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Competition in the food supply chain – Background Note

– By the Secretariat –

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This document was prepared by Prof Sean Ennis from the University of East Anglia to serve as background material for Session 4 at the 23rd Global Forum on Competition to be held on 2-3 December 2024.

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Foreword

1. What are the different elements of a food supply chain and how can government policy related to competition, including competition law enforcement, play a role to limit market failures? This paper considers several aspects of food supply chains and their relationship to competition. Specifically, it discusses how market failures or competition law may apply to supplies to and purchasing from farmers, to the storage and transport of food, to the standards for delivering and packing food products; as well as the distributor-to-retailer negotiation. It also explores the grocery chain buyer power and potential consequences.

2. This paper was prepared by Professor Sean Ennis from the University of East Anglia's Norwich Business School and the Centre for Competition Policy, working as a consultant for the OECD Competition Division. It benefited from comments by Ori Schwartz, Antonio Capobianco and Carolina Abate from the OECD Competition Division as well as Julia Nielson, Koen Deconinck and Guillaume Gruère from the Trade and Agriculture Directorate. It was prepared to serve as background material for discussions on "Competition in the food supply chain" taking place on 2-3 December 2024 at the 2024 Global Forum on Competition.

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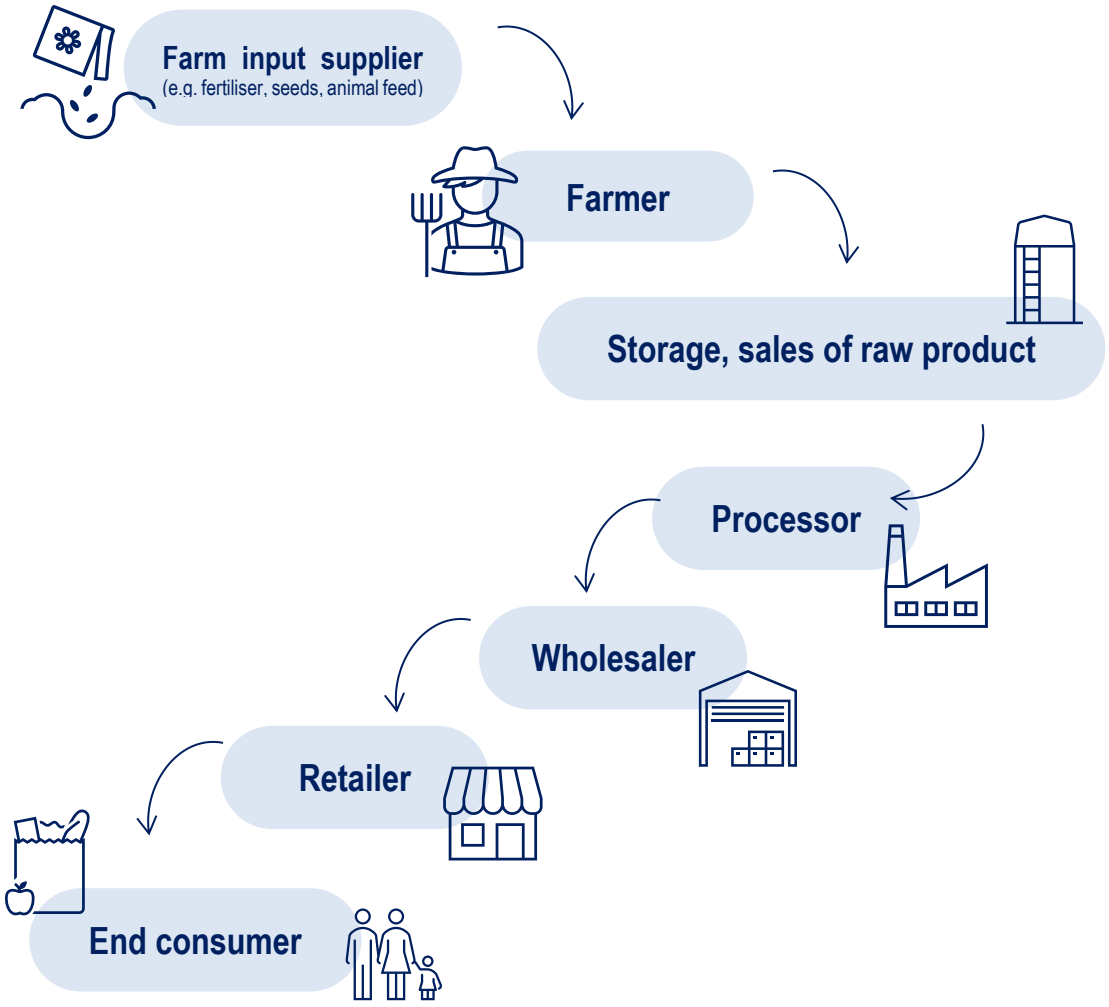
1 Introduction

3. The agro-food supply chain is critical for ensuring adequate, varied and affordable nutritious food to satisfy citizens, assuring the livelihoods of producers and maintaining the sustainability of the sector.[1] This note focuses on how competition affects critical points in this supply chain, in particular identifying ways in which competition can help ensure beneficial outcomes. Further, it illustrates how failures, restrictions or limitations of markets and competitive forces may at times lead to price distortions for buyers, lower quality and reliability within the chain, or price distortions for suppliers. In so doing, the note considers ways in which competition authorities may affect competition through their actions.

4. The food supply chain considered in this paper includes the production and logistics of raw food, typically starting with major inputs to farmers, and running through the initial farm production, farm sales, ultimate processing, and retail sales of both unprocessed and processed foods. The core steps on the food supply chain follow logically and chronologically the process of producing food (I-Hsuan et al, 2023). Each step can involve contracting and sales from one actor to another. Actual or potential contracting steps are precisely the points at which competition concerns can enter the supply chain. An example of the steps along the supply chain might include a farmer purchasing seed potatoes, fertiliser and pesticide which result in a harvest of potatoes six months after planting of the seed potatoes. These potatoes may then be transported and sold to a storage agent. The storage agent may then sell and transport the potatoes to a processor that, in turn, produces dried potato meal which is then packaged under a brand name and stored, transported to and sold into retailers, potentially via initial sale to wholesalers who then supply supermarkets. Different end products have their own supply chains, that will vary in their specific details depending on the ultimate food product.

5. A simplified food supply chain may look as in Figure 1. Each step may also require transport and often involves multiple actors (e.g., due to farmer co-operatives). Some steps, such as processing, will often bring together multiple farm outputs, and other inputs (such as packaging).

Figure 1. Simplified representation of common characteristics of supply chains for food



Source: OECD

6. By "food supply chain", we refer to the set of supply chains that may be relevant to many different end products, and which will often have many intersections with each other. Potatoes produced on a given farm could follow several distinct supply chains, depending on whether they are sold as uncooked potatoes, transformed into dried potatoes or transformed into potato chips. Examples of relatively unprocessed foods at the end of the chain might include fruits and vegetables, flour, corn meal, and rice, milk, wine and raw meats, while processed food at the end of the chain would include prepared and packaged foods, such as cheeses, sauces and prepared meals.

7. Understanding competition on the food supply chain matters in part because a price increase/decrease at one step on the chain (e.g., fertilisers) will have follow-on increases/decrease in costs at subsequent steps in the chain, and ultimately result in higher/lower costs for end consumers. Moreover, the extent of pass through of price increases and decreases depends on many factors. Understanding the role of competition in the food supply chain also matters because both buyer power (or monopsony power) and monopoly power are regularly suggested as a concern in this industry, notably by farmers.

8. Between 2020 and 2024, there has been high retail price inflation of food, rising to exceed 14% (annualised) in both developing and developed economies in late 2022.[2] The food retail price inflation

extends from large countries even to small island states where food prices may be structurally higher than in larger countries. As an example of the latter, the Aruba Fair Trade Authority has concluded that structural factors keeping domestic prices higher than in the Netherlands or U.S. include high transport costs, exclusive import arrangements and limited competition.[3] Such high prices combined with substantial inflation have raised the political salience of the food supply chain and resulted in concerns and accusations of anti-competitive pricing by retailers and food companies. Food inflation is not simply a household budget impact, but has health implications, notably for child development,[4] as well as geopolitical implications for poorer countries that face potential food insecurity and popular unrest. The origins of food price inflation should affect policy responses along the food supply chain. One possible origin relates to whether markets are operating well or failing in some respects. It is important to recognise the significant role played by government policies in the sector, with USD 840 billion per year globally in combined budget transfers and support via trade barriers.[5] These government policies have a distorting effect on competition. Many other possible origins can exist, such as input cost increases, scarcity (due to weather or pests), breakdowns in international supply arrangements, transport difficulties, and even panics and price crises from stoking of fear even when underlying fundamental are sound, as observed in the food price crises of 2007 and 2011[6].

9. This note focuses on food supply chains from perspective of competition authority. It can enhance their understanding and describe ways in which they may play a role, whether through law enforcement or advocacy. Wider ranging reports dealing with specific and general features of the food supply chain, and market power, have already been released by OECD's Trade and Agriculture Directorate, such as Concentration and market power in the food chain, as well as papers on concentration on seed markets, and fertiliser markets.

10. The OECD has conducted extensive analysis of government supports to agriculture, many of which are trade distorting and create competitive advantages in some countries compared to others. The trade distortion effects of policy can be considered a key competition issue globally, with some estimates suggesting price distortions from government policy at times increase prices by 20-30 percent compared to what they would be without government support.

11. Market failures and distortions are a key cost driver of the food supply chain. One diagnostic factor determining the extent to which market failures are the source of higher food costs is the extent to which margins have increased along the supply chain. The extent to which margins have increased for food companies and retailers is a matter of controversy. This paper will consider the state of evidence at the time of writing but notes that the margin experience is varied, and many food operators have low margins overall, even if retail prices, at times, substantially exceed those paid to farmers.[7]

12. This note briefly explores food price inflation internationally as a motivation for then focusing on the economic forces that characterise food production along steps on the supply chain, and the ways that market power may affect these and create opportunities for competition authority actions in the food supply chain. It highlights how the sources of food price inflation are often external to the food supply chain, while governments and competition authorities can and have taken many actions, varying across countries, to respond to market failures on the food supply chain. While international organisations' concerns largely originate with the situation in developing countries, these are also present in OECD members, with average food price inflation reaching a similar maximum between 14% and 16% both for a group of 23 advanced economies and for a group of 94 emerging and developing economies (EMDEs), in the last quarter of 2022.[8] Food price inflation for the EMDE group was higher than for advanced economies before the peak, but in the following the peak, both the advanced and EMDE group exhibited similar levels of price inflation during 2023, which exceeded food inflation in 2020. To the extent that retail food price shocks originate from oil and gas prices and geopolitical changes in trade that impact fertiliser prices, competition authorities may have few levers for addressing the increased food prices. But to the extent there are competition concerns within the food supply chain itself, there are aspects of the food supply chain on which competition authorities can act.

13. The remainder of this paper proceeds as follows: Section II focuses on inflation; Section III identifies distinctive economic characteristics that affect the food supply chain; Section IV describes competition authority actions that are, or can be, taken along the steps of the food supply chain; Section V makes concluding observations based on international experience. This material builds on prior Competition Committee roundtables, such as Competition and Inflation in 2022, Competition Issues in the Food Chain Industry in 2013, Competition and Commodity Price Volatility in 2012, Resale Price Maintenance in 2008, Bundled and Loyalty Discounts and Rebates in 2008, Resale Below Cost Laws and Regulations in 2005 and Competition and Regulation in Agriculture: Monopsony Buying and Joint Selling in 2004.

2 Inflation and food

14. One of the factors that can raise the focus on competition authorities with respect to the food supply chain is food inflation. Periods of high inflation bring to the fore concerns about the food supply chain. This is because food is a necessity and higher prices have a particularly strong effect on those with low income, due to the high share of their income spent on food. Food prices thus affect not only food purchases but also overall purchasing power. The role of competition and markets in maintaining appropriate food prices can thus be perceived as particularly important at moments of high inflation. This in turn affects calls on policy makers to ensure good functioning of markets and the supply chain.

