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The changing landscape of agricultural markets and trade: prospects for future reforms

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THE CHANGING LANDSCAPE OF AGRICULTURAL MARKETS AND TRADE: PROSPECTS FOR FUTURE REFORMS

This report synthesises OECD work analysing agricultural policies, markets and trade. It highlights recent developments in agricultural markets and policies and considers how these have changed the source and nature of the gains from multilateral reform, and considers opportunities for further reforms.

In large part, gains from further reform come from the opportunities to increase income and jobs through increasing agro-food sector participation in global and domestic value chains. Countries can enhance the overall competitiveness of their agro-food sectors though more open trade policies and reducing the impacts of measures that raise trade costs. This includes reducing distorting domestic support and market access barriers, including to agro-food imports; ensuring that non-tariff measures are appropriate, transparent, and science-based; and reducing barriers to services trade.

Key words: Agricultural trade, agricultural policy, global value chains, non-tariff measures, trade in services, policy reforms

JEL codes: F13, Q17, Q18

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Key messages

Developments in agricultural markets and policies since 2001 have increased the integration of the world food system.

- Agro-food tariffs have fallen and many countries have reduced their use of trade-distorting producer support.
- Trade in agro-food products has grown strongly, including between emerging and developing countries, which have increased in importance as both suppliers and markets for agro-food products.
- Agricultural and food sectors are also more closely connected with other sectors of the economy, both within countries and across borders in global value chains.

Closer connections between sectors and regions mean that trade and domestic support measures that restrict or unnecessarily increase the costs of trade harm countries' own economies, as well as those of their trading partners. Protectionist policies reduce sector growth and export competitiveness by increasing the cost of inputs, and can constrain participation in global value chains. Such policies also tend to have a negative impact on the food security of poor households by increasing prices for staple foods.

Countries have a lot to gain from unilateral efforts to enhance the overall competitiveness of their agro-food sectors. These include more open trade policies and reducing the impacts of measures that raise trade costs, including those that are an outcome of domestic regulation and other non-tariff measures. At the same time, policies to ease adjustment to open markets and strengthen overall economic flexibility and performance will be important to ensure that agro-food sectors can benefit from the opportunities that trade brings and ensure that no one is left behind.

But greater gains can be realised through widespread multilateral reforms, and preferential and regional trade agreements. This includes agreements that lock in actual liberalisation (such as by binding applied tariffs) and progressing co-operation on trade-related regulatory issues that influence the gains from agro-food trade.

Introduction

Over the past decade, international agricultural and food markets have witnessed a number of changes that have brought domestic and international markets closer together. Globally, trade in agro-food[1] products has grown more strongly than in the past, accompanied by shifts in policies and production. Increasing trade growth has also coincided with deeper integration of the world's agro-food system, with the rising importance of agro-food global value chains (GVCs).

This paper highlights these developments in agricultural markets and trade, and considers how they have changed the benefits to countries from reforming trade and agricultural support policies. It draws on recent OECD work analysing agricultural policies, markets and trade, including agro-food global value chains, the monitoring and evaluation of agricultural policies across countries, non-tariff measures and international regulatory co-operation.

Developments in agricultural markets and policies have brought sectors and regions closer together

The way in which food and other agricultural outputs are produced is increasingly global. Where once agro-food sectors largely produced for domestic consumption or export directly to the final consumer, now, agricultural and food processing value chains are often global in their reach. Within these GVCs, the activities and inputs used to produce primary products, and those that transform them into food, clothing and other products – including the production, marketing and delivery of agro-food products to final consumers – are spread over several countries. This links agro-food sectors and other sectors of the economy from across the world. Countries and industries contribute parts of the final product – for example, the agricultural exports of one country are used as inputs in another country's exports of processed foods (Box 1). This has allowed agro-food sectors to leverage their comparative advantage in different stages of production and benefit from access to more competitive and diverse inputs (OECD, 2018[1]).

Within domestic and local agro-food value chains also, the different parts of the sector – input suppliers, farms, processors and distributors – are more closely connected, with consumer demand for more differentiated products with higher levels of quality, accountability and safety resulting in closer linkages between farmers and other businesses in the value chain. For producers in domestic and local value chains also, performance depends on links to other sectors, service industries in particular.

The emergence of GVCs in agro-food trade, and of the connections they create between sectors and countries, is one of several developments in agricultural markets and policies that have deepened the integration of the world agro-food system (Box 2 and Figure 1). Falling tariffs and reductions in trade distorting producer support have added to the gains in market access that began with countries implementing their commitments under the Uruguay Round 1994 Agreement on Agriculture (AoA). Since 2001 – when the latest

1 Agro-food products includes agriculture, which is broadly defined as primary production activities, and food, which is defined as processing activities.

round of multilateral negotiations began – average applied agro-food tariffs have fallen by around 6 percentage points, largely because of a range of bilateral and regional trading agreements coming into force and unilateral actions by some countries (OECD, 2018[2]). This has led to liberalisation that goes beyond WTO levels, despite the political sensitivity of the agriculture sector (OECD, 2016[3]).

Box 1. Understanding agro-food global value chains (GVCs)

The concept of global value chains (GVCs) is useful for understanding how the production of food and other agricultural outputs is organised; how trading relationships link primary agriculture to the downstream activities of processors and retailers, as well as to upstream inputs used to produce agricultural commodities; and for measuring the benefits to an economy from being involved in trade.

Agricultural value chains represent the full range of activities that firms undertake to bring an agro-food product to final consumers – this includes the activities (and inputs) used to produce primary products, and those that transform them into food, clothing and other products. The traditional view of international agro-food trade is that agro-food sectors in each country largely produce for domestic consumption or export directly to the final consumer. However, reforms to trade and domestic support policies, and technological progress that has reduced communication, co-ordination and transport costs associated with trade, have facilitated the geographical fragmentation of production processes across the globe according to the comparative advantage of the locations. The fact that these activities are increasingly spread over several countries explains why the agro-food value chain is regarded as "global".

Countries participate in GVCs in two ways. First, by using foreign inputs to produce exports (termed *backward* participation). For example, a flour miller buys foreign wheat to produce exports, or a fruit grower uses imported machinery to help produce exports. Second, when a country's exports are used as an input in the exports of other countries (termed *forward* participation). For example, a miller exports flour, which is then used in another country's exports of biscuits. In general, agricultural sectors sell more into GVCs, often as raw materials that form inputs in other countries' exports. Food sectors, on the other hand, rely on agricultural commodities and other inputs to produce their own exports, and so buy more from GVCs.

