developing countries unskilled total employment (+)		
4	Bangladesh	Bangladesh-India FTA Unskilled employment (+) Skilled employment (-)	Unilateral agricultural trade liberalization Unskilled employment (+) Skilled employment (-)	Global trade liberalization under Doha Unskilled employment (+) Skilled employment (-)	Cereal productivity increase Unskilled employment (-) Skilled employment (+)	Agricultural production subsidy increase Unskilled employment (+) Skilled employment (-)
5	Benin	EPA with the EU Skilled employment (-), wage (-) Unskilled employment (-), wage (-) Tariff increases to ECOWAS common external tariffs Skilled employment (+), wage (+) Unskilled employment (+), wage (+)	Unilateral reduction agricultural tariffs Skilled employment (-), wage (-) Unskilled employment (-), wage (-)			Restriction of cotton grain exports Skilled employment (-), wage (-) Unskilled employment (-), wage (-)
6	Guatemala	CAFTA-DR FTA Agricultural employment (+) Total employment (+)				
7	Indonesia	ASEAN-China FTA Farmers' real wages (+) Administrators' real wages (+) Operators' real wages (-) Professionals' real wages (+)		Likely Doha outcome Farmers' real wages (+) Administrators' real wages (-) Operators' real wages (-) Professionals' real wages (+)	Labour productivity increase in agriculture Farmers' real wages (-) Administrators' real wages (+) Operators' real wages (-) Professionals' real wages (-)	Skills increase in agriculture Farmers' real wages (-) Administrators' real wages (+) Operators' real wages (-) Professionals' real wages (-)
8	Africa	Two regional FTAs Agricultural employment (-) Unskilled non-agricultural real wages (+) Non-agricultural employment (+) Unskilled agricultural real wages (+) Skilled real wages (+) Continental FTA Agricultural employment (-) Unskilled non-agricultural real wages (+)				
9	Bosnia-Herzegovina	EU Accession Meat and dairy employment except poultry (-) Poultry employment (+) Cereals employment (+) Vegetables, and wine employment (-)	Unilateral reduction (WTO accession) Meat and dairy employment, except poultry (-) Poultry employment (+) Cereals, vegetables, and wine employment (-)			
10	Mexico	Agricultural tariff increases to MFN levels for NAFTA partners Unskilled employment (-) Agricultural employment (+) Overall employment (-)			Agricultural productivity increase Total employment (+) Unskilled employment (+) Unskilled agricultural employment (+)	Subsidies increase Agricultural employment (+) Unskilled employment (+) Removal of payroll tax Agricultural employment (+) Unskilled employment (+) Skilled wages (+)

Notes: (i) (+) indicates an increase and (-) indicates a decrease in employment or wages.

(ii) Employment and wage results are for individual countries except for chapters 1 and 3.

(iii) FTA = Free Trade Agreement, EPA = Economic Partnership Agreement, EU = European Union, ECOWAS = Economic Community of West African States, DR CAFTA = Dominican Republic-Central America-United States Free Trade Agreement, ASEAN = Association of South East Asian Nations, Doha = Doha Round of Trade Negotiations, WTO = World Trade Organization, MFN = Most Favoured Nation.

Whom you trade with matters

Table 3 summarizes the resulting employment and, in some cases, wage effects from the simulations of the different policy scenarios. It illustrates that the direction of change differs across countries and depends on the trade liberalization scenario.

A comparison of the findings from the simulations of free trade agreements (FTAs) shows that the employment and wage effects of FTAs are mixed, implying that the choice of trading partners is an important determinant of these effects (see also Ornelas, 2012, on this point). FTAs are found to reduce agricultural and unskilled employment in Benin, Africa and Bosnia and Herzegovina (chapters 5, 8, and 9), and the reversal of FTAs - by raising tariffs against FTA partners - in chapters 5 and 10 is shown to increase agricultural employment in the case of Benin (ECOWAS) and Mexico (NAFTA).

In contrast, the studies in chapters 6 and 7 show that FTAs can have a positive effect on agricultural employment and wages. The study of Guatemalan agricultural trade with the US under DR-CAFTA shows that this FTA has increased overall and agricultural employment. Both the study on African trade integration and the study of the effect on Indonesia of the ASEAN-China FTA find a tendency for wages in the agricultural sector to increase with trade under the respective FTAs. Underlying these results on agricultural employment and wages is the competitiveness of a country's agricultural sector. A country that can produce and export agricultural products at lower cost than its FTA partners while preserving the labour-intensive nature of agricultural production is more likely to see positive effects from an FTA on both agricultural employment and wages.

