SUMMARY

Synergy between agriculture and services trade: enabling new growth opportunities
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COVER PHOTOGRAPH:
Ukraine. Combine reloads wheat into the bunker for further transportation during the harvest near the Krane village ©FAO/Anatolii Stepanov
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WHY DO SERVICES MATTER TO AGRICULTURE AND RURAL DEVELOPMENT?

Services are important at all stages of the food value chain, from the credit farmers need to invest in inputs, through to the processing and distribution of finished goods. The role of government in providing services varies from one country to another, although the public sector is often active in provision of services in cases of persistent market failure, with services in most countries provided by a mix of public and private sectors. By establishing appropriate regulatory frameworks, governments can help ensure that services for the food and agriculture sector support the achievement of public policy goals, such as food security and rural development. Where services are traded across international borders, governments need to ensure that policies affecting trade and markets contribute to these goals, for example by creating jobs and raising income and productivity, including for small-scale food producers.

Tackling poverty and food insecurity

The performance of the agricultural sector is critical for poverty reduction and food security, as it is the main source of livelihood for the world’s rural poor, with many working as subsistence producers, family farmers, or landless agricultural workers. World Bank analysis suggests that globally, some 30 percent of all workers are employed in farming, with double that share in low-income countries. Studies have also shown that, in low-income countries, agricultural growth is three times
more effective at reducing extreme poverty than growth in other sectors is; furthermore, it is eleven times more effective in Sub-Saharan Africa. If policy frameworks are designed with this in mind, therefore, services of importance for food and agriculture can help contribute to tackling poverty, improving food security and supporting rural development.

**Enhancing productivity**

One of the main ways in which this can happen is by ensuring that the provision of services supports productivity gains in the agricultural sector, including among small-scale food producers. Well-functioning markets for services can contribute to the adoption of better agricultural practices, which can in turn contribute to productivity growth. Measurements of Total Factor Productivity (TFP) can help policy-makers and others understand the extent to which production growth is due to improvements in productivity – rather than to other

![Figure 1: Sources of growth in agricultural production, by country income group, 1961-2010. Source: FAO, based on Fuglie (2012).](image)
factors such as intensification of inputs. Between 1961 and 2010, 40 percent of agricultural production growth was accounted for by TFP growth - although TFP grew noticeably more slowly in low-income countries, as Figure 1 shows.

**Value addition**

It is important that policy-makers take a holistic approach to the relationship between the services sector, on the one hand, and the food and agriculture sector, on the other. Policies affecting a given part of a food value chain need to take into account potential upstream or downstream implications in order to maximize positive outcomes. According to WTO analysis, 70.8 percent of the added value in agro-industrial exports in 2011 came from upstream industries, and the share of services in the overall added value was 37.7 percent – a figure which is higher than the 29.2 percent of value added by the agro-food sector itself.

**Promoting gender equality**

Improving equal access to services that are important for food and agriculture could also help address gender inequality. FAO analysis indicates that, while women are estimated to represent 43 percent of the agricultural labour force in developing countries, their access to land, productive resources, wages, education, financial services and information lags behind that of men. Furthermore, the management consultancy firm McKinsey finds that women have only 77 percent of the access that men have to financial services, and 84 percent of their access to the internet and mobile phones. FAO analysis suggests that women’s empowerment could raise farm productivity by 20–30 percent, increase national agricultural outputs by 2.5 to 4.0 percent, and ultimately lift 100 to 150 million people out of hunger.

**Achieving the Sustainable Development Goals**

Policy-makers need to consider how improving services for food and agriculture can contribute to the achievement of the 17 Sustainable Development Goals (SDGs) to which world leaders agreed in 2015. In particular, Goal
2 commits countries to ending hunger, achieving food security and improved nutrition, and promoting sustainable agriculture. Policies on trade and other areas affecting the services sector can have implications for the achievement of this and other goals, including those on ending poverty, climate action, gender equality, and sustainable consumption and production.