Agro-food products in GVCs are produced by combining the efforts of many actors across different countries, and all countries involved in a given agro-food GVC retain some value and benefit from the export of the final product. However, much of the value added throughout the global value chain is invisible in traditional trade statistics, which attribute the full value of a good or service to the last country in the chain that finalised production. Understanding how countries benefit from participating in GVCs requires unpacking these various elements so that for any given product traded, the amount of transformation that has occurred locally can be identified. For this reason, the benefits to countries from participating in GVCs are best measured by domestic value added – the returns to land, labour and capital (including taxes paid and excluding subsidies).

Source: De Backer and Miroudot (2013[4]) and Greenville, Kawasaki and Beaujeu (2017[5]).

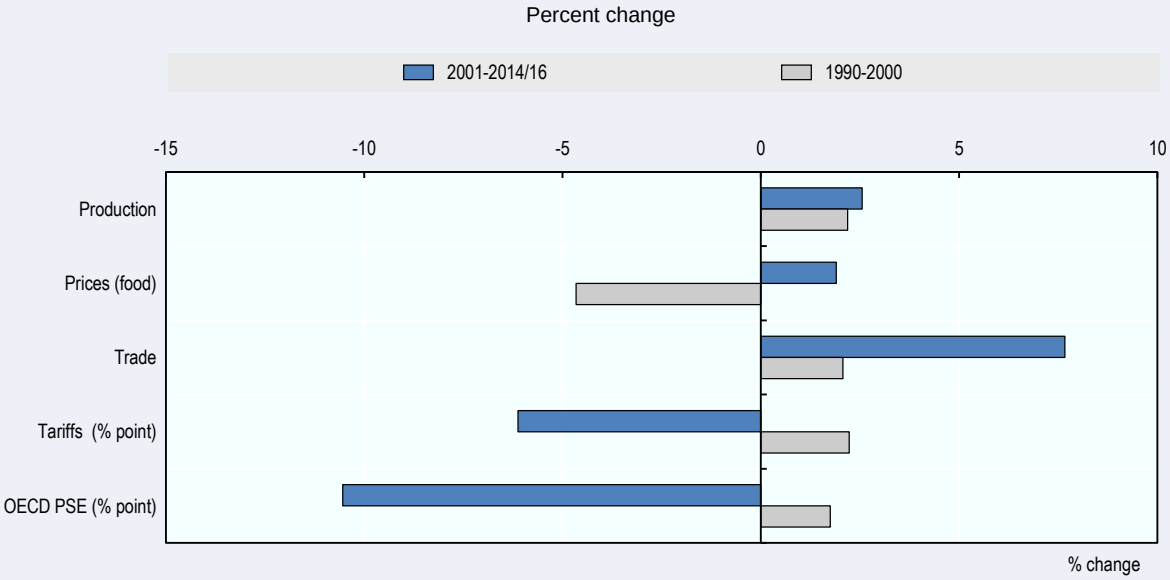
Box 2. Developments in agricultural markets and policies

World agricultural markets and policies have changed significantly since the latest round of multilateral negotiations began in 2001 (Figure 1), with shifts in policies and production playing a role in influencing trade patterns.

Global agricultural production has continued to grow strongly. However, there has been a shift in the relative importance of production centres towards emerging and developing regions, those of Asia and South America in particular. This trend is expected to continue over the coming decade, as developing regions expand and intensify agricultural production, particularly in Sub-Saharan Africa and South and East Asia (OECD/FAO, 2018[6]). In contrast, production growth was modest in the developed production regions of Europe and North America.

Trade in primary agriculture and processed food products has also grown more strongly than in the preceding decade, as world markets responded to a more rules-based trading environment, falling tariffs and reductions in trade-distorting producer support. The value of agro-food products traded internationally grew at close to 8% a year between 2001 and 2014 (in real terms), compared with 2% a year between 1990 and 2000 (OECD, 2016[3]). Going forward, slower growth in trade volumes is expected for most agricultural commodities (OECD/FAO, 2018[6]).

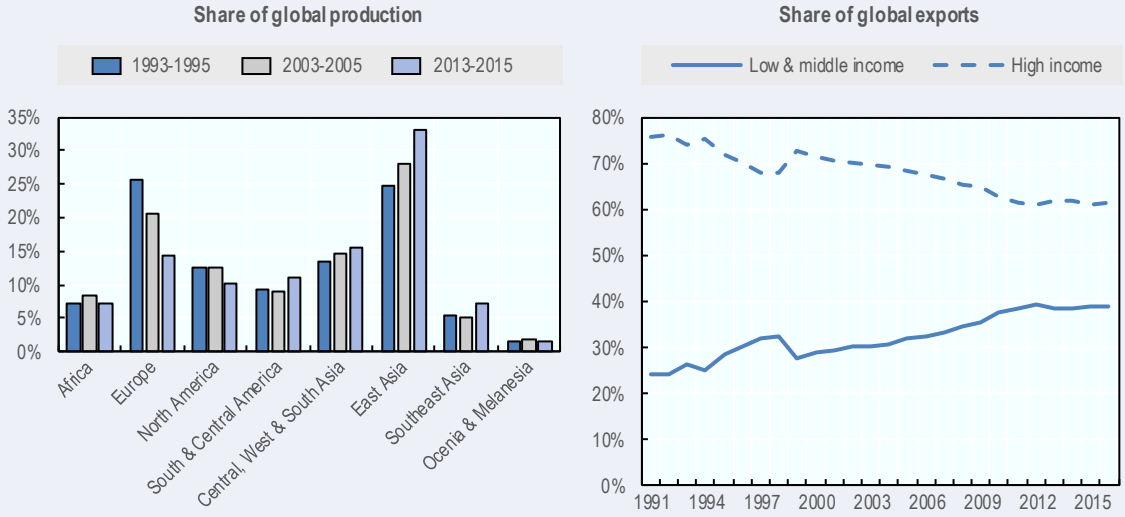
Figure 1. Developments in agricultural markets and policies since 2001



Source: Updated from OECD (2016[3]).

However, patterns of trade in agro-food products have changed significantly since 2001 (Figure 2). Developing and emerging countries are rising in importance as major agro-food exporters and importers – Brazil, the Russian Federation, India, Indonesia, the People's Republic of China (hereafter "China") and South Africa in particular. Between 2000 and 2016, low- and middle-income countries' share of world agricultural exports increased from 29% to 39%, while their share of world agricultural imports increased from 21% to 32%. There has also been a change in the distribution of trade between countries, with an increase in trade between emerging and developing countries (OECD, 2016[3]).

Figure 2. Developing and emerging economies are increasingly important in world agro-food production and trade



Source: FAO (2018[7]), FAOSTAT Database http://www.fao.org/faostat/en/#data, WITS (2018[8]), *World Integrated Trade Solution,* https://wits.worldbank.org/WITS/WITS/Restricted/Login.aspx.