15. The role and operation of markets in the food supply chain is considered key in response to what several international organisations term a food 'crisis'. In recognition of the importance of the situation, a Joint Statement was released on February 8, 2023 by the heads of 5 international organisations.[9] The statement calls for actions "To prevent a worsening of the food and nutrition security crisis, further urgent actions are required to (i) rescue hunger hotspots, (ii) facilitate trade, *improve the functioning of markets*, and enhance the role of the private sector, and (iii) reform and repurpose harmful subsidies with careful targeting and efficiency. Countries should balance short-term urgent interventions with longer-term resilience efforts as they respond to the crisis."[10] (emphasis added) The core challenge for governments lies not in recognising the existence of supply and demand imbalances but in determining the appropriate policy mix for response. Competition considerations constitute one part of that mix due to the preponderant role of markets in all stages of food provision.

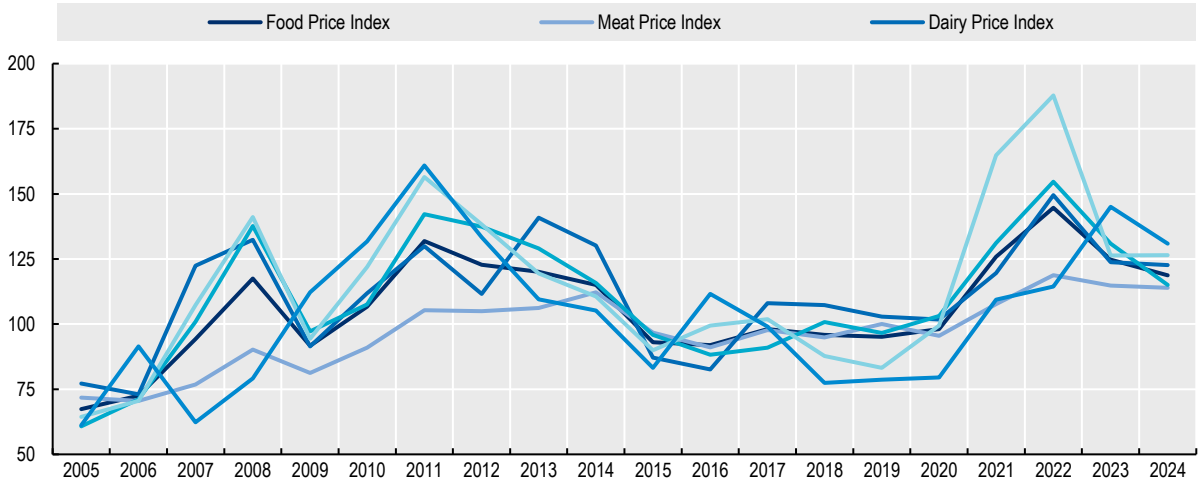
16. During the inflation of the period 2020-2024, some observers have suggested that increased margins account for inflation, and that this indicates a failure by competition authorities. This section will examine inflation and margin levels; it finds little evidence to confirm this suggestion in general. Increased margins could apply to certain businesses along steps of the supply chain, while decreased margins could apply in others.

17. To better understand how inflation may develop along the supply chain, it is worth examining different products over time.

18. Food price inflation varies by commodity. Oils, sugars and cereals experienced particularly large peaks in 2022. The FAO produces a worldwide food price index that can be examined to see broad trends of price inflation by type of food. This is shown in Figure 2. Simple examination illustrates that many products had extreme price inflation between 2020 and 2022. Oils experienced more than 70 percent price inflation between 2000 and 2022, and other base products, like cereals, dairy, meats and sugar had roughly 50 percent inflation over the same period.

Figure 2. FAO Food Price Indices for Raw Agricultural Commodities 2005-2024

(2014-2016=100)



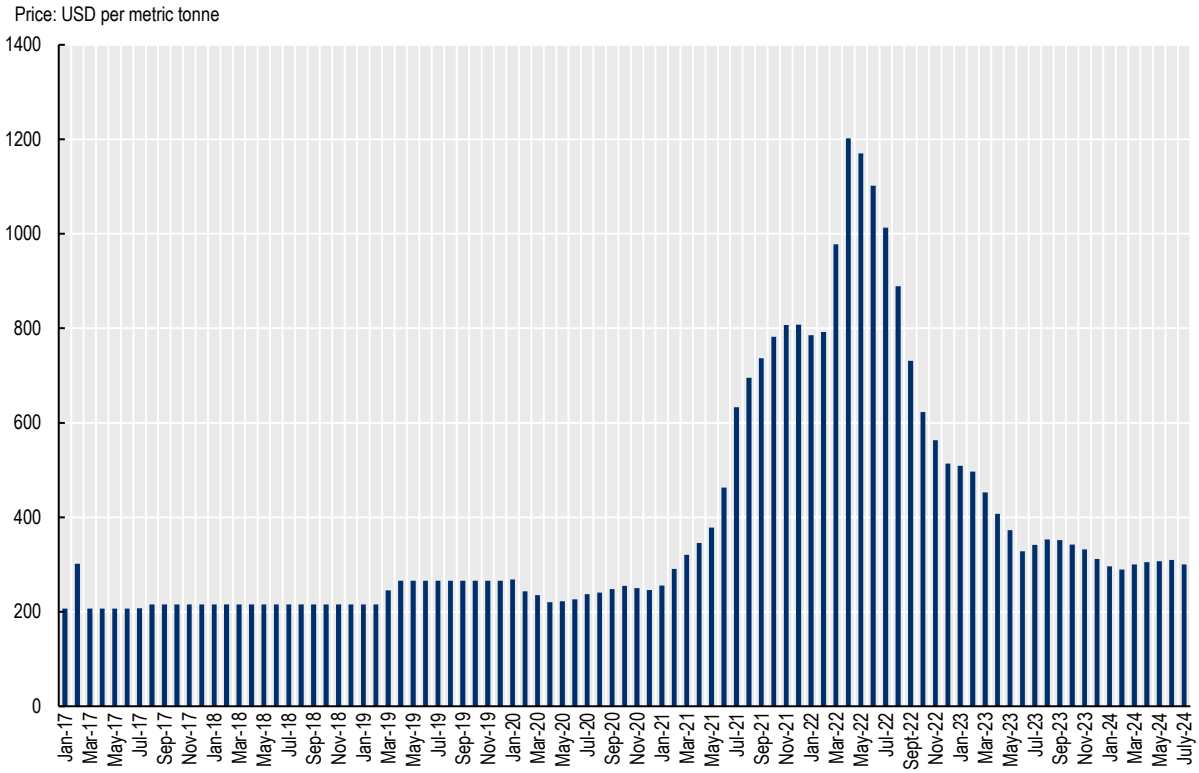
Note: These indices reflect solely international prices. National and regional prices and inflation may differ, as discussed below.
Source: FAO, https://www.fao.org/worldfoodsituation/foodpricesindex/en/.

19. Due to differences in markets and supply chain conditions, food inflation can exceed the rate of inflation for other products. For example, World Bank (2023) suggests that many countries in Africa, Europe, and Latin America experienced food price inflation that was more than 5 percent above the core inflation rate in those countries.[11]

20. Different sources of inflation can have different levels of permanence, and thus a different incidence on food price inflation. Supply shock over energy costs may have short-term impact on transport costs and fertiliser costs, while downstream shocks from increased fertiliser costs are more long-term, with prices in one year carrying over into food prices sometimes for 12 months due to the long production cycle for food. Exceptional shocks like covid had occasional high-level impact on transport costs that did not dissipate immediately, such as when shipping delays occurred due to port closures, creating ongoing shipping delays and container shortages.

21. To illustrate the extent of supply chain shocks for some inputs, Figure 3 shows the price series for one important fertiliser with a potassium base, potash. Fertiliser (potash) prices rose in 2021 and still have not returned to their original level. Thus, this increase in costs has been longstanding and feeds directly into raising the costs for farmers at the beginning of the chain, with a delayed effect of the cost increase into food prices that could arise six months after the product is used. But this particular price increase is likely more related to geopolitical factors and energy costs than an origin in lack of competition. Moreover, if this then generates higher prices along the supply chain, the extent of higher prices coming from fertiliser is not appropriately linked to competitive conditions along the other parts of the food supply chain.

Figure 3. Monthly price of fertiliser muriate of potash worldwide: 2017-2024



Source: World Bank.

22. The stability of prices and the role of price signals can be expected to affect production and thus deserve particular attention. Markets can play a role in enhancing stability. In particular the creation and operation of futures markets can potentially generate longer term pricing certainty and levels of production closer to equilibrium levels. Futures markets can also create predictable private rewards for storage. It is important to consider the substantial reduction in food poverty that has accompanied the international market openings, with a reduction in extreme poverty from 29.3% of the world population in 2000 to 9.4% in 2017.[12]

23. Enhancing stability in domestic output may also have hidden costs via the need for government support and subsidies.[13] Some counties in Kenya, for example, provide support for seeds, fertilisers and agrochemicals, with up to a 40% subsidy in 2022.[14] Many other countries also provide substantial support for inputs. But at times, domestic input prices nonetheless exceed international ones.[15] To the extent that competition reduces prices by ensuring more efficient production, competition has the potential to reduce the level of subsidies needed to obtain a given social benefit.[16]

24. While the causes of food inflation are multiple, an increasing body of research suggests that higher margins may be one of the origins of the higher prices. One hypothesised source of higher margins is market power. In a general study covering more than food, Weber and Evan (2023) for example report that US non-financial corporate margins were 13.5%, higher than any time since 1947. Glover et al. (2022) suggest that corporate profits accounted for much of 2021 inflation but less so for 2022 inflation. Tooze (2022) argues for caution on the interpretation of these findings and on Weber's suggestion of consideration of price controls.

25. Food-based companies have in some cases implemented substantial price increases in their segment, following the covid and Ukraine-related supply shocks, but such increases do not necessarily result in higher margins. For example, Hohler and Lansink (2021) showed mixed effects of Covid, with increases in operating profits in some segments and decreases in others. For grocery retailing, Nielsen data for the US grocery industry appear to indicate that grocery store margins increased substantially after 2019, from a low of 1 percent to a high of 3.0 percent in 2020, 2.9 percent in 2021, 2.3 percent in 2022 and 1.6 percent in 2023, with a suggestion that margins are returning to pre-pandemic levels.[17] With respect to food supply chain companies, Table 1 shows profit margins of the top 10 global food companies for which public data could be found. These are not necessarily representative of food companies more generally, as substantial research shows that profit gains and margins over the last 20 years have been driven, across sectors, by superstars (Autor (2020), De Loecker (2020).) From Table 1, it is difficult to derive a clear tendency from the annual fluctuations, which exhibit a variety of behaviours. While some firms may have experienced increased margins, others did not. Margins in the food sector cannot be considered the main or unique source of inflation, but may have occurred for some firms and jurisdictions, often with subsequent return to more historically typical levels.

Table 1. Profit margins of large food companies

Company	2019	2020	2021	2022	2023	2024
1	13.5%	14.4%	19.3%	9.8%	12.0%	
2	10.9%	10.1%	9.6%	10.3%	9.9%	
3	2.9%	2.1%	5.9%	4.1%	-0.3%	
4	17.5%	3.0%	8.6%	10.3%	8.9%	
5	4.7%	6.0%	6.5%	6.0%	-0.1%	
6	2.1%	2.8%	3.2%	4.3%	3.7%	
7*	113	115	134	165	177	160
(Change in revenue, %)	-0.9%	1.8%	16.5%	23.1%	7.3%	-9.6%
8	23.9%	23.5%	25.3%	22.2%	23.4%	
9	1.0%	0.7%	1.3%	1.0%	0.7%	
10	2.6%	1.5%	1.3%	3.5%	4.2%	

Note: Companies in top 10 of Food Engineering's Top 100 Food & Beverage Companies 2023 ranking. Company names are anonymised to focus on financial ratios. * Revenues reported only, line below shows percentage change in revenue from prior year to reported year.
Source: Google Finance for companies 1,2,3,4,5,6,8 and 10. Yahoo Finance and annual reports for companies 7 and 9. Calculations by the author.

26. Externally driven demand shocks occurred during covid amid lower spending on non-food categories of consumption. Labour costs may also have fallen after business closures. External cost shocks occurred to fertiliser, fuel, transport prices, notably following the onset of covid and the Ukrainian hostilities and then labour costs due to labour scarcity in some sectors after covid. As a result, factors that contribute to inflation have continued over the period 2020-2023. While prices, based on the inflation figures, increased very substantially from 2020 to 2024, margins did not increase by comparable amounts, suggesting that, to the extent the products of these companies followed the general evolution of the broader price indices, the food price increases involving these companies were from cost inflation.

