Covid-19 has put unprecedented stresses on food supply chains

Covid-19 simultaneously affected farm production, processing, transport and logistics, and final demand. Not all sectors and products have been equally affected, and different products have experienced disruptions at different stages of the supply chain.

Farm production faced bottlenecks for some inputs, notably labour. Some sectors (such as fruits and vegetables) are more dependent on (seasonal) labour than others (such as cereals). Limits on the mobility of people reduced the availability of seasonal workers for planting and harvesting in the fruit and vegetable sector in many countries. Seed shortages have not been a major problem, although there is a risk of disruption in the coming months. Seed is often transported by air, a mode of transport which has been severely disrupted. There were some initial concerns regarding the availability of pesticides, as China is a major supplier; but as China emerged from lockdown, these concerns waned. Supplies of fertilisers and energy were less disrupted, and prices have been relatively low. Global availability of fertilisers is not a bottleneck, although local disruptions occurred because of transport difficulties.

Food processing industries have been affected by social distancing, labour shortages and shutdowns. Covid-19 clusters have been found in meat processing plants in various countries. The sector is more vulnerable as it is labour intensive, with workers in close proximity to each other, making it
difficult to respect distancing requirements. By contrast, grain handling and processing is highly automated and less labour intensive and hence has been spared the disruptions seen by the meat processing sector.

Many meat processing plants have shut down or were forced to operate at reduced capacity. In the US, cattle and pig slaughter was 40 per cent below normal in April. Low demand from meat processors left producers in North America with unsold animals. Producers resorted to euthanising these animals to prevent overcrowding as animals grew beyond slaughter weights and became unmarketable. In Europe, conditions did not appear to warrant such drastic measures. The effects of meat processing plant closures might be especially pronounced in North America given the concentrated nature of the industry; in the US, almost 60 per cent of pork processing capacity is in just 15 plants.

Bottlenecks in transport and logistics disrupted the movement of products, but the effects varied by mode of transport and type of product. Cereals and oilseeds are typically shipped in bulk (ships and barges); meat and dairy products in refrigerated containers and trucks; and perishable products by air in the cargo holds of passenger planes.

Bulk shipments have not seen any major disruptions, and (at the time of writing) prices are near multi-year lows. But air freight was severely disrupted by the decline in passenger air travel. Global air cargo capacity in mid-May was 26 per cent lower than normal, with the largest decline between Europe and Latin America (more than 80 per cent). Disruptions to container and truck transport fall somewhere in-between. The number of container ships fell 8 per cent below normal. Commercial road transport in April was about 20 per cent lower than usual in Canada and the United States. In Europe, truck traffic initially fell by 40–50 per cent but recovered afterwards; in mid-April, traffic was 24 per cent below normal. Transport and logistics problems have therefore been most pronounced for perishable high-value products, such as fruits and vegetables, and minor for bulky products, such as grains and oilseeds. The fruits and vegetables sector is also affected by quarantine measures and delays in border inspections (OECD, 2000a).

Covid-19 has led to a drastic shift in consumer demand. As the Covid-19 pandemic gathered pace, sales of food away from home (hotels, restaurants, catering and cafés) collapsed. Restaurant reservations declined sharply in early March and fell to practically zero as lockdowns were enforced (Figure 1).

At the same time, retail demand for food soared. At the peak in the second half of March, weekly sales of frozen foods were 63 per cent higher than the year before in France, and sales of packaged foods were 56 per cent higher in Germany. Similar demand spikes were seen in the United States (Figure 2). Since this initial spike, retail demand for fresh, frozen or packaged foods has remained about 15–20 per cent higher than usual.

The impact of the shift in demand is considerable. In the United States, ‘food away from home’ accounts for 10 per cent of the consumption of fruits, 32 per cent of vegetables, 25 per cent of dairy, 31 per cent of cereals, and 33 per cent of protein foods (meat, seafood, eggs etc.). Across most countries, the sector accounts for at least 25 per cent of sales of fresh fruit and vegetables. Shifting these volumes to the retail sector is not easy. Households’ consumption patterns at home are different from those away from home. Even where similar products are consumed, products are sold to restaurants and foodservice operations in much larger packaging sizes. Retailers may also have different quality expectations or other requirements.

Figure 1: Percentage change in daily restaurant reservations compared to the previous year

![Figure 1: Percentage change in daily restaurant reservations compared to the previous year](image)
Thus, Covid-19 had disruptive effects on the complex web of actors connecting farm to fork, and led to a sudden change in the demand mix.