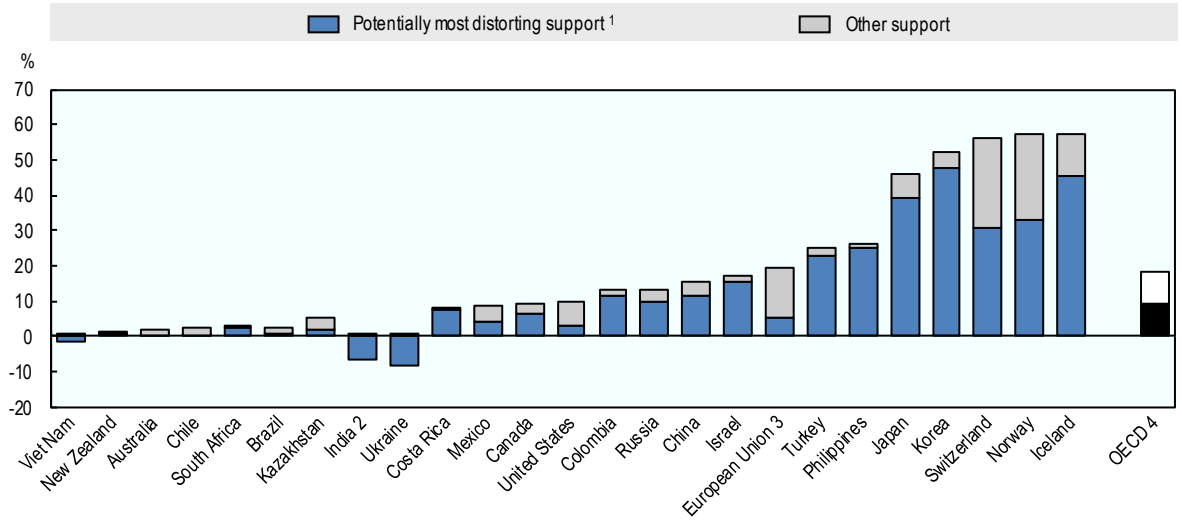
The level of support provided to producers (as measured by the OECD's producer support estimate (PSE)) has fallen in most countries – exceptions include some key emerging and developing countries where support has increased from low or negative levels. But many countries continue to support their agricultural producers using measures that create barriers to imports of agro-food products. In 2015-17, almost two-thirds of producer support was provided via measures that distort production and trade strongly, in particular, through market price support (MPS, accounting for almost 60% of direct support to producers), which often relies on tariffs and other barriers to market access (Figure 3) (OECD, 2018[9]). OECD analysis indicates that such measures are effectively a tax on domestic downstream agro-food sectors, reducing domestic value added in agro-food exports (OECD, 2018[10]).

In general, countries have also reduced the trade impact of their portfolio of agricultural policies, by reducing and restructuring the way they provide support to their producers. For example, a number of OECD countries have reduced their use of market price support (MPS), which is considered one of the most production and trade distorting forms of support. While producer support provided via other measures may have increased (partially offsetting the effect of lower levels of MPS on the PSE), those measures tend to have a lower effect on trade. As a result, the decline in the Trade Impact Index of producer support (TII) was more significant. This includes the European Union, Japan and Switzerland, where reductions in MPS and other distorting support measures were partly compensated by an increase in payments of a much less distorting nature, such as payments based on historical entitlements (OECD, 2018[9]). In contrast, the emerging economies on average have increased their level of support, albeit from low levels.

Figure 3. Many countries continue to support their producers with measures that strongly distort trade

Producer Support Estimate as percentage of gross farm receipts

2015-17



Note: Countries are ranked according to the absolute values of the 2015-17 levels.
1. Support based on output (including market price support and output payments) and on the unconstrained use of variable inputs.
2. 2014-16 for India.
3. EU28.
4. The OECD total does not include the non-OECD EU Member States.
Source: OECD (2018[11]), "Producer and Consumer Support Estimates", OECD Agriculture statistics (database), http://dx.doi.org/10.1787/agr-pcse-data-en.

Recently, however, efforts to further integrate agricultural markets have slowed down, or even reversed. The pace of agricultural policy reform has slowed in OECD countries (OECD, 2017[12]), and many emerging and developing countries have maintained a more defensive stance towards international markets since the 2007-08 food crisis (OECD, 2015[13]). Support also remains highly concentrated in a small number of sectors, rice, cotton and sugar in particular (OECD, 2017[12]; 2018[9]).

In the international space, progress with agricultural negotiations at the multilateral level remains slow, and regional trade agreements face increasing domestic opposition in many countries (OECD, 2018[14]). Pockets of high applied tariffs remain, and agro-food products in general face higher trade barriers than industrial goods – in 2015, applied weighted average agricultural tariffs in OECD countries were more three times higher than those for industrial goods (Table 1). Considerable differences also exist between applied and bound tariff levels. Across all countries, the average bound rate of agricultural tariffs is around six times higher than the applied rate. Agro-food products are also more likely to face non-tariff measures (NTMs) arising from domestic regulations (Cadot, Gourdon and van Tongeren, 2018[15]), and the number of concerns raised over NTMs is increasing, which suggests that they are becoming more important as traditional trade barriers are lowered (OECD, 2016[3]). As a result, agricultural markets and trade continue to be hampered by high policy-related trade costs in many countries.

Table 1. Average tariffs on agriculture are higher than tariffs on industrial goods

%

	1995	2000	2005	2010	2015
All countries, percentage of *ad valorem* tariffs					
Agricultural – applied rates	12.7	14.5	11.8	11.3	8.7
Agricultural – WTO bound rates	49.0	58.7	51.9	56.9	52.3
Industrial – applied rates	11.0	9.9	7.5	6.9	5.5
Industrial WTO bound rates	26.5	29.8	26.3	30.2	26.2
OECD countries, percentage of *ad valorem* tariffs					
Agricultural – applied rates	8.7	9.7	7.5	9.8	7.4
Agricultural – WTO bound rates	26.1	27.9	28.0	23.4	28.7
Industrial – applied rates	7.0	4.7	3.7	2.9	2.2
Industrial WTO bound rates	11.9	11.2	11.2	11.4	11.2

Note: Does not include AVEs for specific and mixed tariffs.
Source: WITS (2018[8]).