While all services affect food and agriculture either directly or indirectly, the following analysis highlights four types of service that are particularly important: transport and logistics services, financial services, information and communications technology (ICT) services, and distribution and retail services.

**HOW DO KEY SERVICES SECTORS AFFECT FOOD AND AGRICULTURE?**

New developments in distribution, transport and logistics, ICT and financial services are transforming economies in different regions of the world. The section below explores how markets and policy frameworks are evolving in key services sectors and examines some examples of how these changes are affecting food and agriculture.

**Distribution services**

New technology and business approaches are reshaping the retail sector. Sophisticated technologies are being used in countries that are investing in retail, with stores adopting self-service checkouts and price-check scanning machines, grocery price comparison websites appearing online, and digital walls in subway stations allowing consumers to shop and pay with smartphones. Machine learning and other technological developments are also being adopted.

E-commerce in particular has significantly disrupted the distribution subsector around the globe. In the European Union, for instance, an estimated two-thirds of business-to-business (or wholesaling) firms saw their online sales grow faster than offline. Online customers also have higher value orders. In high-income OECD members, food and grocery is the fastest growing and largest segment in e-commerce, while it is part of the top ten sales segments of developing countries.
such as India and Senegal. The distribution subsector faces relatively few barriers to internationalization. Out of 42 countries studied by OECD, only two restrict foreign equity participation, with one of these allowing 67 percent foreign ownership in wholesale but precluding foreign investment in retail trade. The same study also finds several countries require commercial presence before firms can supply cross-border distribution services. However, trade costs are still significant in the distribution sector, equivalent on average to a tariff of 10 percent on standard services and 37 percent on specialized services. By affecting retail and distribution of food, these measures can hinder competitiveness in a key part of the food value chain.

Many countries nonetheless restrict e-commerce, including through bans on business-to-consumer e-commerce; discriminatory access to certain payments and settlement methods; no provision for non-resident foreigners to register and declare taxes online; regulations on sales periods and opening hours; and restrictions on the distribution of certain products in some countries. Again, restrictions in this area can have an impact on the ability of countries to add value to food and farm goods, and slow efforts to improve competitiveness in the sector.

**Transport and logistics services**

Over the past two decades, the transport and logistics sector has been revolutionized by digitalization and technological innovations, increases in the frequency and scale of international trade, and environmental concerns and related regulations. These have lowered costs, reduced delivery times and improved the performance of subsectors.

Technologies developed in this period have enabled produce to be brought to markets thousands of miles away while retaining freshness. For example, controlled atmosphere (CA) technologies have significantly extended produce shelf life, as well as product quality and variety. Ongoing technological progress is expected to continue facilitating trade in perishable
produce and other goods, with products such as tropical fruits increasingly available and affordable year-round in major world destinations.

Regulations and private initiatives to improve environmental sustainability, including by reducing greenhouse gas emissions, have become more important in recent years, especially since the adoption in 2015 of the Paris Agreement of the United Nations Framework Convention on Climate Change (UNFCCC). The WTO’s Trade Facilitation Agreement, which entered into force in 2017, has also had significant implications for the sector as governments adopt measures to improve transparency, expedite and streamline documentation requirements for the movement of goods, and strengthen institutional frameworks and cross-border cooperation (see Figure 2).

**Case study 1: modelling liberalization of foreign direct investment (FDI) in India**

Lakatos and Fukuis (2014) evaluate the impact of removing FDI barriers to foreign commercial presence in India’s agricultural and distribution sectors and find that agricultural output would grow by just over 2 percent and the domestic distribution sector would expand by just under 1 percent, due to spillover effects and expected productivity increases of nearly 4 percent. However, liberalization would have adverse effects on the distribution sector at first. The authors also find that agricultural consumer prices would fall by 4 percent, and consumption would rise by 2 percent. As different foreign affiliates expand their output, overall FDI in the distribution sector in India would expand by 120 percent and, all things being equal, domestic investment would fall by 3 percent as Indian distributors become less competitive. Improved productivity in agriculture and distribution would raise the share of the sectors in India’s economy by about 10 percent and 11 percent respectively.