27. Nonetheless, to the extent some companies experienced improved margins, competition authorities may then pose the question of whether the increased margins have an origin in market failures. Some researchers (like Crespi and MacDonald, 2022 and Weber and Evan, 2023) note the regular existence of high concentration across many food product categories. But inflation has occurred for many products with low concentration, suggesting a complex and multifaceted origin of higher food prices. A discussion of competition and the food supply chain will thus benefit from considering the economic features of food markets that have substantial effects on the food supply chain which occurs in the subsequent section.

3 Distinctive economic characteristics of food markets

28. The economic features of food markets explain much of the organisation and governance of the food supply chain. For example, the perishability of food explains the picking and transport pattern for many vegetables. Extensive research establishes distinctive features of food and beverage markets. Without wishing to summarise or substitute for this work, several key points stand out that are worth bearing in mind as a basis for considerations related to competition. Features of the food markets[18] that distinguish them economically from other types of products include the following:

29. *High levels of financial support and trade restrictions.* One economic feature of the food supply chain arises from extensive government intervention on the supply chain, ranging from direct supports to trade restrictions. These have been documented extensively by the OECD in its prior work. Market price supports can include import tariffs that maintain farm prices above the level that would otherwise prevail, but also can be buyer oriented and lead to lower farm prices than world markets. In either case, the effect is to create a distortion of competition. The ultimate social value of such policies can nonetheless not be evaluated solely from a perspective of competitive effects, due to the other policy considerations related to such supports.

30. Government intervention can also limit sources of supply and contracting opportunities but on the other hand expand options for farmers to connect with customers. Artificial restrictions of quality, of imports and of exports to influence market outcomes are not uncommon.[19]

31. *Product perishability.* While lifespans of products differ, many have short lifespans, require special storage, have complicated logistics chains and, at times, need chilling. For example, fruits and vegetables may pose challenges in the movement from the farm to retail shelves, with sell by dates often being quite soon after arriving at stores. Stores in turn keep in mind the risk of unsold inventory when making decisions over which products to stock and how much to purchase.

32. *Advance choices by producers and slow production cycles.* The decision over what crop to plant or what animals to raise are made long in advance. This leads to a relatively inelastic supply at the time of harvest and sale. In case of unanticipated scarcity, a growing season is needed to resolve a low production or global trade. In case of unanticipated surplus, farmers may have difficulty selling their products. In the long run, supply is relatively elastic for a given crop due to the possibility to adjust planting that arises every year and futures markets provide price signals to farmers related to anticipated scarcity or high supply.

33. *High uncertainty from external events.* Appropriate weather and water supply are evidently critical for plant and animal growing cycles. Both can be highly uncertain with temperatures and rainfall having high impacts on production levels for farmers and varying across geographies. Low rainfall or water supply at necessary moments, or temperature fluctuations from those expected, mean that farmers selling into a global market face substantial uncertainty especially when they have uninsured risks.[20] Low production levels in one place do not necessarily result in higher prices worldwide, as the worldwide price depends on weather conditions around the world and public policy, among other factors.

34. *Inelastic demand.* As food is a life necessity, unstable food supply and price fluctuations can have substantial social consequences and lead to high political salience for the industry.

35. *High fixed costs of production with variable output.* The production costs for many products, are relatively fixed, with seeds, fertiliser, and pesticides and labour costs being used in relatively pre-determined amounts, but often with outputs being relatively variable, notably due to the dependence of output realisation on weather and policy, among other factors.

36. *Asymmetric negotiating positions for contracts.* Food markets exhibit high variations in the size and alternatives faced by contracting parties, which is sometimes considered to create unbalanced positions of bargaining power. Farmers are often suggested to depend on purchasers, intermediate product manufacturers and retailers. For example, when farmers do not sell into an open market, they may enter contracts with producers that require them to use specific inputs (such as seeds) and achieve certain outputs (such as cereal humidity) which limit their broader ability to sell their goods profitably, due to the customisation of the production for a particular buyer. The contracts can create concerns that relationship-specific investments could make a supplier overly dependent on its purchaser, providing incentives for complete contracts (which may be difficult to draft) or vertical integration.[21] The ultimate bargaining power in a relationship, though, may be determined by complex relative factors, especially related to the outside options available to each actor and the rarity of what they provide. Of note, vertical integration is often not the preferred organisational option, perhaps because large scale farming has the potential to create lower-powered incentives for agents running a farm than for an individual farmer who can appropriate all the marginal surplus created through extra and unobservable efforts.

37. *Sometimes high concentration.* The supply chains for different products exhibit a variety of structural patterns. COFECE (2015) shows that some foods appear to be provided in low concentration markets, such as sugar, some in moderate concentration levels, such as beer, and some in highly concentrated markets, such as breakfast foods.[22] While these findings were made with Mexican data, similar variation in concentration levels across food products may be found more broadly.[23] Due to this variety of concentration levels, broad generalities suggesting either that food supply chains exhibit high or low concentration, would be over-simplistic. However, concentration according to census data or other sources may not indicate all the steps or all the geographic markets of relevance. (Deconinck, 2021).

38. *Health and safety and traceability requirements.* Food products are particularly subject to health and safety requirements.[24] These support citizen demands for food that meets minimum requirements and can reduce risks of harmful outcomes. Also, sustainability requirements have been added into various parts of the supply chain.[25] Increasingly, to ensure product safety and that problematic production can be recalled, traceability requirements are in place. In Europe, for example, eggs and butter are labelled with a printed identifier that shows the producer and dates of production. These labels enhance safety while at the same time raising costs and effectively limiting supply from locations without traceability chains. Requirements over traceability and health and safety tests can make it difficult for providers in foreign jurisdictions to trade into markets with such requirements.[26]

39. *Antitrust exemptions.* Agriculture benefits from selective exemptions from antitrust law in both OECD and non-OECD countries.[27] These may include co-operative marketing and processing among farmers (for example for milk, oranges or walnuts)[28], the creation of geographically protected labels or *Appelation d'Origine Controlée* (AOC), as with wine, cheeses and hams, and certain products in India.[29] Some exemptions apply to activities, others to products. The status of export cartels with respect to the food supply chain is not an exemption but rather a non-applicability of the law.[30]

40. These features of the food supply chain feed into the quality, quantity and pricing outcomes, and influence affordability as well as patterns of contracting and roles for government and competition authority interventions.

41. Enhancing the role of beneficial competition in the food supply chain can potentially deliver major benefits in agricultural markets. A reliable policy tool for focused pro-competitive intervention is that of action by competition authorities. The next section introduces a new typology for considering competition authority action in the food supply chain and then applies that to show how competition authority actions can fit into the typology. Naturally, the potential for competition authority cartel, merger or abuse enforcement applies only when the activity in question is not exempted from competition law.[31]

4 Competition authority interventions on the food supply chain

42. The need to address specific market failures related to different segments of the food supply chain merits use of many different policy tools. One important tool is that of competition authority action. This role arises from the combined need to rely on markets for optimising production and quality incentives at different steps of the supply chain, and the fact that markets can be distorted or imperfect for many reasons related to the creation of market power. This chapter focuses on actual and potential competition authority actions.

43. The contractual steps in the food supply chain provide for many contracting interfaces in which the economic features of the markets just outlined, such as limited storage life and need to plan production in advance, can result in market conditions with imperfect competition. These imperfections can then be augmented, at times, by high concentration.

44. The steps of contracting in a typical supply chain exhibit different degrees of concentration.[32] Across products, Deconinck (2021) and Hernandez et al. (2023) show that concentration along the entire food chain varies substantially, including by citing findings from France, which is a rare country that keeps track of outcomes along the steps of the food supply chain, including margins.[33] Deconinck (2021) finds that prior literature suggests that market power at various steps on the supply chain is often not yielding concentration levels that would be considered substantial, but sometimes may be doing so.

45. In light of the competitive conditions in place at a particular step on the food supply chain, common roles for competition authorities focus on merger enforcement, abuse of dominance (or monopolisation), cartels, market studies, and advocacy, including legislative comments. These actions can occur in co-ordination with agricultural ministries. For example, in at least one OECD jurisdiction, the competition enforcer and agriculture ministry join their efforts to encourage complaints that could lead to investigations.[34] These types of co-operative activities can be considered for each step of the agro-food supply chain. Such co-operation is worth considering for competition authorities and ministries, so that mutual benefits can arise from the substantial information advantages of agriculture ministries and from farmers' natural patterns of engagement with the ministry that most closely focuses on their interests.

46. The core thesis of this paper is that potential competition concerns on the food supply chain can be represented as built around the contracting at each stage of the chain.[35] The competition risks can be illustrated around the contracting stages, as in Figure 4. This typology illustrates the areas of potential focus for competition authorities to consider market power risks in the food market.[36]

47. Key competition questions that can arise at different steps of the supply chain ultimately reduce to the following:

- *Monopoly power*: market power of a seller towards customer.
- *Monopsony power*: market power of a buyer towards suppliers.

48. The risks of social welfare losses from market power can either occur from monopoly power, going downstream in the supply chain, or buyer power, going upstream in the supply chain.

49. Not all types of market power are likely to arise at each stage of the supply chain. For example, at the stage of supplier-farmer contracting, it may be unlikely that farmers would successfully exert monopsony power against suppliers.[37] Similar arguments related to relative size of trading partners suggest that buyer power would not be exercised by a typical end consumer towards a retailer. Hence buyer power is not included for these contractual interfaces.[38]

50. The rest of this section will consider how competition authority cases and advocacy in the food supply chain can be fitted into this diagram. The purpose is not necessarily to explain the content of competition authority actions but to illustrate the nature of actions that can fit within this typology of contracting and potential competition harm.

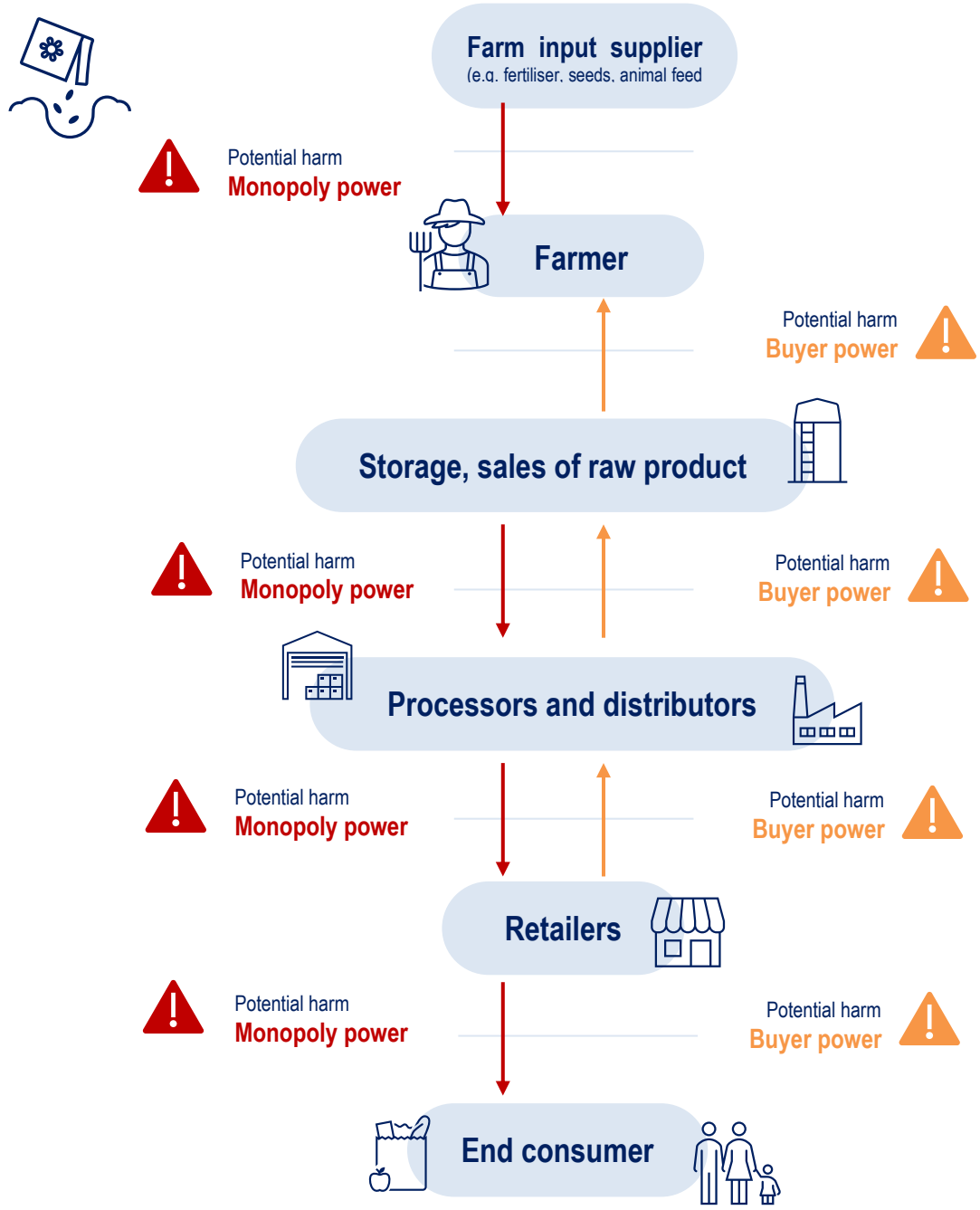
51. Competition authorities have actual and potential roles building on each transactional interface and each of the horizontal business groupings on the supply chain. Typical competition authority actions can all be understood within the context of the transactional basis of the supply chain. For example, concerns about horizontal mergers of grain storage facilities could be understood both from the perspective potential monopoly power towards processors and distributors, or potential buyer power towards farmers. Cartels and abuse of dominance would typically occur at one horizontal level of the chain, and then express their market power at a contracting interface via monopoly power, downstream, or buyer power, upstream. As shown below, market studies and advocacy related to food, when performed by competition authorities, often relate to the contractual interfaces along the food supply chain, and concerns of market power being exercised upstream or downstream, as in Figure 4.