Policy options to lift income and employment in agriculture and food

Closer connections between sectors and regions mean that countries have a greater common interest in reducing distortions in world agro-food markets. The OECD and others have shown that overall, trade has contributed to inclusive economic growth, improved living standards and created new opportunities around the world (for example, see OECD (2017[16]; 2018[17]) and IMF, World Bank and WTO (2017[18])), although not all regions and workers have benefited equally. Trade is also crucial for agricultural and rural development because it creates new market opportunities for farmers, increases consumer choice and economic welfare, and contributes to reducing food insecurity across countries.

The emergence of GVCs in agro-food trade presents an opportunity for countries to increase economic activity within their economies. The OECD has found that agricultural and food sectors that participate in GVCs (by sourcing from and selling into GVCs) have experienced higher growth in domestic value added and add more value to their exports than sectors with lower levels of participation (OECD, 2018[1]). This is because those sectors benefit from additional opportunities to access new markets, and are more competitive as a result of access to more efficiently produced (and potentially higher quality) imported inputs, along with potential productivity gains resulting from technology spillovers in the value chain (Greenville, Kawasaki and Beaujeu, 2017[17]).

Increased access to imported inputs can also indirectly benefit producers in shorter, local value chains. While local value chains are underpinned by domestic connections, both for sourcing inputs and for selling to final consumers, their competitiveness (and long-term viability) is also linked to the performance of upstream and downstream agro-food industries.

Competitive agro-food sectors are more likely to create and sustain jobs. The agro-food sector is an important source of employment in many countries, including indirectly in other sectors. While employment in primary agriculture has consistently declined over the course of economic development, and now averages 4.7% of employment in OECD countries, the employment generated in up- and downstream industries is much higher.

For example, agro-food GVCs create employment and increase labour wages through both direct participation in agro-food trade and GVCs from own sector exports, and that created by supplying to other domestic sectors, which in turn export (OECD, 2018[1]). An estimated 20-26% of total global labour returns in agriculture result from trade linkages – be they direct linkages through trade in primary products, or indirect linkages through agricultural value added embodied in other processed products (from food to clothing to cars). Furthermore, increasing trade in agro-food products, and particular those traded as inputs into foreign production processes have helped reduce and even reverse the longer-term trend of falling employment levels in agriculture in a number of countries (OECD, 2018[18]).

Trade can also contribute to improved environmental outcomes by building countries' capacities to manage natural resources more effectively. For example, trade can improve access to technologies that make local production processes more efficient by reducing the use of inputs such as energy, water and other environmentally harmful substances, and provide exporting sectors with incentives to adopt stricter environmental standards in response to requirements imposed by importers. Trade may also help offset the economic consequences of future extreme climate events, by diversifying sources of supply (Ignaciuk and Mason-D'Croz, 2014[21]), and limit the effects of water risk hotspots on agriculture markets domestically and globally (OECD, 2017[22]). On the other hand, agricultural development and the expansion of exporting sectors has led to environmental degradation from deforestation, excessive use of agro-chemical inputs, intensive cultivation, water pollution and erosion, particularly in countries and regions where the agricultural sector is developing.

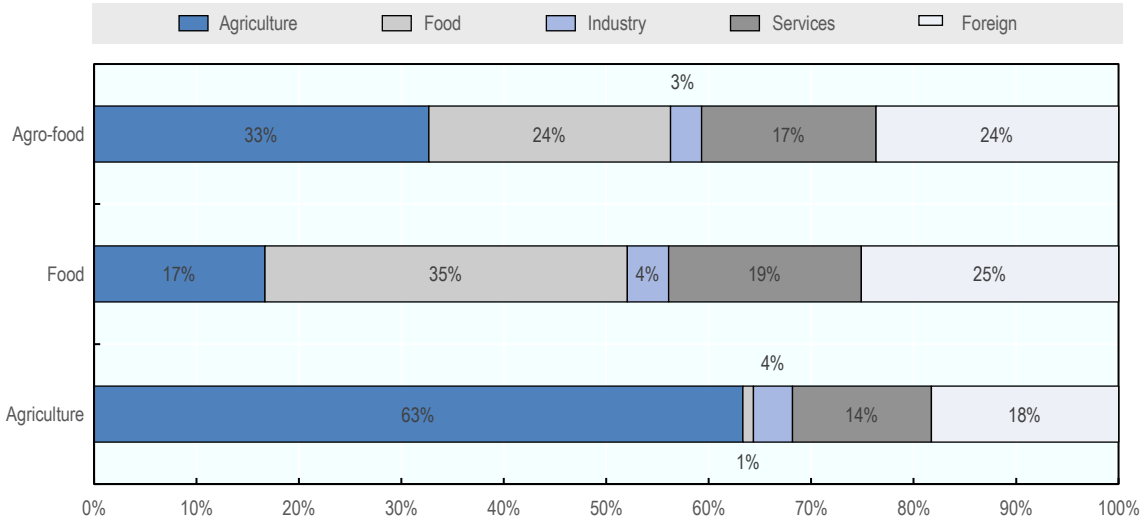
International trade plays an important role in compensating, albeit partially, for regional changes in productivity that are induced by climate change. Trade may also help offset the economic consequences of future extreme climate events, by diversifying sources of supply (Ignaciuk and Mason-D'Croz, 2014[21]), and limit the effects of water risk hotspots on agriculture markets domestically and globally (OECD, 2017[22]). While a well-functioning international trade system can support the adaptation to climate change-related challenges, trade policies as such are imperfect instruments to induce lower emissions globally (Huang, von Lampe and van Tongeren, 2011[23]).

Ultimately, the impact of trade liberalisation on the environment will depend on whether appropriate agri-environmental policies are in place within countries. This includes correctly pricing natural resources like water, and ensuring that domestic support measures do not encourage more intensive use of inputs or reduce resilience and adaptation to climate change by encouraging farmers to plant specific crops, even if they are not well-suited to local climate conditions (OECD, 2018[9]).

The key for policy makers is to create an environment where agro-food sectors can best leverage their comparative advantages and be competitive in domestic and global value chains, while facilitating adjustment to more open markets to ensure that no one is left behind. Trade policies and other measures that act as barriers to imports directly reduce the competitiveness of a country's own agro-food exports by increasing the cost of inputs. Globally, around 24% of agro-food export value comes from foreign factors that are first imported: services (for example, transport, finance and communication services) and industrial inputs (for example, machinery and fertiliser), but also agro-food products, such as feedstuffs and products for further processing (Figure 4) (OECD, 2018[1]). As a result, reducing barriers to trade in goods and services is important if countries want to enhance the domestic value added generated by their agro-food sectors.

Figure 4. Share of agro-food export value, domestic and foreign

2014



Source: OECD (2018[1]).