In chapter 4 the FTA between Bangladesh and India leads to an overall increase of unskilled employment in Bangladesh which results mainly from increased exports in textiles, leather, and other industries rather than in agriculture. Chapter 8 finds a similar result for Africa in the case of a continental free trade agreement. Employment shifts from agriculture to the industrial sector and overall labour demand increases due to an increase in production and intra-African trade in industrial goods.

Unilateral agricultural liberalization tends to reduce agricultural employment

As shown in chapters 3, 4, 5, and 9, unilateral reductions in agricultural tariffs are predicted to be detrimental to unskilled or agricultural employment. For example, the study in chapter 9 concludes that liberalizing imports of meat, dairy, cereals, vegetables, and wine into Bosnia and Herzegovina as part of WTO accession will displace production and workers in these agricultural subsectors. Unlike trade in manufactures, there is relatively little intra-industry and intermediate trade in food and agricultural products so that opening up the agricultural sector does not stimulate production and exports in that sector to compensate for jobs lost in import competing enterprises.

The effect of unilateral agricultural liberalization on overall employment may be the opposite of the effect on agricultural employment. Chapter 3 shows that

unilateral liberalization in agriculture reduces employment in that sector but increases employment in industrial sectors. Thus, employment shifts from the agricultural sector, in which competition increases, to other sectors. The total employment effect depends on labour market assumptions, but it can be positive if there is surplus labour.

Multilateral liberalization is likely to benefit developing countries but benefits are most significant for highly competitive exporters of agricultural commodities

Global trade liberalization, as shown in chapters 1 and 3, is expected to increase skilled and unskilled agricultural employment in developing countries.¹⁷ As agricultural production shifts from protected developed countries to developing countries, employment decreases in the former and increases in the latter.

Developing countries as a group are expected to benefit in terms of employment and output, although gains most likely would be concentrated in developing countries that are highly competitive agricultural exporters on the world market, such as Argentina, Brazil, Indonesia, and Thailand.

Bangladesh and some African countries that are net importers of agricultural products could see a contraction of their agricultural sector under a potential Doha Round scenario. However, if agricultural liberalization is coupled with liberalization in other sectors, unskilled employment could increase in Bangladesh as more jobs are created in its textiles and ready-made garments sectors (see chapter 4). This shows that if agricultural trade liberalization is part of a wider liberalization agenda employment in one sector may shrink but job losses may be more than compensated for by gains in other sectors.

As discussed in chapter 7, Indonesian farmers would benefit from higher wages if there is a Doha Round agreement, implying that Indonesia commands a comparative advantage in agricultural production globally. These findings show the potential of multilateral liberalization to create jobs in developing countries by reducing some of the current distortions in agriculture. However, special attention is required for developing countries with less competitive agricultural sectors.

The effects of agricultural subsidies, payroll taxes, and export restrictions: different policies to meet different targets

Which policy measures are appropriate to strengthen the agricultural sector depends on a country's specific objectives. Policies to reduce poverty and rural-to-urban migration differ from those that increase export revenue or maximize agricultural output. The studies presented in this book focus on the employment effects of agricultural

¹⁷ The use of the term 'unskilled' rather than 'low skilled' is driven by the terminology used in one of the standard CGE models used for the analysis of trade policies, the so-called GTAP (Global Trade and Analysis Project) model.

trade policies but also consider other important policy instruments that are relevant to agriculture.

Agricultural subsidies are considered in chapters 4 and 10. From an efficiency perspective, agricultural subsidies are distorting; they artificially draw resources into the agricultural sector from other, more productive activities. Nevertheless, countries often subsidize agriculture, probably driven by political economy considerations and with the intent to promote agricultural production amid concerns over rising agricultural and commodity prices or to stem rural-to-urban migration. The studies find that raising domestic support to farmers increases agricultural and unskilled employment, but it reduces skilled employment. Propping up the agricultural sector creates farm employment but at the taxpayers' expense and with an undesirable change in the country's employment structure towards more unskilled work.

Chapter 10 models another policy scenario with strong fiscal implications: the removal of payroll taxes on skilled and unskilled labour in the agricultural sector. The authors find a strong positive impact on agricultural employment with negligible effects on output and trade. This result indicates the potential effects of wage policy in generating employment, even in agriculture.