52. One challenge for competition authorities in such enforcement is knowing how to prioritise many conflicting demands on limited resources arising from a variety of complaints and potential investigations in any country. Given that capacity constraints on enforcement are a common factor in both developed and developing countries, one approach of authorities is the prioritisation of food markets by competition authorities. Prioritisation can apply to law enforcement and market studies. For example, South Africa's Competition Commission has an explicit statement on strategy that prioritises "food and agro-food processing" markets.[39] The Development Plan for the Philippines suggests that the Philippines Competition Commission will conduct studies of six sectors, including food and agriculture, as priorities.[40] These authorities are by no means unique in prioritising food.

53. Competition authorities nonetheless have a constrained set of powers and responsibilities. As a result, policymakers cannot expect competition authorities to solve food price inflation. Expectations placed by stakeholders on competition authorities need to be reasonable and consider the legal roles of competition law enforcement, built around proof that could be established in a court of law. For example, the competition authority should not be expected to prevent price increases, which will often occur for reasons such as international scarcity or increases in prices of raw materials, like fertilisers.

54. The remainder of this chapter seeks to provide an overview of the types of actions competition authorities can and have taken at the successive contractual points in the food supply chain. These successive points in the supply chain start with the supply relation to farmers, then proceed to the sales of farmer outputs, the interface between processors and retailers and finally the retailing relationship to end consumers. For each of these contracting interfaces, the chapter identifies different roles in which competition authorities have usefully intervened. These examples demonstrate the value that competition authorities can deliver towards ensuring a competitive, efficient supply chain and illustrate the elements of their toolkit.

Figure 4. The food supply chain and vectors of potential competition harm



Source: OECD.

4.1. Farmers interface with their suppliers

55. Key product suppliers for farmers include producers of seeds, fertilisers, pesticides and, for animal farming, young animals. Others include agricultural machinery. Seeds, fertilisers and pesticides often involve high degrees of IP protection and limited numbers of producers.[41] Competition concerns can arise especially from market power by suppliers towards farmers or farmer purchasing co-operatives. Farmer

representatives have at times alleged that farmers are placed in a weak bargaining position with respect to purchasing of their supplies from a few large multinationals, as with some fertilisers, or supplies that are protected by intellectual property rules, such as modified seed varieties.[42]

56. With an extensive review of prior literature, Deconinck (2021) finds "On the one hand, the literature generally does not find strong evidence of anticompetitive behaviour by buyers of agricultural products, as concluded by McCorriston (2014), Sheldon (2017), and Sexton and Xia (2018). On the other hand, the same studies often do find large price effects resulting from small deviations from the competitive benchmark." With respect to buyer power, studies suggest that "under perfect competition farm prices would be 24% higher than those currently observed." Nonetheless, restrictions on competition from buyer power are estimated at relatively low levels. These two findings are reconciled by Deconinck (2021) with the observation that estimated supply elasticities are low (on the order of 0.17) meaning that a small reduction in demand results in large price decreases, with a 1% decrease in demand resulting in almost a 6% decrease in prices.

57. These concerns have not been ignored by competition authorities. Serious efforts to assess such concerns have been made, for example, in a recent report by the COMESA Competition Commission which studied fertiliser markets in East and Southern Africa.[43] The extensive member state focus within the report shows how a focus on fertiliser is relevant to many countries. Diagnostics of member state conditions and pricing are quite different across the region, suggesting the importance of national conditions. Recent OECD papers by Jones and Deuss (2024) and OECD (2018) have provided valuable focus on policies in fertiliser and seed markets, respectively.[44] Thus competition authorities, while not always the natural intermediary for affecting the supplies to farmers, can have roles of support, in addition to their normal roles of controlling mergers and prosecuting cartels.

58. As of 2024, the main cartel law enforcement actions of competition authorities against suppliers of feed and fertiliser have occurred in developing countries. As examples, South Africa identified and prosecuted a fertiliser cartel for phosphoric acid that was alleged to operate between 1998 and 2007, Zambia identified a potential fertilizer cartel deemed to have operate from 2007 to 2011 and Pakistan identified a fertiliser cartel for urea deemed to operate from 2010 to 2011.[45]

59. In contrast, merger-related law enforcement efforts for farm suppliers have largely occurred with cases in the EU and US. Three notable cases occurred for mergers announced between 2015 and 2016. These included, first, the US DOJ case against Dow Dupont merger, with a particular focus on herbicides and insecticides, resulting in divestitures by Dupont of certain pesticide products and R&D, and by Dow of certain non-agricultural chemical business. In the second, the EU and other agencies[46] closely examined the Bayer and Monsanto merger, leading the EU to require a divestiture by Bayer of soybean, canola, and vegetable seed, and much of its cotton seed, businesses, as well as Bayer R&D capacities for the divested crops as well as for hybrid wheat, and for its technology for making seeds that resist herbicides. Finally, in the third major merger of suppliers, the US FTC acted against the ChemChina Syngenta acquisition, requiring divestitures for three pesticides.[47] With respect to one of these mergers, that of Dow and Dupont, Brazil also acted and required divestiture for corn seeds, in which the companies were particularly strong in Brazil.[48] The action by Brazil illustrates that there may be particular concerns in a one jurisdiction that merit further evaluation and potentially separate remedies from those applied in others.

4.2. Farmer interface with purchasers of their outputs

60. The interface between farmers and their purchasers and their storage entities has been one that illustrates high political saliency. To the extent that competition law applies to such transactions, some competition authorities seek to ensure a fair and appropriate sales environment for farmers. Nonetheless, it is important to recognise that many of the key public policies to support fair sales of farmer outputs are

based on subsidies and market price supports which, as government policies, are rarely explored competition authorities.

4.2.1. Cartel enforcement

61. Cartel sales that affect farmers have been a concern for competition authorities for decades. In South Africa, a cartel in grain silos and storage resulted in a settlement with the competition authority.[49] Further prosecutions in South Africa were in maize and wheat milling. Poultry meat cartels have been identified in Indonesia, Mexico (Mexico City and Yucatan), South Africa and Turkey.[50]

62. In France in 2022, a cartel investigation was started into co-ordination in the collection of milk co-ordination and exchange of information between milk processors. According to the competition authority, the objective of the behaviour appears to have been to ensure that farmers would not be obliged to provide their milk to the nearest milk processor if the farmer preferred to sell to a more distant one (for example, because the farmer is offered a higher price by a more distant milk processor). Between themselves, milk processors then sometimes had arrangements to collect milk from a farmer at the nearest processing facility, even if the farmers were under contract with a competing milk processor. The processors would then reimburse each other for such collections. While such an arrangement could have efficiency characteristics and allow farmers more choice in the sale of their milk, the competition authority explored whether certain aspects of the co-operation, such as over cost of processing, might have competition-reducing effects.[51]

63. While agreements among purchasers from farmers have been viewed as problematic, at times, farmers have been allowed to co-ordinate for production and downstream sales of their own products.[52] Concerns about abuse of processor market power could have arisen, for example, for the treatment of dairy farmers, particularly due to the need for scale economies in processing milk, which limits the number of processing facilities geographically close to farmers, and limited storage life of fresh milk, and the consequent limited number of options for dairy farmers to sell their output. Preventing the possible abuse by private processors could be one reason that milk processing has at times been organised via co-operatives in many countries around the world, as is the case in Denmark, India, Indonesia, Malaysia, The Netherlands, New Zealand, Pakistan, The Philippines, Sri Lanka, and the United State, to name a few.[53] Such co-operatives can be exempted from the application of competition law.[54]

4.2.2. Merger enforcement

64. Due to disaggregated nature of farming, merger enforcement towards farmers has been rare, but it has occurred for purchasers from farmers with a view to limiting the purchasers' buyer power. In one example, the US Department of Justice has sued on multiple occasions, most recently in 2021 in U.S. v. Zen-Noh Grain Corp. and Bunge North America, Inc., to stop mergers of grain elevator operators. In this merger, farmers in nine geographic areas of the central United States were deemed to be at risk of higher prices for grain storage services and, as a result, nine grain elevators were spun off to another purchaser.[55] This illustrates, most notably, that monopsony theories have been applied by the Antitrust Division for at least two decades to protect the food supply chain.[56] It is particularly worthwhile for competition authorities to follow closely concentrations that will substantially reduce options that are realistically available to farmers for sales of their outputs.

4.3. Processors and distributors interface with retailers

65. There are many activities at the processor/distributor/wholesaler and retailer interface that have generated concerns and investigations by competition authorities. To preserve focus in this paper, we will only consider a few items, as the field of competition in distribution is an entire one to itself. Topics such

as RPM, or Minimum Advertised Price rules,[57] and rebates[58] merit their own extensive treatment which is beyond the focus for this paper.

4.3.1. Cartels

66. Cartels at the processor and intermediary level receive careful attention from authorities. In South Africa, a sunflower oil cartel was found to operate from 2004 to 2013. In this cartel, some of the operation was through market allocation, in which one provider did not sell quantities of margarine below 15kg to retailers nor quantities of liquid oil below 25l.[59] While already mentioned in the prior section, it is worth repeating that poultry meat and poultry cartels were found to operate in Mexico City, Yucatan, Turkey, and Indonesia, as these could not only affect relations with poultry breeders but also downstream retailers.[60] In France, the competition authority found milk product companies committed sanctionable behaviour, because "Numerous elements of the file show that the companies now sanctioned met and had many telephone exchanges in order to agree on prices and share volumes in the private label dairy products sector."[61]

67. South Africa's competition authority and its Competition Tribunal found that there had been a bread cartel in operation between 1999 and 2006. The cartelists in this cartel were ultimately fined because of these findings.[62] Mncube (2014) estimates that resulting overcharges to their customers ranged from 7% to 42% for this cartel, illustrating the potential size of consumer benefit that can arise from enforcement from food chain-related cartel cases.