As a first step, countries should reduce trade and production distorting agricultural support that constrains trade in agro-food products (Box 3). Relatively little of the support provided to agriculture directly addresses the recognised opportunities and challenges that confront it. In particular, measures linked to prices, outputs or inputs reduce incentives to improve the efficiency of agricultural production, and tend to have negative impacts on the environment as it gives additional incentives to expand and intensify land use. Subsidies provided to agriculture have also limited the growth in employment returns to the sector derived from trade, and reduced the overall growth in domestic returns from agricultural sectors' participation in GVCs through domestic processing activities (OECD, 2018[20]; OECD, 2018[24]). Exposure to competition in domestic and world markets plays a fundamental role in encouraging on-farm innovation and maintaining producers' international competitiveness, allowing firms to take advantage of participating in global value chains.

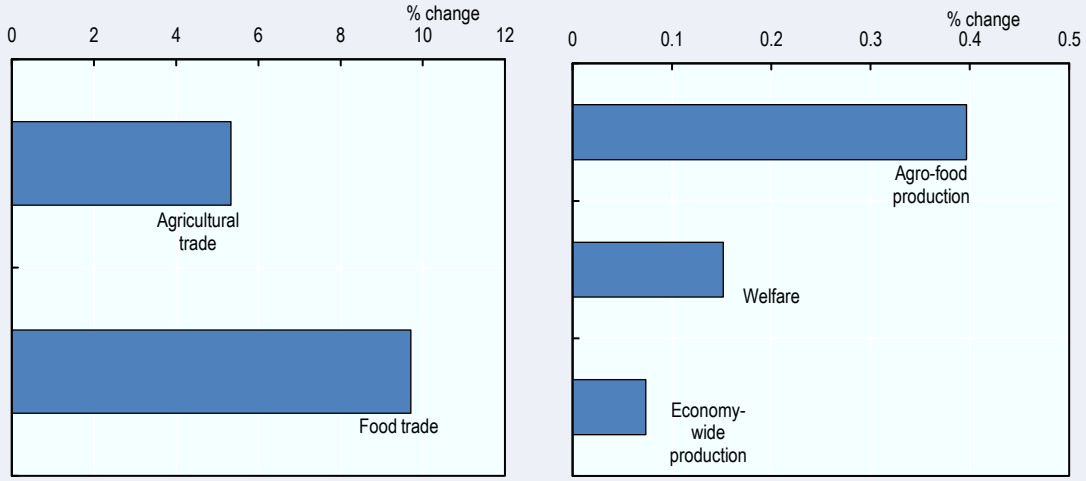
Box 3. Impacts of trade policies and domestic support on trade and production

Recent OECD analysis has found that distorting agricultural support significantly reduces agricultural and food trade volumes, and has negative effects on the welfare and food security of consumers and producers (Figure 5). OECD simulations suggest that trade in agro-food products would be higher overall if all market access barriers and distorting domestic support were removed (OECD, 2016[3]; OECD, 2018[10]). In particular, food trade would increase strongly because of greater market access for processed food products and the availability of more competitively priced inputs from lower import duties. Current policies also limit trade in intermediate products, which likely hampers the development of agro-food GVCs (OECD, 2018[10]).

In some countries, the use of market access barriers and distorting forms of domestic support is motivated by food security concerns, as countries aim to achieve higher rates of food self-sufficiency. However, OECD analysis suggests that agricultural support policies do not increase food production – globally, the level of agricultural and food production would be higher if distorting support was removed (OECD, 2016[3]; OECD, 2018[10]).

Instead, OECD simulations suggest that agricultural support policies alter the mix of commodities produced and where production takes place. Specifically, production of staple crops such as rice and wheat would decline, as agricultural support policies promote these at the expense of other commodities, including meat and dairy – products for which future demand is projected to grow the strongest. Production would also decrease in some countries where agricultural support policies stimulate domestic production, such as China, Japan, India, Mexico, the Russian Federation. However, OECD simulations suggest that in doing so, it displaces production from elsewhere in the world. Agricultural production would be higher in a number of regions in the absence distorting agricultural support, including countries with low levels of protection such as Australia, New Zealand, Brazil and South Africa, as well as some countries with relatively high levels of support, such as Europe and Indonesia.

Figure 5. Agro-food trade would increase if all distorting domestic support was removed



Note: Simulations using the OECD's computable general equilibrium model, METRO.
Source: OECD (2016[3]).

When it comes to food security, the use of market price support is especially counterproductive. Driven through a push for food self-sufficiency, higher market prices act as a regressive tax on households – disproportionally hurting poorer and more vulnerable households due to the greater relative importance of food in their budgets (OECD, 2017[25]; OECD, 2018[9]). A recent OECD analysis of Indonesia's food security programmes found that domestic rice prices were 60% higher than international prices in 2010-12 as a result of policy interventions. This had a negative effect on food security, as many rice producers also spend a significant amount of their income on food (OECD, 2015[26]). Moreover, while countries may be concerned about importing price instability from international markets, in general, international trade has a role in stabilising prices as production shocks are pooled across individual markets (Brooks and Matthews, 2015[27]). For example, OECD analysis suggests that removing price support measures through ASEAN rice market integration would improve access to rice and reduce undernourished populations in Indonesia and the Philippines by 10% and 54%, respectively (OECD, 2017[25]).In fact, OECD simulations suggest that exports of domestic agro-food value added would be higher in all countries and regions if market access barriers and distorting domestic support were removed (OECD, 2018[10]). This includes

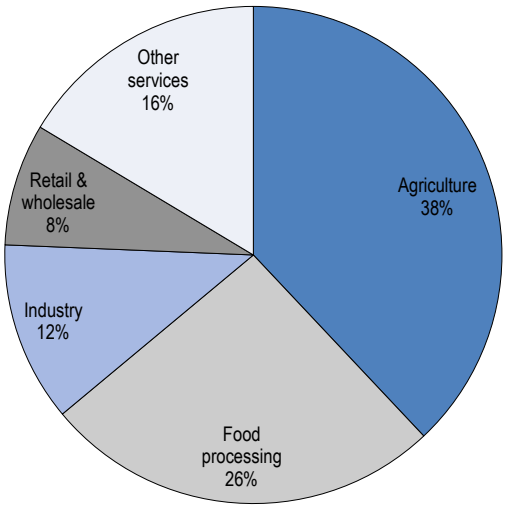
countries with high levels of producer support. Market access barriers raise domestic prices, which are passed on through the value chain, raising the cost of intermediate inputs to downstream processing sectors and placing industries that rely on agricultural products as an input to production at a competitive disadvantage. Removing distorting domestic support would result in a shift in the structure of production towards the processed food and beverages sectors, which would benefit from access to lower cost inputs and greater access to foreign markets (Gray et al., 2017[28]; OECD, 2018[10]).