ICT services can improve the competitiveness
of value chains by improving efficiency, reducing costs, and increasing productivity. They can also help improve food safety and address environmental challenges. However, many developing countries still lack basic requirements for the subsector, and lag behind in adopting ICT for agriculture.

Precision farming illustrates how ICT services can deliver benefits to farmers and other actors in the food value chain. This technology uses remote sensing to map soil properties, pest and disease attacks, and control equipment on a continual basis. It also advises farmers when they can cultivate, fertilize and spray pesticides; helps them decide on livestock nutrient intake; and assists with harvest monitoring. Farmers can receive
Case study 2: transport, logistics and food costs in Latin America and the Caribbean

Transport and logistical deficiencies increase transport costs: in Latin America and the Caribbean, for instance, logistics costs are between 16 percent and 26 percent of regional GDP, while in OECD members the equivalent figure is about 9 percent (Schwartz et al., 2009). High logistics and transport costs mean higher prices, particularly for food and fresh produce that requires temperature-controlled infrastructure. Estimates for Latin America and the Caribbean suggest that if improvements are made to port efficiency, road haulage, customs clearance, border crossings, inventory practices and warehousing via increased capacity and competition, food costs could drop by 5 percent to 25 percent – a decline in logistics costs of 20 percent to 50 percent.

On-demand customized solutions to their unique problems with input management, throughputs, outputs, postharvest processing and marketing; these are delivered through channels tailored to their particular capabilities. Other services use satellite sensors to provide information pertinent to a farm or specific geographic area, which is sent directly to farmers’ mobile phones. Some applications use big data to help farmers adjust to weather variability. Farmers enter the village name, or detailed latitude and longitude of the farm and crops planted and receive in response tailored information such as crop-specific advice, localized weather forecasts, or local market prices.

FAO and Google have also collaborated to expand access to satellite information in the form of geospatial tracking and mapping products. One output from this partnership is the Water Productivity Open-access Portal (WaPOR), which has 250 million spatial resolution data on agricultural water productivity for all of Africa and the Middle East.
Financial services:
Across the globe, financial institutions often serve the agricultural sector, and in particular smallholders, relatively poorly. In Africa, commercial lending to agriculture represents one percent of all lending, and farmers are often obliged to borrow at high interest rates from informal moneylenders. Access to financial services is also highly unequal. One study by UNCTAD found that financial services are more available to the 8.4 percent of the world population that holds 83.3 percent of total wealth, even if the remaining 91.6 percent with modest average wealth represents more than USD 40 trillion.

Case study 3: providing information to smallholders in India
In India, the initiative Reuters Market Light provided information on prices, commodities and advisory services to over 200,000 smallholders in 10 different states for a cost of USD 1.50 per month. Estimates show the service may have generated USD 2–3 billion in income for farmers, while over 50 percent reduced their spending on agricultural inputs. The World Bank reports that the model worked well at inception, when donors provided seed funding, but has since faced difficulties identifying a sustainable price for the service.

Case study 4: Providing rural financial services in Pakistan
Firms such as Tameer in Pakistan provide financial services for the rural sector through branchless banking. The company’s field agents, equipped with mobile phones or point-of-sale devices, serve as mobile branches, providing financial services such as loans, deposits and insurance to smallholders, along with financial information. Agents also keep records of client creditworthiness. The firm’s services are also accessible through other outlets such as mobile phones, authorized shops, selected franchises and microfinance bank branches.
Microfinance is therefore key in expanding financial services to low-income economic actors, such as smallholders. While commercial banks constitute more than 75 percent of all rural branches of financial institutions worldwide, microfinance institutions account for less than 3 percent. However, as 41 percent of their branches are in rural areas, the latter are closer to farmers. McKinsey Global Institute estimates that, if digital financing is expanded, it could add USD 3.7 trillion to developing countries’ GDP by 2025. Led by the US and Europe, investment in digital finance is growing steadily, with a notable surge in 2014.