68. Cartel concerns at the stage of processing do not focus exclusively on food production but can also include food packaging. While examples may not yet exist from developing country authorities, the French competition authority expressed concerns that a change in standards adopted based on French regulation (concerning the use of Bisphenol A within packaging) could have been followed by illegal actions. The authority examined whether an understanding between food packagers not to advertise the packaging that had implemented an internal covering without Bisphenol A was a violation of competition law. The competition authority was concerned that early adoption of a presumed safer, standard was prevented by this common agreement not to advertise. In this case, three professional organisation and the association of can manufacturers were, in 2024, fined a combined €20m for their role in the alleged understanding.[63]

4.3.2. Mergers of processors and distributors

69. Mergers of processors and distributors are regularly reviewed by competition authorities. One product for which mergers have received particular attention from competition authorities is milk. For example, in milk processing, the Zimbabwe Competition and Tariff Commission was notified of discussion between Dendairy and Dairibord in 2021, the number one and number two dairy processing companies in Zimbabwe. For unspecified reasons, the deal did not conclude. The Commission subsequently was notified of and authorised a different company, Tavistock, to acquire Dairibord.[64]

70. While risks of domestic price increases may motivate competition authority objections to processor mergers, arguments for creating export strength can sometimes be influential in determining the ultimate outcomes. The New Zealand Commerce Commission reviewed multiple mergers involving milk processing companies, including the Fonterra New Zealand Dairies acquisition in 2012, when New Zealand Dairies was in financial difficulties. This approval followed on from the government having approved a deal to create one of the five largest milk processors in the world, via the earlier consolidation that created Fonterra and which was made possible by passage of special legislation, the Dairy Industry Restructuring (Raw Milk) Regulations 2001.[65] These deals illustrate how policymakers can be required to weigh conflicting interests when a merger will create international export strength but, at the same time, high domestic concentration. To some extent, unfavourable outcomes can be prevented by domestic oversight. Domestic

conditions were a consideration in the 2001 New Zealand legislation and ultimately the Commerce Commission intervened against Fonterra in the interpretation of these regulations, via proceedings that ultimately rose to the New Zealand Supreme Court, over regulatory conditions requiring the supply of milk to downstream users at justifiable prices. The Supreme Court ruled in favour of the Commerce Commission, perhaps supporting the view that domestic concerns can sometimes be handled by regulation when policymakers determine that a merger should be permitted for reasons related to international trade.[66]

4.3.3. Distribution for small and entrant producers

71. A further problematic arena that has so far received little attention from competition authorities is that many small producers may use distribution networks of larger producers to distribute their products.[67] On the one hand, this may facilitate the expansion of small producers and develop greater capacity to challenge incumbents. On the other hand, this creates close co-operation between companies that may, at their core, be competitors. One possible approach to such arrangements is to consider the extent to which they concern "purely" logistics and the extent to which they also include negotiating terms of sale. If the co-operation involves transport only, while it does create a cost for the small operator that is determined in part by an incumbent, the key contractual terms of competition, such as wholesale price, are not determined by the arrangement. In contrast, if the arrangement is a full-service distribution arrangement, in which the larger company is also negotiating prices for its competitor, the situation is likely more complex. Without condemning distribution co-operation between competitors by default, such arrangements could raise a risk of violating the competition law. There is also a possibility that, if the larger company determines the wholesale price of the competitor's product, it will have an incentive to set high prices for the competitor to reduce the competitor's market share. Small companies, in response, might seek contractual conditions that would restrain the incentive of the distributing company to set high prices. If horizontal overlap is deemed to occur between the distributor and small company, the appropriate tool to examine such arrangements may be merger analysis, but could depend on the context.

4.3.4. Retailer monopsony power towards distributors and upstream suppliers

72. Policymakers have regularly heard complaints from farmers, processors, and producers around the world related to retailer bargaining position and impacts of retailer strength. From the farmer perspective, a partial solution may arise from allowing co-operatives, as has occurred in many fields of agricultural production.[68] Multiple developed countries have held market studies and investigations related to monopsony power of retailers and large distributors. Similar activity is occurring in some developing countries, to the extent that similar problems arise with the relationship between retailers and their suppliers.

73. A recent paper by a National Grocers Association, representing independent grocery stores, suggests that actions such as a large retailers not complying with Minimum Advertised Prices (MAP) gives the large retailer an advantage over other retailers that, due to lower bargaining power with producers, are obliged to follow the MAP policies.[69] Examples of practices by large grocery chains that are deemed by the National Grocers Association as unfair include refusing to provide smaller retailers with equally low prices as large retailers, product supply discrimination (e.g., refusing to provide product sizes that are available in large retailers absent equally large order sizes), and packaging discrimination (such as refusing to provide large packages to smaller grocery stores).

74. In response to complaints and government requests, competition authority studies have examined the supplier-retailer contractual interface. Australia, Canada and the UK have instituted codes of conduct for grocery stores that are intended to reduce the intensity of contracting problems that, while perhaps not characterised as violations of competition law under many traditional perspectives, do nonetheless result in unilaterally imposed changes in contractual conditions and expectations that are implemented in ways

that can ultimately harm competitive production and sales across many different food products.[70] These codes have been implemented within a competition authority (ACCC) or within a unit hosted by the competition authority (UK's CMA).

- Australia has voluntary Grocery Code of Conduct to regulate relations between suppliers and wholesalers and retailers and has a unit pricing code, to facilitate price comparisons by consumers. https://www.accc.gov.au/by-industry/food-and-groceries
- Canada has implemented a code of conduct to establish common understandings over appropriate behaviours between retailers and their suppliers, including with dispute resolution.[71]
- In the UK, after two groceries market investigations, the government created the Grocery Code and Grocery Code Adjudicator. "The Groceries Code Adjudicator is responsible for regulating the relationships between the UK's largest grocery retailers and their direct suppliers by encouraging, monitoring and enforcing compliance with the Groceries Supply Code of Practice."[72] The Groceries Code Adjudicator is based within the competition authority, though independent. Illustrative details of the UK's grocery code are found in Box 1, to explain the types of behaviour that are covered by the code.

Box 1. Grocery Code Adjudicator principles and practice

The United Kingdom has created the position of Groceries Code Adjudicator responsible for ensuring that retailers do not engage in specific practices against producers that are deemed harmful, such as ex post rebates, destocking due to sales to competitor chains, and nonagreed charges for promotions. The reports of the adjudicator suggest that the implementation of the rules resulted in substantially lower frequency of reported bad treatment of suppliers by large supermarket chains.[73]

Topics that are covered by the grocery adjudicator rules in the UK include: Unilaterally imposed and ex post variation of supply agreements and terms of supply, changes to supply chain procedures; no delay in payments, no obligation for producers to contribute to retailer marketing costs, no payments for shrinkage (concerning suppliers being forced to pay for products that retailers say have not been received), payments for wastage, limited payments objections as a condition of being a supplier, compensation for forecasting errors, no tying of third party goods and services for payment, no payments for better positioning of goods unless in relation to promotions, promotions, due care to be taken when ordering for promotions, no unjustified payments from producers for consumer complaints, duties to de-list only for commercial reasons, and requirements that a senior buyer review producer complaints.

Note: The Principles for the UK's Grocery Code are found here: https://www.gov.uk/government/publications/groceries-supply-code-of-practice/groceries-supply-code-of-practice (accessed 23 June, 2024.) Practice (results) are found in various sources, including adjudicator annual reports, notably that of 2020.
Source: https://www.gov.uk/government/publications/2019-to-2020-gca-annual-report-and-accounts/hc349_gca_annual_report_and_accounts_2019-2020 (accessed 23 June, 2024).

4.4. Consumer to retail interface

75. The interface between end consumers and retailers is the final step of the food supply chain.

4.4.1. Consumer retailer (supermarkets) mergers and acquisitions

76. Historically, many competition authorities have actively engaged in oversight of retail grocery stores. The concern of increased concentration in this area is not new, as suggested in Dobson, Waterson and Davies (2003). The monitoring of retailer M&A by competition authorities is active across jurisdictions and regions.

77. The primary concern in such mergers has been one of monopoly power increases that result in higher prices to consumers. At the same time, the level of price increases predicted from such mergers is often relatively small, leading competition authorities to adopt lower thresholds for intervention than other industries (such as objecting in the presence of a 5% increase in margins, as opposed to suggesting that there would be a 5% increase in prices.)

78. One of the most discussed mass retailer mergers at the time was the 2011 Walmart Massmart merger in South Africa. In this case, the competition authority focused on the one hand, on the possibility of increased prices to consumers; on the other hand, it also focused on buyer power towards suppliers. The duality of this case illustrates the value of the proposed typology for competition authority focus, with the competition concerns for the retailers having been related both to consumer pricing and supplier pricing. The argument on buyer power was made not because of an increase in market power by Walmart via the acquisition, but rather from the concern that Walmart would import its negotiating methods to South Africa. The buyer power arguments against a mass retailer merger were, at that time, original.[74]

4.4.2. Price gouging

79. Price gouging is a particular form of abuse of market power typically associated with sellers exploiting a shortage of essential goods and services to raise prices to excessive levels. (See Fels, 2024) Price gouging by retailers towards consumers can occur when a retailer has a uniquely strong position in supplying a good. Often, when there is a legal violation alleged of price gouging, the core explanation for the problem lies in a lack of supply rather than a lack of competition. For example, price gouging has at times been expressed as a concern after natural disasters, when new supplies cannot reach an area, and thus there is scarcity in a fundamental good, such as water. However, higher prices in the presence of supply scarcity are a natural phenomenon, and one that applies to a temporary failure of supply chains rather than to a fundamental failure in competition.

80. A more expansive approach to price gouging has recently been proposed. In a report on price gouging in Australia, Fels (2024)[75] suggests that grocery retailers follow a rocket and feathers approach to pricing, in which their cost increases are rapidly translated into higher retail prices, while cost decreases are slowly translated into lower retail prices for consumers. One example was suggested to include lamb meat, which was falling in price for six months before one of the large retailers announced a price reduction as a 'Christmas gift' to consumers. The presence of rockets and feathers pricing,[76] if proven, was suggested to illustrate insufficient retail competition to keep prices adjusting to cost changes. One of the results of the report was to recommend competition authority studies into the competitive conditions in retailing.

81. To the extent that mass food retailing exhibits asymmetric responses to cost increases and decreases, competition authorities may have a reason to review the extent to which competitive forces between retailers are unduly weak and ultimately result in possibilities to keep prices at elevated levels for extended periods of time.

4.4.3. Category captains

82. Category captaincy is a governance mechanism of modern mass retailing in which retailers give one of the two lead brand owners in a category responsibility for a retailer's shelving layout for the brand 'category' (e.g., frozen meals). The firm with the product category responsibility for the retailer designs the category layout in each store and even can advise the retailer on product selection. The process of preparing product maps can be complex with many retailers having hundreds of stores and different shelving lengths for different stores. The category captain system has an advantage in providing product expertise and support to retailers that they might not otherwise be able to afford, as well as reducing a work responsibility that would otherwise fall to the retailer staff. However, one implication of these arrangements is that, within a retailer, one of the two lead suppliers in a product category has a strong

influence over the quantity sold of competitor products, e.g., by giving low-quality shelf placement to competitor products.

83. In many respects, category captaincy presents an analogous situation to that explored in digital self-preferencing cases or horizontal cases, though there is some evidence of reduced costs to retailers of using category captains for shelf space organisation, and also allegations of category revenues growing to the benefit of the retailer, but little reason to believe that this would reduce overall system costs.

84. Curiously, relatively little exploration of this practice by competition authorities has occurred publicly. On its face, category captaincy provides a direct opportunity to exclude (or reduce sales) of competitors and to increase own sales via the self-award of best space to the category captain. Category captains not only have the capability to exclude, but they also have an incentive to do so. The decisions of a category captain have no inherent reason to care about the overall effectiveness and success of a competitor, even if the competitor has bought distribution services from the retailer. Rather, the category captain will be most interested to enhance its own sales at the cost of others. It can choose to express this interest by, e.g., demoting competitor products or preventing effective entry by preventing effective maverick entry and avoiding disruptive activities by competitors. But a captain also has an interest to maintain credibility with the retailer. This desire to retain credibility can potentially reduce its incentives to profit, as retailers monitor the captain's impacts. An important incentive for the captains not to use their influence inappropriately is thus that if the captain abuses its position, the retailer will retract the offer of captaincy and award the role to a competitor.

85. According to the U.S. FTC, two primary concerns from category captain arrangements are that a dominant manufacturer could use a captaincy position to exclude rival suppliers or raise their costs of competing.[77] Simply having the power and incentive to advantage itself does not necessarily mean that a category captain will follow through and abuse its position. Data and further evidence would be needed to establish that.