In contrast, agricultural support that promotes agricultural productivity growth can increase domestic returns from trade. Globally, agriculture accounts for the largest share of value in the final product – around 38% (Figure 6) (Greenville, Kawasaki and Beaujeu, 2017[5]). This means that agriculture's productivity performance underpins the international competitiveness of the agro-food sector. In particular, the OECD has found that investments that build the capacities of the agricultural sector increase participation in GVCs and domestic value added created. This includes transport infrastructure, education and agricultural research and development (R&D), which have a positive effect domestic value added created, but also investments in knowledge transfer, education and training, and digital technologies (Greenville, Kawasaki and Beaujeu, 2017[19]; OECD, 2018[10]).

Other measures that affect the flow of agro-food products across borders also influence the gains from agro-food trade. Non-tariff measures (NTMs) – the laws, regulations and requirements that affect the flow of goods across borders – are particularly important. These includes measures that arise from domestic regulations, such as sanitary and phyto-sanitary (SPS) requirements and technical barriers to trade (TBT), but also customs procedures (TF), local content requirements, and trade requirements such as pre-shipment inspections.

Figure 6. Shares of the final $1 of agro-food value

By broad sector



Note: 2014 data.
Source: Adapted from Greenville, Kawasaki and Beaujeu (2017[5]) and OECD (2018[24]).

The OECD has estimated that the price effects of NTMs are significant for agro-food products, with the price effects for food products higher than for agriculture (Figure 7) (Cadot, Gourdon and van Tongeren, 2018[15]). Moreover, regulatory requirements may differ between countries, even when they share the same regulatory objective. This can significantly increase trade costs, since agro-food products in GVCs can cross borders multiple times before reaching final consumers, and agro-food businesses may seek to access more than one market (Box 4). These costs may be more significant for some sectors and products than others. For example, the OECD found that countries considered the trade costs arising from regulatory heterogeneity are particularly significant for organic food products and agricultural products subject to pesticide residue regulation (OECD, 2018[29]). The cost-raising effects of such measures also disproportionately affect smaller producers seeking to access export markets.

Some trade costs are unavoidable. NTMs are usually in place to achieve legitimate regulatory goals, such as the health and well-being of consumers and the protection of the environment, and their effects can be both trade enhancing and trade distorting (Box 4). However, the trade costs related to regulations can be reduced by removing unnecessary costs that arise from poor design or implementation. This includes ensuring that NTMs, including SPS and TBT measures, are appropriate, transparent and well founded in science.

Box 4. Trade costs of NTMs

The term "non-tariff measures" (NTMs) covers a diverse set of measures in terms of purpose, legal form and economic effect. This diversity makes their quantitative analysis difficult, and they have been the subject of substantial academic and policy attention. NTMs comprise all policy measures other than tariffs and tariff-rate quotas that have a more or less direct incidence on international trade as they affect the price of traded products, the quantity traded, or both. Most importantly, domestic regulations may prescribe specific requirements for products to be sold on a given market. Generally, such measures aim to overcome or reduce the impacts of market imperfections, such as those related to negative externalities, risks for human, animal or plant health, or information asymmetries. However, they also tend to increase production and trade costs and may affect – positively or negatively – the development of new technologies or production methods. Those costs tend to be particularly burdensome for SMEs.

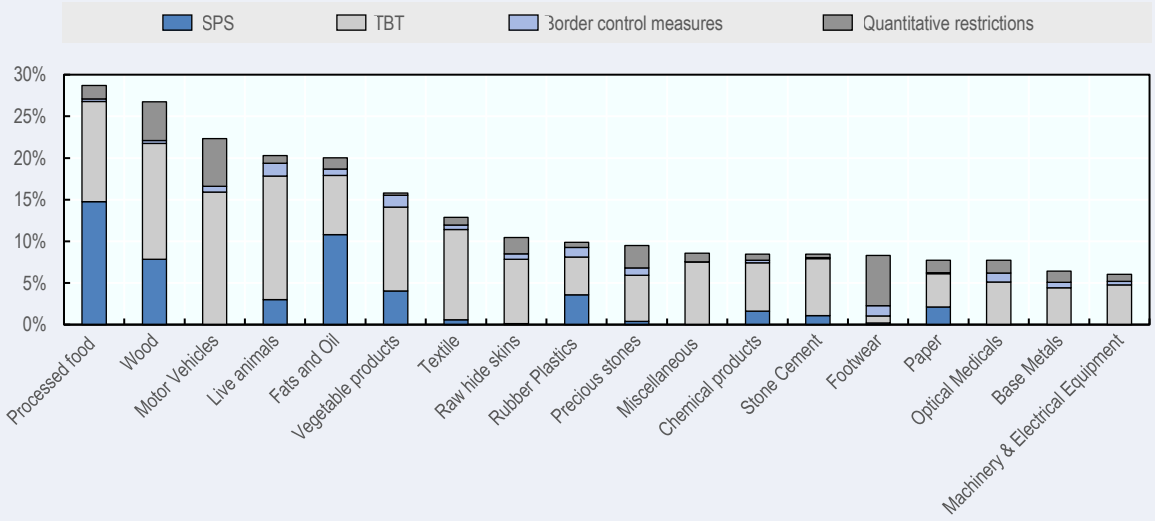
OECD estimates distinguish five different types of NTMs: technical regulations in the areas of SPS, TBT and pre-shipment inspections, as well as quantitative import restrictions such as quota and non-automatic licensing. The econometric estimations yield a large set of ad-valorem tariff-equivalents (AVEs) that are specific for bilateral trade between more than 80 countries and roughly 5 000 products. The average AVEs across countries are found to range from 29% (processed food) to 6% (machinery and electrical equipment) (Figure 7) (Cadot, Gourdon and van Tongeren, 2018[15]).

The estimates also yield information on how NTMs ultimately affect trade: the trade cost associated with NTMs, as captured by the AVEs, typically reduces trade volumes, as expected – but not always. In a number of cases, in particular in the SPS area, trade is found to expand even though trade costs rise. Trade enhancing effects can come from regulatory features that reduce information asymmetries and strengthen consumer confidence in imported products.

A growing body of evidence suggests that reducing regulatory heterogeneity reduces trade costs, and OECD analysis confirms the negative relationship between greater regulatory similarity and the size of the AVEs (Figure 8) (Cadot, Gourdon and van Tongeren, 2018[15]). This finding shows that there is scope to reduce some of the trade costs by reducing regulatory differences, including through various avenues for international regulatory co-operation.