In chapter 5 a cotton export restriction is predicted to reduce both skilled and unskilled employment and wages. This finding reflects the importance of access to foreign markets for the health of the agricultural sector in a small developing country such as Benin. Using export restrictions as a successful developmental tool to increase value addition would require the existence or development of the productive capacity to process the raw material in the country.

Productivity increases in agriculture: ambiguous effect on agricultural employment

Policies targeting productivity increases in the agricultural sector are likely to have positive pay-offs in terms of poverty reduction and economic growth. Yet, the studies in this volume show that the effects of productivity increases on agricultural employment are ambiguous, which highlights the need to clearly define and evaluate policy objectives.

An increase in agricultural productivity can have two main effects on agricultural employment. On the one hand, less labour is required for the same output, i.e. labour is freed from agriculture and moves into industry or services or becomes unemployed. On the other hand, farmers can produce at lower cost and sell agricultural output at lower prices, which increases the quantity demanded of agricultural output and, in turn, the demand for farm workers. Thus, there are opposing forces, and the net employment effect of an agricultural productivity increase depends on the nature of the productivity increase, the agricultural production technology used, and the responsiveness of consumers to changes in the price of farm output.

In Bangladesh and Indonesia an increase in agricultural productivity leads to a drop in agricultural employment, while, in Mexico and the typical developing country modelled in chapter 1, agricultural employment increases. The negative employment

effects occur when domestic and foreign demand for agricultural goods is relatively fixed. Increasing agricultural productivity coupled with the possibility of rising demand, especially in foreign markets, will tend to increase employment in the agricultural sector.

THE WAY FORWARD

Significant untapped potential exists for agricultural development, and current opportunities are promising, arising from recent economic developments such as positive movements in the terms of trade and continued upward trends in commodity prices. Coherent agricultural trade and development strategies are needed to better harness any beneficial effects. Such strategies would vary from country to country according to resource and technology endowments and the significance of agriculture in the economy.

Agricultural trade liberalization alone is unlikely to produce job miracles. In the same way, agricultural trade liberalization should not be expected to produce dramatically negative employment effects. To optimize employment and development effects from agricultural trade, countries should probably consider a combination of strategic trade liberalization, targeted promotion of agricultural productivity and government action to reduce the vulnerability of agricultural workers.

Although the constitutions and labour codes of most developing countries contain sections devoted to worker rights and provisions relating to social security, there are often workers who fail to benefit from this type of legislation. The majority of agricultural workers in developing countries fall into this category because of institutional problems coupled with rural isolation, political weakness, and poverty. Many are excluded from the scope of labour legislation because of the nature of employment (e.g. casual or seasonal workers) or their membership in a particular group (e.g. migrant workers or indigenous peoples). For agricultural trade liberalization to create decent jobs, the legal protection afforded by national labour standards needs to be realized for these workers (ILO, 2008). Ensuring that many more agricultural workers are covered by social insurance schemes would reduce the challenges for these workers to adjust to trade liberalization.

Gradual or phased-in liberalization can also facilitate adjustment processes and help to avoid bottlenecks in the labour market that may arise, for instance, when large numbers of rural workers move into urban areas. However, gradual liberalization is not enough to make the best of export opportunities. The latter may require a stronger business-enabling environment and policies to increase productivity. Given the great and growing importance of global supply chains, government support to attract major international players to the country may be important.

Following trade liberalization, some developing countries may increase specialization in agricultural production. Complementary measures should ensure an increase in value addition and promote structural change that can include modern agriculture and related services. Policies promoting productivity increases and innovation may

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also help countries to avoid falling into the low value-added trap. Flanking measures to help farms and farm workers adjust by diversifying into specialty agricultural products or non-farm activities may be useful. Measures reducing trade costs for farmers, in particular smallholders, should figure prominently among them. These include infrastructure investments but also the provision of information about aspects like price developments, about changes in foreign demand and distribution networks. Employer organizations or export promotion agencies can play an important role in this.

What is special in agriculture is that the changes in the size of the agricultural sector typically go hand in hand with changes in the urban concentration of a country's population, which are reflected in rural-to-urban migration. If trade reform triggers or intensifies such migrations, measures to facilitate integration in urban areas could make a big difference. Those could be simple measures, such as providing more information regarding accommodation or job opportunities, or support to peri-urban agriculture (i.e. growing crops and raising livestock in small areas within and around cities) to contribute to food security for new urban residents. Given the high incidence of poverty among rural workers, changing from one job to another or moving from one location to another may cause significant hardship. Reducing this hardship is a noble objective and will most likely contribute to increased economic efficiency.

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