In particular, new technologies are revolutionizing the financial sector in Africa. An estimated 60 percent of Africans could have access to banking services by 2025, if appropriate legal frameworks and technologies are set in place, and over 90 percent could use mobile wallets for daily transactions and remittances.

How do agriculture and services differ across world regions?

Africa: smallholder farming is key for jobs and incomes, though high transport costs hamper growth

The agricultural sector employs more than 50 percent of the continent’s population, of which 47 percent are women, and is the source of income for 40 percent of youth, according to analysis by the World Economic Forum (WEF). Although the contribution of agriculture to Gross Domestic Product (GDP) has fallen in most African countries, it represents on average 15 percent of GDP, ranging from 2.4 percent in Equatorial Guinea to 70 percent in Liberia. The sector consists of 80 percent smallholders, who cultivate low-yield staple food crops making minimal use of inputs, and with heavy dependence on rainwater. Productivity is low: in the 2001–10 period, TFP grew by just 2.1 percent on average.

The services sector is a source of income for 30 percent of the African working age population, with about 33 percent of youth
working in the sector. Services now contribute nearly 50 percent of GDP in USD terms, and above 50 percent in nominal market prices. Although the share of transport in total exports of commercial services from Africa has risen over most of the last decade, it has nonetheless failed to create strong links with exports from other domestic sectors. Transport costs remain high and can represent up to one-third of the farm gate price in some sub-Saharan African countries, according to World Bank analysis. Some countries in the region are relatively successful in exporting high value-added services such as communication and finance. However, Africa’s share in world exports of commercial services lags behind all other regions, at about 2 percent over the past decade, WTO data shows.

**Asia and the Pacific: services are adding value to food and farming, across a highly diverse region**

Agriculture remains a large employer in Asia and the Pacific, employing 46 percent of the workforce. Although employment shares differ widely across countries, the share in the two largest economies remains high: 50 percent of all workers in India, and about 30 percent in China. The importance of the agricultural sector in employment is connected to countries’ levels of development, with the share of agriculture in total employment highest in low-income economies (39 percent), followed by middle-income economies (17 percent). In addition to the adoption of high-yielding seed varieties during the “Green Revolution”, the expansion of financial services and services related to agriculture and infrastructure have also played an important role in the rapid productivity growth of agriculture.

Although low-productivity-growth services account for the highest share of employment from services, with travel and transport services predominating, the service sector’s performance over most of the past decade has been positive. The share of services added value embedded in agriculture, hunting, forestry and fishing is about 18.5 percent, with
imported services representing 5.2 percent, although these figures vary for countries across the region.

**Middle and Near East (Western Asia): resource constraints and food security concerns predominate**

Since the global economic crisis of 2008, agriculture and food security concerns have come to the forefront of policy-makers’ priorities. Undernutrition remains a major challenge, alongside other forms of malnutrition such as obesity and overweight. Scarcity of water and fertile land are challenges faced across the region, which remains heavily dependent on food imports. However, while yield improvements globally contributed 95 percent of cereal production gains, the corresponding figure for the region was only 37 percent – with productivity gains in LDCs even lower. Rain-fed farming systems predominate, except in the Gulf Cooperation Council sub-region (Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates). Although countries in the region are investing heavily in diversification of their economies, so as to reduce oil and gas dependency, little investment is seemingly being directed towards services that directly affect agriculture. Nonetheless, the farm sector and rural areas could benefit from developments in the areas of ICT, and travel and tourism, which are priorities for several governments.