86. The delegation of vertical influence of the retailer to a horizontal designer with a potential conflict of interest is increasingly likely to bring antitrust risk if not closely monitored by the retailer.[78] Government-led cases against category captain arrangements have not yet occurred, as of 2024. The case that appears to establish the most relevant precedent is one in which a private damages award was given to a company claiming to be damaged by a category captaincy arrangement. An antitrust award of $1.05b from US Tobacco to Conwood Co. followed from allegations that US Tobacco unfairly dominated the smokeless tobacco industry through its category captain arrangements. The U.S. Supreme Court refused to review the claim, despite the fact that U.S. courts have not uniformly accepted the principle that category captain arrangements are problematic under antitrust law. The finding of problems with category captaincy arrangements is similar, in some respects, to finding a problem with self-preferencing arrangements by retail marketplaces or Google Shopping.[79] As a result, it appears that there is an increasing possibility of antitrust damage from practices that give a competitor influence over the merchandise displays of its own and competitors' products.[80] Competition authorities in may wish to consider this type of arrangement as one meriting review. Due to a reasonable expectation on the part of market participants that the mechanism is legal, if an authority believes it potentially problematic, one approach would be to warn firms through a policy statement that the risk from such arrangement is substantial. The use of a policy statement, rather than focused prosecution, would be particularly appropriate given that category captaincy arrangements appear to be widespread in mass retailing, meaning that prosecutions of a single instance of such arrangements would risk being considered arbitrary and unfair.

4.5. Cross-cutting along the supply chain: Market Studies and Advocacy

87. The prior sections have illustrated techniques of competition authority action at interfaces along the supply chain. Certain forms of action, though, may apply across steps in the supply chain.[81] This

section focuses on these sorts of action along multiple steps of the vertical chain: market studies and legislative comments.

88. A crucial and important role for competition authorities, across all the contracting points along the food supply chain, is to perform market studies and make advocacy for reforms within government. Deconinck (2021) reports responses from a 2019 survey of 46 competition authorities conducted by the OECD on their studies. Results are presented for 40 competition authorities. The focus of these studies varies substantially, indicating the breadth of possible topics than have been deemed to merit study in the food supply chain. The results lead Deconinck (2021) to conclude that "competition issues are best analysed using an in-depth study of a specific value chain".

89. A selection of market studies is described below. This selection is necessarily a small selection from activities around the world, many of which are after the period of the Deconinck (2021) analysis. Each is selected and described to illustrate specific points of potentially broad interest.

4.5.1. Market studies, inquiries and investigations

90. Market studies and advocacy are often viewed as a valuable supplement, particularly on the food chain, for competition authorities to express a view and influence outcome, particularly for situations that appear troublesome but are outside their legal powers of enforcement.[82] These often consist of studies that focus on a particular sector.[83] Some countries, such as Greece, Iceland, Italy, Mexico, and South Africa,[84] have strong abilities to enforce conclusions via market investigations. In most jurisdictions, where such structural enforcement powers are lacking, the ability to make advocacy on government policy does exist, and there could be value in commenting on government policy, which may be underutilised tool for many authorities.

91. Market studies do not necessarily focus on government policy, as they may deal with assessing market conditions on competition arising from private company actions or consumer behaviour. There are nonetheless many areas of government policy that can affect competitive conditions on the supply chain. Areas of government policy of potential interest range from farmer subsidies, antitrust exemptions and omissions, food standards, operation of food markets, regulatory environment for farmer finance and crop insurance, imports tariffs, export policies,[85] allocation of import permits, fair dealing requirements, food standards and rules, food-based energy policy, retail subsidies and price controls, allocation of space and licensing in marketplaces, and strategic reserves of food products.

Examining conditions of supply for key inputs: COMESA Fertilisers study

92. COMESA, a regional body that has 21 member states, has released a 2024 study of fertiliser market concentration and market outcomes across southern and eastern Africa. This report, prepared by CCRED, examines the conditions of supply for this key farmer input across the region. It finds that there are many market failures in the supply of fertilisers, with a focus on country specific analysis. For example, urea fertiliser prices in Malawi are reported as 3 times higher than the world average price. The context is one in which, due to difficulties with prior regimes in which government has subsidised fertiliser with private sector supply, the government in 2023 took over the supply, based on bids via tender to supply the government. In some COMESA countries, license procedures for importing are considered as one potentially important barrier to supply that could be remedied through more permissive legislation based on external quality verification.[86]

Geographic focus: COFECE on bulk white and blue corn for tortillas

93. In Mexico, COFECE's Preliminary Findings in Case File IEBC-004-2022 of 27 September 2024 suggest "probable existence of barriers to competition and free trade in the markets for the production, commercialization and distribution of bulk white and blue corn flour for the commercial production of corn

tortillas, with a regional geographic dimension divided into eight regions in Mexico". This case thus suggests that the geographic focus of market problems may be an important factor for both investigations and market studies. Potential competition restrictions in the food supply chain must sometimes therefore be considered at a sub-national level.

Creating a mechanism for treating unfair dealing: UK Competition Commission Groceries Market Investigation (2008)[87].

94. The UK Competition Commission Groceries Market Investigation of 2008 was of interest because of the extensive evidence base that underlay the report, illustrating the potential role for analysis of data to better understand one stage of the food supply chain. One of the follow-on developments from this report was the legislation that created a Groceries Code Adjudicator. As discussed above, the role holder was responsible for improving fairness in contractual relations with large grocery chains, which were deemed to have patterns of behaviour that were considered unfair, and largely contractual, but that were not well-suited to common contractual or competition law remedies, in part because of the expense and slowness of contract litigation and the unwillingness of suppliers to challenge large purchasers.

Focus on retailing and links to other markets: ACCC Supermarket Inquiry[88]

95. Following the drafting of an Australian Council of Trade Unions inquiry that focused on price gouging, the Australian government ordered the ACCC to perform an inquiry into supermarkets. This inquiry examines "the pricing practices of the supermarkets and the relationship between wholesale, including farmgate, and retail prices". One of the concerns, according to the issues paper for this inquiry, is allegations that there are increasing and unexplained differences between farmgate prices and retail prices.[89] This occurs in the Australian context of known high concentration in supermarkets across metropolitan areas, and limited competitive options for retail purchasing in many more rural areas.

Focus on particular food category: South Africa Fresh Produce Market Inquiry[90]

96. The Competition Commission of South Africa launched the fresh produce inquiry in March 2023. The inquiry was initiated because "The Commission had reason to believe that there may be features in the fresh produce market that could impede, restrict or distort competition, with specific focus on significant fresh produce". The focus includes five fruits (apples, citrus (particularly oranges and soft citrus), bananas, pears and table grapes) and six vegetables (potatoes, onions, carrots, cabbage, tomatoes and spinach). In South Africa, fresh produce is sold both through fresh produce markets and via direct relationships with retailers. Both avenues of commercialisation for farmers are important. The provisional report includes 29 identified "practical and reasonable provisional remedial actions and recommendations that could address distortions in the fresh produce market."[91]

4.5.2. Legislative comments

97. Competition authorities can be instrumental in encouraging new legislation and making public comments on proposed or existing legislation but also in making private and potentially more effective comments to legislative drafters. They can also support external reviews of legislation with a pro-competitive focus. Legislative comments from competition authorities can have high value when applied to the food supply chain.

98. As one example, in Mauritius, a proposed restriction on sugar imports that was considered for legislation in 2012 was brought to the competition authority for comments, as the responsible parties for the legislation recognised that it would have competitive implications. The competition authority commented on the proposed sugar law and proposed alternative bases for addressing the public policy challenge, which was related to reimbursing retirees of a former sugar dock at the port.[92] These alternatives

were accepted by the government and used as a basis for modifying the legislative proposal that ultimately emanated from the ministry of agriculture.

99. In another type of legislative comment, competition authorities can support the adoption of external reviews of sectoral regulation, as, for example, following the OECD Competition Assessment Toolkit approach, which can be implemented by various institutions. One carefully reasoned example, the OECD's Tunisian competition assessment review of 2019, focused on wholesale and retail trade, including fresh fruits and vegetables and red meat, making dozens of legislative recommendations for pro-competitive reform.[93] The long run impact of increasing flexibility in marketing arrangements to other wholesale channels is estimated, in the long run, as potentially arising up to TND 108.7m per year.[94]

4.6. Interventions and limitations

100. The types of intervention illustrated here demonstrate a variety of ways that competition authorities can usefully contribute to ensuring smooth and competitive operation of the successive steps of the food supply chain. The interventions fall under the categories of addressing monopoly power and monopsony power. In addition to market power arising from private actions, it can also arise from government intervention[95] and inherent market structure. The limits of competition authority action merit recognition by stakeholders, notably in food markets that are largely international and in which international scarcity can both create domestic scarcity and domino effects of price increases starting with one step on the supply chain and applying to subsequent ones. Developing country competition authorities can apply many of these approaches, at appropriate junctures, within their own jurisdiction.

5 Concluding observations

101. During crisis moments following input cost increases to agricultural producers, food price inflation creates substantial pressure on households over the cost of meeting basic food needs. This challenge can, in many respects be higher in developing countries than developed ones, due to the greater size of populations near the poverty line in such countries and the possibility that margins may have increased more in developing countries than developed ones from the food supply intermediaries.

102. To address these concerns as related to competition authorities, this note introduces and illustrates a typology for examining competitive restrictions in supply chains and provides examples of areas in which government policy and competition authority action have affected competitive conditions in the food supply chain. Interesting open questions remain about the food supply chain, notably due to widespread market failures for provision of insurance, the potential increase in margins for intermediaries and retailers and inequality of bargaining positions for contracting along the supply chain.

103. New topics will continue to emerge. One such topic relates to data analytics by retailers. The role of data and automated price recommendations may grow more important in the future, particularly to the extent that consumers are members of retailer loyalty programmes that identify them and allow for custom discounting. Data analytics might allow the identification of marginal customers, to give them the lower prices while maintaining higher prices for less price sensitive customers. Whether the data analytics and possibility of rapid price changes, due to electronic price display, result in competition law cases is still uncertain.

104. In recent years, many citizens may have acquiesced to high food price increases in the knowledge that other constituent features of supply chain have experienced increased costs. This acquiescence may result in them looking less aggressively in response to higher prices than they would have absent the knowledge of cost increases. Moreover, many (though by no means all) citizens were able to increase their savings during covid and, to the extent these citizens able to do so, were protected from the hardest impacts of price increase, as well as required to search less vigorously, due to movement restrictions. This possibility of reduced search intensity could have the follow-on impact of reducing overall price sensitivity at the time of retail purchase, creating an opportunity to raise prices. Reduced search intensity supports ‘rockets and feathers’ pricing at times of such shocks and merits further examination as an explanation of recent pricing phenomena and does not suggest a violation of competition law.

105. A number of concluding observations can usefully be made:

- Food price inflation has emerged on the food supply chain; this inflation has not been consistently a result of higher margins, with other sources including, but not limited to, cost increases, reduced search intensity and greater savings providing alternative explanations for inflation. Nonetheless, on some occasions margins did increase.
- The food supply chain has particular economic conditions and government interventions that contribute to the complexity of the markets and can, at times, create market failures or competitive weakness.
- When stakeholders deem that market failures are substantial or that government intervention is necessary, government policies along the food supply chain can have substantial impacts on food

markets. The policy choices often involve trade-offs between different actors in the supply chain, who may have different degrees of market power.

- Competition authorities have an important supplementary role to government policy and have levers to intervene at most steps of the supply chain. These often place particular focus on the nexus around farmers and the nexus around mass retailers, as farmers are deemed to have particularly low concentration, and retailers are deemed to have high degrees of concentration. But competition authorities follow a much broader law enforcement and advocacy agenda along the entire supply chain.
- Despite their broad powers, competition authorities generally do not have price control powers or abilities to intervene outside the context of the constraints of competition law. They do have ability to influence certain aspects of contracting that seem to be gathering some judicial support, such as category captaincy.
- Food price inflation and selectively higher prices in smaller and less connected jurisdictions has many explanations; these two facets of food pricing can to some extent be mitigated by government policies, and, where there are appropriate and focused roles for a competition authority, by competition authority action.

Endnotes

[1] For descriptive convenience, we henceforth denote this the food supply chain. For clarity, this note does not consider fisheries, whether aquaculture or marine catch. Agriculture production used to produce fibre (cotton), or industrial products (corn starch) is not considered as within the food supply chain.

[2] See https://blogs.worldbank.org/en/opendata/food-prices-mirroring-past-peaks-despite-continuous-drop#:~:text=Data%20as%20of%20January%2017%2C%202024.,-Source%3A%20U.S.%20Department&text=Domestic%20food%20price%20inflation%20moderating,had%20fallen%20to%206%20percent, accessed 23 October 2024.

[3] Aruba Fair Trade Authority (2024) Food Products Market Study, September.

[4] After a 5 percent food price increases the risk of wasting in children rises by 9 percent and of severe wasting by 14 percent. See Headey, D., Ruel, M. "Food inflation and child undernutrition in low- and middle-income countries". Nature Communications 14, 5761 (2023). https://doi.org/10.1038/s41467-023-41543-9.