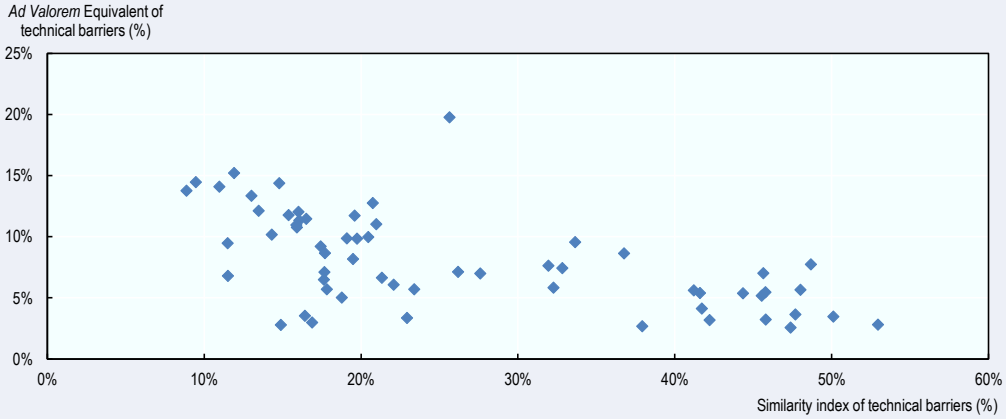
Figure 7. NTMs increase import costs

Estimates of price effects of NTMs, ad-valorem equivalents



Note: Aggregated to HS2 level, AVEs %, frequency weighted.
Source: Cadot, Gourdon and van Tongeren (2018[15]).

Figure 8. Price effect versus regulatory distance with partners, by country



Note: Regulatory similarity is measured by scoring if a country pair has the same measure on a given HS6 product (index =1) or not (index = 0) and subsequently aggregating and normalising to a number between zero and one.
Source: Cadot, Gourdon and van Tongeren (2018[15]).

International regulatory co-operation (IRC) offers a way to reduce unnecessary differences between the domestic regulations of trading partners (OECD, 2017[30]). Countries can draw from a broad range of approaches to reduce the trade costs of regulatory divergence, including unilateral approaches, such as adopting good regulatory practices; bilateral approaches, such as recognising trading partners' standards and conformity assessment procedures as equivalent; and multilateral approaches, such as the development of international standards and aligning domestic regulations to them. For example, the OECD has found that IRC initiatives that resulted in agreements on mutual equivalence or recognition of organic certification programs – specifically, the EU-US Organic Equivalency Agreements and the US-Korea Equivalency Arrangement – led to significant reductions in trade costs and burdens for producers and exporters (OECD,

2018[29]). Information exchanges between countries are also important, to the extent that this allows countries to take into account trade partners' regulations when setting their own.

Finally, agro-food GVCs are also creating closer connections between agriculture and food and other sectors from across the world. In fact, between 2004 and 2014, connections within agro-food GVCs between sectors in different regions across the world grew more strongly than connections between sectors within regions (OECD, 2018[1]). These linkages can be important determinants of competitiveness. This means that it is not only the policy settings directed at agro-food sectors that determine their engagement in GVCs, but also the policies directed at other sectors (Greenville, Kawasaki and Beaujeu, 2017[19]).

Efficient services markets are particularly important for competitive agro-food sectors. Open and well-regulated services markets ensure that farmers and other businesses in the value chain have access to information, skills, technology, finance and markets. For example, communication services underpin the transfer of knowledge and information that are the raw material of innovation, within and across borders. Business services help manufacturers relate to customers, suppliers and regulators (OECD, 2017[31]).

Services contribute a significant share of value added in the final agro-food product – around 24% on average globally – more than the share contributed by industrial inputs (Figure 4) (Greenville, Kawasaki and Beaujeu, 2017[5]). Using services along the value chain – transport and storage logistics, communication services, and other business services – helps ensure that products, data, technology and (managerial) expertise in agro-food GVCs move across borders smoothly. Indeed, a growing service share in export value has been found to promote growth in exports of agro-food domestic value added (OECD, 2018[1]). Reducing barriers to services trade can increase engagement in GVCs and the domestic value added generated from agro-food exports, particularly in countries with high levels of services restrictions (OECD, 2017[31]). Efficient services markets are also important for producers in local value chains. In the presence of strong competition, including from larger players, use of services can help producers to differentiate their products, by customising and improving product quality, and through developing closer relationships with customers.

Countries have a lot to gain from deeper integration into the world food system

Deeper integration of the world's food system means that the impacts of a countries' own trade and domestic support measures are transmitted more widely. Using trade measures to protect individual sectors is counterproductive and has negative impacts on other sectors. This is because import barriers act as a tax on a country's own exports, by raising input costs. Trade and agricultural support policies that restrict or unnecessarily increase the costs of trade harm countries' own economies, as well as those of their trading partners, by constraining the development of the agro-food sector and participation in GVCs.

Instead, countries can focus on enhancing the overall competitiveness of their agro-food sectors and allowing industries to exploit underlying comparative advantages. This will require open trade policies and a resistance to creating barriers to imports, including to imports of agro-food products. Specifically, countries can gain from unilateral efforts to:

- Reduce distorting agricultural support and market access barriers, such as tariffs. Those protectionist policies reduce sector growth and export competitiveness by increasing the cost of inputs, and can constrain sector participation in GVCs.
- Reduce the trade impacts of their non-tariff measures (NTMs) by ensuring they are appropriate, transparent, and science-based and do not overly restrict trade International regulatory co-operation can help countries to reduce the trade costs of differences in domestic regulations – without compromising the societal goals that motivate their use.
- Reduce barriers to services trade. Services form an important part of value added in agro-food exports and in the final product, and ensure that GVCs operate efficiently.
- Provide an enabling environment and promote agricultural productivity growth, as this can enhance the competitiveness of agro-food exports and participation in GVCs. This includes appropriate investments in agricultural sector capacities, including transport infrastructure, education and innovation.

More broadly, governments can create environments where the benefits from trade can materialise through domestic policies that encourage opportunity, innovation and competition, by investing in people and digital and physical infrastructure, in addition to reducing unnecessary trade costs (OECD, 2017[16]).

Governments can also do more to facilitate adjustment, including in lagging regions and heavily protected sectors where trade shocks can be concentrated. While consumers and society overall can be expected to benefit substantially from more open trade policies and reducing the most distorting forms of domestic support, the burden of adjustment will fall more narrowly on relatively resource poor farm households unable to adjust on their own. In some cases, adjustment within the sector will be possible, with time and transitory support from governments; in other cases adjustment will require moving out of the sector to more remunerative employment opportunities. Well-targeted temporary income support and active labour market measures will be required to support the needed adjustment, ensuring no one is left behind.