**Latin America and the Caribbean: R&D among factors driving agricultural productivity growth**

In 2012 the agricultural sector accounted for nearly 5 percent of GDP, employed 16 percent of the workforce and produced about 23 percent of the total exports of the region. However, in recent years the fall in agricultural commodity prices has adversely affected the farm sector and the region. About 70 percent of agricultural growth since 2005 can be explained by productivity improvements, with expansion of factors accounting for the remaining portion. Research and development (R&D) has driven productivity gains in Brazil and Argentina, the region’s two major agricultural powerhouses. However, there is considerable diversity across
the region, as Figure 3 below shows: In 2010, the average share of services in LAC’s total value added was close to 62 percent in nominal values; in Caribbean countries, the share was 74 percent, according to IADB analysis. While a positive correlation exists between performance in services and manufacturing, the same correlation is less apparent between services and agriculture – possibly because of limited integration between the services and agricultural sectors, or because of issues to do with the data availability on services.

**OECD members: investing in science and technology for agricultural productivity growth**

In the high-income countries that make up the Organization for Economic Cooperation and Development (OECD), the agriculture sector in 2014 accounted for 1.4 percent of GDP and 2.8 percent of employment on average. TFP growth among OECD members averaged 1.8 percent between 2004 and 2013, or close to the global average, and was due to investment...
in innovative technologies, nutrient use and pest management, farm practices, and farm equipment and structures. OECD economies also lead investment in sciences and technology.

The services sector is the major contributor to GDP in all OECD economies, with the share of services in GDP higher than 70 percent in most countries. The share of services in total employment correlates with a country’s income level: in high-income OECD members, the share is between 70 percent and 80 percent, while in lower-income OECD members it ranges between 55 percent and 60 percent.

**HOW CAN POLICY-MAKERS HELP ENSURE THE SERVICES SECTOR SUPPORTS AGRICULTURE AND RURAL DEVELOPMENT?**

Policy-makers can ensure that market trends contribute to the achievement of public policy goals in areas such as food security and rural development by setting in place adequate regulatory frameworks and tackling market failures.

By ensuring that policies affecting trade and markets are part of a holistic approach to addressing development challenges, government officials can also ensure that new types of economic activity in the services sector contribute to improving productivity and competitiveness throughout the food value chain, including in ways that support small-scale food producers and other marginalized economic actors.

Achieving the ambition of the SDGs will require governments to take actions that help raise rural incomes and boost productivity sustainably – in parallel with other measures needed to address poverty and inequality and mitigate and adapt to the expected implications of climate change.

Supporting a dynamic and competitive services sector can contribute to doing so, including by enabling economic actors in the food and agriculture sector to benefit from technological breakthroughs and
investment in other world regions, and improving their ability to add value from farm to fork.

Anticipating new challenges and opportunities on global markets, and ensuring that policy frameworks are adapted to these, will be important as governments set in place mechanisms to translate the vision of Agenda 2030 into reality.

If policy-makers approach the challenges facing the food and agriculture sector in a holistic way, negotiations on trade in services at multilateral, regional and bilateral levels could also contribute to supporting public policy objectives in areas such as rural development and food security.
REFERENCES


SUMMARY

Synergy between agriculture and services trade: enabling new growth opportunities

FAO supports Member Countries’ effective engagement in the formulation of trade agreements that are conducive to improved food security by strengthening evidence on the implications of changes in trade policies, providing capacity development in the use of this evidence, and facilitating neutral dialogue away from the negotiating table. FAO Geneva office extends this support to the Member Countries’ delegations and engage with the relevant international organizations, civil society, academia and media, based in Geneva, to further FAO’s work on trade and food systems.

This Technical Paper explores linkages between Agriculture and Services trade and how the deployment of various services could foster food security and help achieving the Sustainable Development Goal 2 (Achieving Zero Hunger). The paper also attempts to bridge the perception gap between agriculture trade (which is often seen through protectionist lens) and the services trade (often labelled as liberal agenda) in the context of the negotiations at the World Trade Organization (WTO).