[5] For more figures and explanation, see OECD (2024a).

[6] These crises led to the creation of the Agricultural Market Information System providing information on trade, stocks and production for four stables crops globally and for fertilisers.

[7] For these questions, future evidence may be relevant to the question, so should be considered once available. The Fresh Produce Market Inquiry provisional report of the Competition Commission for South Africa suggests many farmers complain about the difference between retail prices and farmgate prices for their products.

[8] See https://blogs.worldbank.org/en/opendata/food-prices-mirroring-past-peaks-despite-continuous-drop#:~:text=Data%20as%20of%20January%2017%2C%202024.,-Source%3A%20U.S.%20Department&text=Domestic%20food%20price%20inflation%20moderating,had%20fallen%20to%206%20percent. Accessed on 23 October 2024. E.g., in one recent report, the USDA examines aspects concentration and competition in the food supply chain. https://www.ers.usda.gov/webdocs/publications/106795/eib-256.pdf?v=7459. Accessed on 15 Sept. 2024.

[9] The FAO, IMF, World Bank Group, WFP, and WTO.

[10] See https://www.worldbank.org/en/news/statement/2023/02/08/joint-statement-on-the-global-food-and-nutrition-security-crisis, accessed June 23, 2024.

[11] *See IMF, Haver Analytics and Trading Economics, as reported in World Bank Food Security Update, May 23, 2023,* https://thedocs.worldbank.org/en/doc/40ebbf38f5a6b68bfc11e5273e1405d4-0090012022/related/Food-Security-Update-LXXXIV-May-4-2023.pdf.

[12] See https://data.worldbank.org/indicator/SI.POV.DDAY?end=2017&start=1981&view=chart. Accessed on 27 October 2024.

[13] OECD (2024a) illustrates, in Figure 2.1, the level of supports in 2000-2002 compared to 2021-2023, showing that supports generally remain substantial, even if declining for many countries from 20 years before.

[14] https://www.kenyanews.go.ke/ministry-unveils-e-voucher-subsidy-program/. Accessed 12 Sept. 2024.

[15] See COMESA (2024) for a discussion of fertilisers.

[16] Nonetheless, the political economy in favour of subsidies is unlikely to abate. See, for example, Anderson et al. (2013).

[17] See https://www.grocerydive.com/news/grocery-industry-profit-margins-fall-to-pre-pandemic-levels-fmi/720517/ accessed 26 September 2024.

[18] We focus on terrestrial food products, rather than aquaculture, which may present distinct characteristics and features.

[19] "As of May 28, 2024, 16 countries have implemented 22 food export bans, and 8 have implemented 15 export-limiting measures." World Bank "Food Security Update", June 4, 2024, Accessed 23 June 2024 https://www.worldbank.org/en/topic/agriculture/brief/food-security-update). See also table of trade restrictions below.

[20] Arguably, farmers can also be over insured and underexposed to risk, so that they do not change their production behaviour. See OECD (2023).

[21] The relation-specificity can actually help to motivate processors to invest more, when they know the farmer can only sell back to them. See Swinnen and Vandelplas (2012) for more elaboration on these ideas.

[22] See https://www.cofece.mx/reporte-sobre-las-condiciones-de-competencia-en-el-sector-agroalimentario-2/. Accessed 23 October

[23] See Hernandez *et al*. (2023) for select cross-country numbers.

[24] These include sanitary and phytosanitary requirements that are biosecurity measures meant to protect human, animal or plant health from the introduction, establishment and spread of pests and diseases, and from additives, toxins and contaminants in food and feed.

[25] For example, to know that grain was produced using specific sustainable techniques, traceability is often considered valuable.

[26] Traceability requirements can also serve as catalysts for consumers to purchase goods that they otherwise would not. See, for example, Anders and Caswell (2009).

[27] For example, in the EU, Article 42 of the TFEU provides for gives the legislator the power to decide the degree to which the competition law applies to the sector, considering objectives of the Common Agricultural Policy, which are increasing agricultural production, ensuring a fair standard of living for agricultural communities, stabilising markets, assuring supplies and ensuring reasonable prices for the consumer. The US Capper-Volstead Act provides a partial antitrust exemption for agricultural cooperatives.

[28] See, description of economics of farmer cooperatives in Sexton (1990).

[29] See https://chambers.com/articles/a-guide-to-protecting-geographical-indications-in-india, accessed 23 June 2024.

[30] The non-applicable zones of antitrust enforcement are arguably not based exemptions but are sometimes debated, as further described, for potash, in https://one.oecd.org/document/DAF/COMP/GF(2012)8/FINAL/en/pdf. Accessed 12 September 2024.

[31] The nature of these omissions from antitrust enforcement is further described, for potash, in https://one.oecd.org/document/DAF/COMP/GF(2012)8/FINAL/en/pdf. Accessed 12 September 2024.

[32] OECD (2018) examines concentration in seed markets and makes recommendations on how to stimulate competition and innovation.

[33] The French ministries of economy and of agriculture and food maintain an "Observatory of prices and margins in the food chain." https://observatoire-prixmarges.franceagrimer.fr/etudes-et-presentations Accessed on 25 October 2024.

[34] See https://www.usda.gov/farmerfairness. Accessed 15 September 2024. Such websites have the advantage of creating a route for farmers to complain via their core ministry, while complaints may be seen by other parts of the government involved in competition law enforcement.

[35] See, e.g., Deconinck (2021).

[36] The existence of a risk of an exercise of market power does not mean that market power is actually used or used in a legally problematic way.

[37] The possibility of market power at the farmer stage may be enhanced when there are cooperatives.

[38] Exceptions could occur even for these groups. Farmer cooperatives that unite all farmers growing a particular crop may arguably have more buyer power than individual farmers. Associations of consumers could potentially create buyer power.

[39] https://www.compcom.co.za/our-strategic-goals/. Accessed on 15 September 2024.

[40] https://www.phcc.gov.ph/wp-content/uploads/2021/02/PDP-2023-2028.pdf, p. 223. Accessed 15 September 2024.

[41] OECD (2018) shows high concentration in seeds.

[42] See Jones and Deuss (2024) on fertilisers and OECD (2018) on seeds.

[43] See COMESA (2024).

[44] Moreover, studies on farmer suppliers are illustrated by those carried out from enquiries by the U.S. department of agriculture (USDA), into which the U.S. competition authorities contributed, provides extensive and focused consideration of the seed industry and its competitive challenges. https://www.ams.usda.gov/sites/default/files/media/SeedsReport.pdf. Accessed 15 September 2024. On fertilisers, see https://fas.usda.gov/sites/default/files/2022-09/IATR%20Fertlizer%20Final.pdf and Docket AMS-AMS-22-0027, request for comments at https://www.regulations.gov/document/AMS-AMS-22-0027-0001. Accessed 15 September 2025.

[45] John Connor database, 2019, Purdue University.

[46] The Financial Times suggests “Brussels approves Bayer’s $66bn Monsanto purchase”, 21 March 2018, that suggests as many as 30 agencies reviewed the merger. See https://www.ft.com/content/a20f895c-2d10-11e8-9b4b-bc4b9f08f381 accessed on 13 November 2024.

[47] See https://www.ers.usda.gov/amber-waves/2019/february/mergers-in-seeds-and-agricultural-chemicals-what-happened/ . Accessed 27 October 2024.

[48] See https://www.ers.usda.gov/amber-waves/2019/february/mergers-in-seeds-and-agricultural-chemicals-what-happened/ . Accessed 27 October 2024.

[49] CO031Jun11/SA118Nov11. Settlement agreements, Competition Commission and The Grain Silo Industry (Pty) Ltd and 16 others. Approval by Competition Tribunal of South Africa.

[50] See John Connor database, 2019. Purdue University.

[51] See https://www.autoritedelaconcurrence.fr/fr/article/operations-de-visite-et-saisie-dans-le-secteur-de-lapprovisionnement-en-lait-de-vache.Accessed on 25 October 2024.

[52] One example is the EU regulations on Producer Organisations and Inter Branch Organisations.

[53] See https://www.fao.org/4/T3080T/t3080T0a.htm. Accessed 27 October 2024.

[54] See, for example, New Zealand’s Dairy Industry Restructuring (Raw Milk) Regulations 2001.

[55] US DOJ Grain Storage merger. US v Zen Noh, Case 1-21-cv-01482.

[56] In 1999, the US DOJ v Cargill and Continental Grain resulted in a divestiture of grain elevators to protect farmers. Case 1:99CV01875.

[57] See Ennis and Kuhn (2021), for an illustration of the complexity of some of the vertical contracting questions involving retailers.

[58] A case in Mauritius of processed cheese provides a good example of a rebates case intervention which was rapidly followed by successful and price-reducing entry. https://one.oecd.org/document/DAF/COMP/GF/WD(2012)7/en/pdf. Accessed 12 September 2024.

[59] See Moothoo Padayachie (2024).

[60] See John Connor cartel database, https://purr.purdue.edu/publications/2732/2. Accessed 24 October 2024. The extent to which they affected farmers, were by farmers, or affected end consumers or both is unclear. The point for current purposes is to establish that developing countries have been active in prosecutions at for these products within the food supply chain.

[61] See *Décision 15-D-03 du 11 mars 2015*.

[62] See Nkosi et al. (2022).

[63] https://www.autoritedelaconcurrence.fr/fr/communiques-de-presse/bisphenol-dans-les-contenants-alimentaires-pres-de-20-millions-deuros-de. Accessed 15 September 2024.

[64] https://www.pressreader.com/zimbabwe/the-standard-zimbabwe/20211121/282011855618666 and https://www.competition.co.zw/2022/11/. Accessed 27 October 2024.

[65] https://comcom.govt.nz/case-register/case-register-entries/fonterra-co-operative-group-limited5/media-releases/commerce-commission-clears-fonterra-to-acquire-the-dairy-processing-assets-of-new-zealand-dairies-limited-in-receivership. Also, the creation of Fonterra was itself controversial, allegedly leading to the passage of special legislation to permit the merger and avoid competition law blocking the merger. https://www.company-histories.com/Fonterra-CoOperative-Group-Ltd-Company-History.html. Accessed 27 October 2024.

[66] See SC 39/2006 [2007] NZSC 36, https://www.courtsofnz.govt.nz/assets/cases/2007/2007-NZSC-36.pdf. Accessed 27 October 2024.

[67] Private communication to author from a competition authority.

[68] Ennis, S. (2007), "Competition and Regulation in Agriculture", *OECD Journal: Competition Law and Policy*, vol. 9/2, https://doi.org/10.1787/clp-v9-art7-en.

[69] https://www.nationalgrocers.org/wp-content/uploads/2021/03/NGA-Antitrust-White-Paper25618.pdf. Accessed on 13 September 2024.

[70] Some countries have also passed legislation concerning “unfair trading practices”, such as the EU. (See Deconinck (2021), Section 3.)

[71] See https://canadacode.org. Accessed on 27 October 2024.

[72] See https://www.gov.uk/government/organisations/groceries-code-adjudicator, accessed 23 June 2024.

[73] Buyer power is often considered a key issue in these concerns. See, for example, Dobson and Waterson (1997, 1999).

[74] Buyer power has since been adopted as an argument in the US FTC challenge against largest U.S. supermarket merger in history, Albertsons/Krogers, in 2024. The FTC complaint includes allegations of a harm to one of the inputs, namely labour.

[75] https://pricegougininginquiry.actu.org.au/wp-content/uploads/2024/02/InquiryIntoPriceGouging_Report_web.pdf. Accessed 15 September 2024.

[76] See Tappata (2009) for a treatment of rockets and feather pricing that extends across products.

[77] https://www.antitrustinstitute.org/wp-content/uploads/2018/09/270.pdf. Accessed on 15 September 2024. For the FTC report, see For FTC Report on slotting allowances, see http://www.ftc.gov/opa/2001/02/slotting.htm.

[78] https://www.ftc.gov/sites/default/files/documents/public_statements/prepared-remarks/040519categorymgmt.pdf. Accessed on 15 September 2024.

[79] One difference is that clearly acceptable remedies or not obvious with the digital self-preferencing cases, while retailers taking over the shelving layout and strategy would obviate the concern about delegation of a responsibility to a company with a conflict of interest.