But the greatest benefits from reform come when countries act together

Ultimately, closer connections between sectors and regions mean that countries at all stages of development have a greater common interest in reducing distortions in world agro-food markets. Internationally-agreed trade rules that establish a level playing field will continue to be essential for ensuring that agro-food trade helps deliver better lives for more people, and contributes to sustainable development and global food security. This means making the international system work better, harnessing the full range of international economic co-operation tools to level the international playing field, addressing the gaps in the rules and doing more to ensure that everyone, from companies to countries, plays by the rules (OECD, 2017[16]).

As outlined above, the OECD has found that countries can gain from unilateral efforts to reduce policy distortions that influence the gains from agro-food sectors' participation in GVCs. However, countries may face domestic opposition to reforms that open markets to increased foreign competition without receiving reciprocal gains in market access, including even from sectors that have a lot to gain. While there has been slow progress

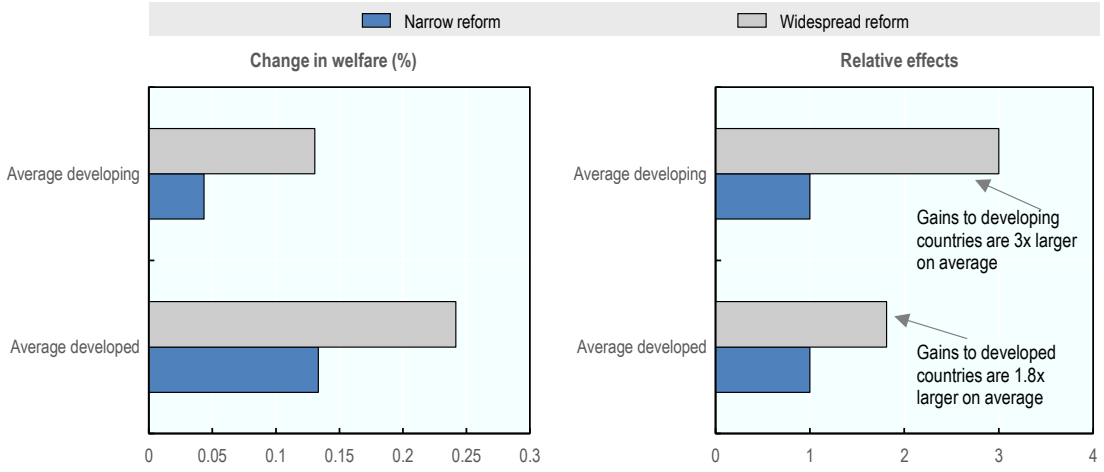
with agricultural negotiations at the multilateral level, and resistance to regional trade agreements in many countries, they offer a way forward for widespread action to reduce domestic support and market access barriers. Preferential and regional trade agreements can be seen as viable second-best options to at least lock-in actual liberalisation (as seen in current trade policies and levels of domestic support) by binding applied tariffs and good regulatory practices. They can also act as an incubator for new approaches, including integrating trade and related domestic policy measures that affect the functioning of agriculture and agro-food industries.

But the economic gains are greater when reforms or trade agreements encompass more countries. The OECD has analysed the impacts of possible multilateral reform scenarios and regional trade agreements, finding that reforms increase production, trade and incomes, and that these effects are larger when more countries participate (OECD, 2016[3]; 2018[14]; 2018[17]; 2018[32]). For example, recent OECD analysis of a hypothetical regional trade agreement between high-income Asian countries (including Australia and New Zealand) found that GDP increases were doubled when the agreement was expanded to include all Asian economies (OECD, 2018[14]).

However, the source of gains differs between countries. For example, OECD simulations suggest that the gains for developed countries from reducing distortions in agricultural markets come from lower prices for their consumers (for imports and domestic products) and production shifts towards sectors that are more efficient. For some countries, the gains largely come from reforming their own distorting policies.

In contrast, the welfare gains to developing countries from reducing distortions in agricultural markets are significantly larger when all countries reduce trade-related and domestic support. This is because the benefits from reform for developing countries are critically linked to the actions of other developing countries – reflecting the increase in so-called 'south-south' trade (Figure 9 and Box 2) (OECD, 2016[3]). Smaller economies also benefit significantly from trade integration as it provides them with more opportunities to specialise in contributions to production networks and agro-food GVCs (OECD, 2018[14]).

Figure 9. Countries at all stages of development benefit from reducing distortions in agricultural markets



Note: Simulations using the OECD's computable general equilibrium model, METRO.
Source: OECD (2016[3]).

Conclusions

Agriculture and food sectors are now more closely connected than ever before with other sectors of the economy, both within countries and across borders in global value chains. These linkages play an important role in driving agro-food sector development, spreading innovation and enhancing the competitiveness of sectors in both global and domestic value chains.

Past reforms of trade and domestic support policies helped to deepen the integration of the world agro-food system. This includes gains in market access realised in multilateral and preferential trade agreements, as well as unilateral reforms by countries that reduced both the level and trade impact of their domestic support. More recently, however, the pace of agricultural policy reform has slowed. The latest OECD-FAO Agricultural Outlook suggests that prices of agricultural commodities are likely to decline in real terms over the coming decade, which suggests that governments could face further pressures to retain price support and associated trade protection (OECD/FAO, 2018[6]).

Recent OECD work analysing agricultural policies, markets and trade has found that countries have a lot to gain from further market integration. In large part, these gains come from the opportunities to increase income and jobs through increasing agro-food sector participation in global (but also domestic) value chains. This is because trade measures that protect domestic sectors from import competition also reduce their access to more efficiently produced and potentially higher quality imported inputs, and to the productivity gains that result from technology spillovers in the value chain. A well-functioning domestic market and international trading system is also important to connect producers to market opportunities, to enhance the food security of the poorest.

Countries can enhance the overall competitiveness of their agro-food sectors though more open trade policies and reducing the impacts of measures that raise trade costs, including those that are an outcome of domestic regulation and other non-tariff measures. This includes reducing distorting domestic support and market access barriers, including to agro-food imports; ensuring that non-tariff measures are appropriate, transparent, and science-based; and reducing barriers to services trade.

Countries can also create an enabling environment to ensure that their agro-food sectors can benefit from the opportunities that trade brings, through polices to ease adjustment to trade, as well as strengthen overall economic flexibility and performance.

Much can be achieved via unilateral efforts to reduce trade and domestic policy distortions. However, greater gains can be realised through widespread multilateral reforms, and preferential and regional trade agreements, which may also receive more support within countries. Preferential trade agreements in particular offer a way forward to progress co-operation on trade-related regulatory issues that influence the gains from agro-food trade and the functioning of GVCs, particularly if enhanced cooperation can be extended to countries outside the agreement, or if its membership can be widened.

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