[80] Grundlach and Loff (2018) "Competitive exclusion in category captain arrangements", Working monograph, https://www.antitrustinstitute.org/wp-content/uploads/2018/10/Gundlach-and-Loff_Comp-Exc.-in-Cat-Cap_8.31.18-FINAL.pdf. Accessed on 15 September 2024.

[81] One way to enhance competitive conditions along the steps of the supply chain could, in principle, be to pass a broad national competition policy enforced by government. However, this approach is not universally accepted. Some researchers even argue against it for developing countries. Bhattacharjea et al. (2019) argue that, in a developing country with a long history of state involvement in sectors such as India, application of a competition law better impacts markets than application of a competition policy by the ministries that would imply changing systems already set up under state involvement. The absence of application of competition principles by the ministries, to the extent this absence exists, then places a great responsibility on competition law enforcers for creating suitable competitive conditions in the agro-food supply chain.

[82] See the OECD market studies guide at https://www.oecd.org/en/publications/market-studies-guide-for-competition-authorities_7381b582-en.html (accessed 25 October 2024).

[83] See, for example, Ennis (2024) with a definition and comment on sector inquiries.

[84] See Whish R. (2022) Market Investigations in the UK and Beyond. In: Motta M, Peitz M, Schweitzer H, eds. *Market Investigations: A New Competition Tool for Europe?*. Cambridge University Press, 216-290.

[85] See OECD (2024b) for the finding that a major period of introduction of export prohibitions occurred after the Ukraine war started in 2022. This finding is based on the Agricultural Market Information System covering 28 countries that was developed for the G20. Annex 2 shows a WTO list of jurisdictions with export restrictions in June 2024.

[86] See "Competition, concentration and market outcomes in fertiliser markets in East and Southern Africa", COMESA Competition Commission, 2024.

[87] https://www.gov.uk/cma-cases/groceries-market-investigation-cc

[88] https://www.accc.gov.au/inquiries-and-consultations/supermarkets-inquiry-2024-25

[89] https://www.accc.gov.au/system/files/supermarkets-inquiry-issues-paper_0.pdf?ref=0&download=y. Accessed 16 September 2024.

[90] https://www.compcom.co.za/fresh-produce-market-inquiry/

[91] See https://www.compcom.co.za/wp-content/uploads/2024/06/CC_FPMI-NonConfidential-Report-2024.pdf. Accessed on 27 October 2024.

[92] https://one.oecd.org/document/DAF/COMP/GF(2012)8/FINAL/en/pdf, p. 16.

[93] https://www.oecd.org/en/publications/2019/09/oecd-competition-assessment-reviews-tunisia_b111e4c1.html. Accessed on 15 September 2024.

[94] https://www.oecd.org/en/publications/2019/09/oecd-competition-assessment-reviews-tunisia_b111e4c1.html. See Annex. Accessed on 15 September 2024.

[95] As previously noted, the inherently risky nature of production is related to extensive policy interventions and risk management tools, particularly to the extent that links between domestic and international markets are not straightforward.

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Annex A. WTO Agriculture Tariffs, bound and in presence of MFN

Country/ Territory	Year of MFN applied tariff	Simple average		Country/ Territory	Year of MFN applied tariff	Simple average	
		Bound	MFN applied			Bound	MFN applied
Afghanistan		33.8		Liberia	2023	23.8	15.9
Albania	2023	9.7	7.7	Libya	2023		2.0
Algeria	2022		23.7	Macao, China	2023	0	0
Angola	2023	52.7	21.5	Madagascar	2023	30.0	15.0
Antigua and Barbuda	2022	105.0	16.3	Malawi	2022	121.1	17.4
Argentina	2023	32.4	10.3	Malaysia	2023	53.7	7.4
Armenia	2023	14.7	8.2	Maldives	2023	44.7	10.7
Australia	2023	3.2	1.2	Mali	2023	59.1	15.9
Azerbaijan	2023		13.0	Mauritania	2023	38.7	15.3
Bahrain, Kingdom of	2023	39.4	3.9	Mauritius	2023	119.4	1.6
Bangladesh	2023	186.2	17.7	Mexico	2023	45.0	11.9
Barbados	2022	111.0	29.0	Micronesia, Federated States of	2023		6.0
Belarus	2023		9.8	Moldova, Republic of	2022	13.9	11.7
Belize	2023	101.3	22.4	Mongolia	2023	18.8	6.3
Benin	2023	61.4	15.9	Montenegro	2023	10.9	8.8
Bhutan	2023		9.8	Morocco	2023	54.4	29.5
Bolivia, Plurinational State of	2023	40.0	13.2	Mozambique	2023	100.0	14.1
Bosnia and Herzegovina	2023		9.0	Myanmar	2023	103.6	15.9
Botswana	2023	36.5	8.5	Namibia	2023	39.0	8.5
Brazil	2023	35.4	8.1	Nauru	2023		27.2
Brunei Darussalam	2023	31.2	0.1	Nepal	2023	41.1	15.7
Burkina Faso	2023	97.9	15.9	New Zealand	2023	5.8	1.4
Burundi	2023	94.9	24.6	Nicaragua	2023	43.6	10.6
Cabo Verde	2023	19.4	13.3	Niger	2023	84.6	15.9
Cambodia	2023	28.0	11.9	Nigeria	2023	150.0	15.9
Cameroon	2023	80.0	22.4	North Macedonia	2023	13.0	12.9
Canada	2023	15.6	14.8	Norway	2023	138.9	31.1
Central African Republic	2023	30.0	22.4	Oman	2023	27.8	11.5
Chad	2023	80.0	22.4	Pakistan	2023	96.2	13.0
Chile	2023	26.1	6.0	Palau	2022		9.5
China, People's Republic of	2023	15.7	14.0	Panama	2023	27.4	12.0
Colombia	2023	92.0	14.1	Papua New Guinea	2023	43.9	12.6
Comoros	2022		12.0	Paraguay	2023	33.0	9.0
Congo	2023	30.0	22.4	Peru	2023	30.8	2.8
Cook Islands	2023		20.6	Philippines	2023	35.4	9.6
Costa Rica	2023	43.2	11.5	Qatar	2023	25.7	5.4
Côte d'Ivoire	2023	14.9	15.8	Russian Federation	2023	10.8	9.7
Cuba	2023	37.4	4.3	Rwanda	2023	74.4	24.4

Country/ Territory	Year of MFN applied tariff	Simple average		Country/ Territory	Year of MFN applied tariff	Simple average	
		Bound	MFN applied			Bound	MFN applied
Democratic Republic of the Congo	97.8			Saint Kitts and Nevis		109.3	
Djibouti		49.6		Saint Lucia		115.1	
Dominica	2023	112.7	22.2	Saint Vincent and the Grenadines	2023	115.1	18.2
Dominican Republic	2023	39.3	14.7	Samoa		26.6	
Ecuador	2023	25.7	17.3	Saudi Arabia, Kingdom of	2023	16.0	9.6
Egypt		94.8		Senegal	2023	29.9	15.9
El Salvador	2023	42.2	9.8	Serbia	2023		13.9
Eswatini	2023	39.0	8.5	Seychelles	2023	17.2	7.5
European Union	2023	11.3	10.8	Sierra Leone	2023	40.3	15.9
Fiji	2023	43.5	21.2	Singapore	2023	19.3	0.1
Gabon	2023	58.6	22.4	Solomon Islands	2022	72.6	13.2
The Gambia	2023	105.2	15.9	Somalia	2023		20.7
Georgia	2023	12.3	6.3	South Africa	2023	39.0	8.5
Ghana	2023	96.6	15.9	South Sudan	2023		7.1
Grenada	2023	101.4	18.5	Sri Lanka	2023	50.2	20.7
Guatemala	2023	51.4	8.5	Suriname	2023	19.9	18.4
Guinea	2023	39.6	15.9	Switzerland	2023	40.9	28.5
Guinea-Bissau	2023	40.1	15.9	Chinese Taipei	2023	17.7	16.6
Guyana	2023	99.7	22.3	Tajikistan	10.8		
Haiti	2023	21.3	9.7	Tanzania	2023	120.0	24.7
Honduras	2023	32.3	10.8	Thailand	2023	38.2	27.0
Hong Kong, China	2023	0	0	Timor-Leste	2023		2.5
Iceland	2023	113.6	23.5	Togo	2023	80.0	15.9
India	2023	113.1	39.0	Tonga	2023	19.2	7.9
Indonesia	2023	47.1	8.6	Trinidad and Tobago	2023	88.6	19.1
Israel	2023	78.0	8.1	Tunisia	2023	116.0	30.3
Jamaica	2023	97.3	19.4	Türkiye	2023	61.8	39.8
Japan	2023	14.9	12.2	Uganda	2023	77.2	28.0
Jordan	2023	23.7	10.9	Ukraine	2023	11.0	9.1
Kazakhstan	2023	9.6	8.7	United Arab Emirates	2023	25.6	5.4
Kenya	2023	100.0	24.7	United Kingdom	2023	11.1	9.2
Kiribati	2023		0	United States of America	2023	4.8	5.0
Korea, Republic of	2023	61.4	57.0	Uruguay	2023	34.1	10.0
Kuwait, the State of	2023	100.0	5.4	Vanuatu	2023	43.6	16.9
Kyrgyz Republic	2023	12.8	8.6	Venezuela, Bolivarian Republic of	2023	55.7	13.0
Lao People's Democratic Republic	2023	19.6	11.2	Viet Nam	2023	18.8	17.1
Lebanese Republic	2023		33.0	Yemen		25.0	
Lesotho	2023	199.1	8.5	Zambia	2023	122.9	19.7
				Zimbabwe		141	

Source: WTO World Tariff Profiles 2022, Agriculture,
https://www.wto.org/english/res_e/publications_e/world_tariff_profiles22_e.htm

Annex B. Export restrictions on Food (Major Commodities), June 2024

Jurisdiction	Measure	Products	Announcement	Expiration
Afghanistan	Export ban	Wheat	5/20/2022	12/31/2024
Algeria	Export ban	Sugar, pasta, vegetable oil, wheat derivatives	3/13/2022	12/31/2024
Argentina	Export taxes	Soybean oil, soybean meal	3/19/2022	12/31/2024
Bangladesh	Export ban	Rice	6/29/2022	12/31/2024
Burkina Faso	Export ban	Millet, corn flour, sorghum flours	2/23/2022	12/31/2024
Belarus	Export licensing	Wheat, rye, barley, oats, corn, buckwheat, millet, triticale, rapeseed, sunflower seeds, beet pulp, cake, rapeseed meal	4/13/2022	12/31/2024
China	Export ban	Corn starch	10/2/2022	12/31/2024
India	Export ban	Broken rice	9/8/2022	12/31/2024
India	Export ban	Wheat	5/13/2022	12/31/2024
India	Export ban	Sugar	6/1/2022	10/31/2024
India	Export ban	Non-basmati rice	7/20/2023	12/31/2024
India	Export ban	Wheat flour, semolina, maida	8/25/2022	12/31/2024
India	Export licensing	Wheat flour	7/12/2022	12/31/2024
India	Export taxes	Basmati rice	8/27/2023	12/31/2024
India	Export taxes	Parboiled rice	8/25/2023	12/31/2023
India	Export taxes	Rice	9/9/2022	12/31/2024
Kuwait	Export ban	Chicken meat	3/23/2022	12/31/2024
Kuwait	Export ban	Grains, vegetable oil	3/20/2022	12/31/2024
Lebanon	Export ban	Processed fruits and vegetables, milled grain products, sugar, bread	3/18/2022	12/31/2024
Morocco	Export ban	Tomatoes, onions, potatoes	2/8/2023	12/31/2024
Myanmar	Export licensing	Rice	9/2/2023	12/31/2024
Russia	Export ban	Rice	7/29/2023	12/31/2024
Russia	Export ban	Rice, rice groats	6/30/2022	12/31/2024
Russia	Export taxes	Sunflower oil, sunflower meal	4/15/2022	12/31/2024
Russia	Export taxes	Wheat, barley, corn	4/13/2022	12/31/2024
Russia	Export taxes	Soya beans	4/15/2022	12/31/2024
Serbia	Export ban	Corn, sunflower oil	4/20/2022	12/31/2024
Thailand	Export licensing	Sugar	10/31/2023	12/31/2024
Tunisia	Export ban	Fruits and vegetables	4/12/2022	12/31/2024
Uganda	Export taxes	Maize, rice, soya beans	6/2/2022	12/31/2024

Source: International Food Policy Institute, 2024 as reported in World Bank Food Security Update, 27 June 2024.