Food supply chains in the developed world have been remarkably resilient

Food supply chains in the developed world have demonstrated remarkable robustness and resilience in the face of Covid-19.

Store shelves have been replenished over time, as consumers reduced their purchases after initial stockpiling and as supply chains responded to the increase in demand. Stocks acted as a first buffer. Despite a general trend towards ‘just in time’ models involving limited inventories, various actors along the food supply chain held sufficient stocks which were drawn upon to accommodate the demand spike. At the global level, stocks of cereals were also considerably greater than on the eve of the 2007–2008 food price crisis.

Food processors and retailers took several steps to adapt to Covid-19. A first mechanism was increasing operating hours in factories and hiring additional employees, with many retailers announcing that they were hiring extra staff. A second mechanism was to reduce the variety of products to focus on the most popular types. A third mechanism was finding alternative sources of supply when faced with disruptions. Firms that had invested in creating more visibility on stock levels and other conditions along their supply chain seem to have fared better. Similarly, companies which had experience with other types of disruptions (such as those caused by hurricanes) seem to have been better prepared.

Supply chain actors also expanded the use of new delivery methods. Farmers started using digital technologies and platforms to sell their produce. Restaurants switched to providing take-out and delivery, with some offering grocery-like services, for example selling meal kits rather than prepared food. Initiatives emerged to link farmers and restaurants directly to food banks. As passenger airline travel collapsed, the use of specialised private aircraft for freight expanded.
Road transport also adapted quickly; despite a significant demand shift – with a drop in demand from non-essential sectors and strong demand from food retailers among others – truck capacity in Europe had reoriented within two weeks. Long lines at borders – within the EU, along the US-Canada border, and elsewhere – shrank in response to measures taken by policymakers. Several WTO members temporarily eased the certification requirements related to Sanitary and Phytosanitary (SPS) measures, for example by accepting copies or scanned documents instead of requiring originals; allowing electronic signatures; and an increasing use of digital solutions such as electronic certification. Some countries also temporarily relaxed technical requirements for food imports; for instance, Switzerland temporarily relaxed food labelling requirements.

Government agencies and industry associations provided information to food supply chain actors to help them cope with Covid-19. The Irish Food Board (Bord Bia), for example, used its website to provide detailed information, webinars and podcasts updated on an almost daily basis describing how consumer behaviour is changing during the pandemic, which of these trends may persist beyond the crisis, and how Irish food producers can adapt to these new circumstances. A variety of other measures were adopted, including exemptions from lockdown restrictions, measures to ensure the health of workers, and loosening visa restrictions for seasonal workers. These are discussed in detail in OECD (2020c).

However, the most important policy response is that policymakers have so far avoided a repeat of the mistakes of the 2007–2008 food price crisis, when initial price increases were exacerbated by international trade measures, particularly export bans. Although some countries have introduced export restrictions during the current crisis, so far their number and impact have been limited. WTO members responsible for two-thirds of global exports of agriculture and agri-food products also issued a joint declaration expressing their commitment to keep trade open (see WTO, 2020).

Some bottlenecks remain and require attention

Many problems have been resolved, but some bottlenecks remain and require attention from policymakers. A first bottleneck relates to the availability of inputs for farming, notably labour for harvesting fruits and vegetables. A second bottleneck relates to plant shutdowns in the food processing sector, notably in meat processing. A third bottleneck relates to the ongoing disruption of air freight, which affects high-value perishable products, notably fruits and vegetables. As the Covid-19 pandemic spreads in Latin America, new risks to global food supply chains may emerge.

However, the biggest risk to food security currently does not come from disruptions in supply chains, but from the devastating effects of Covid-19 on jobs and livelihoods. Especially in the developing world, where social safety nets are less well-developed, Covid-19 may lead to a severe increase in poverty and hunger. The World Food Programme projects that the number of people in acute food insecurity could double to 265 million in 2020 unless swift action is taken. But also in developed countries, more vulnerable groups such as the elderly, chronically ill and poorer households may be at risk, and Covid-19 has laid bare pre-existing gaps in social protection systems.

While the impacts of the pandemic on food chains are still unfolding,
several lessons have emerged. Open and predictable markets are critical to smooth the distribution of food along supply chains and to ensure food can move to where it is needed. Diversified sources of supply allow firms along the food chain to adapt rapidly when specific input sources are compromised by transport or logistics disruptions. Meeting the needs of vulnerable groups will require establishing targeted, flexible safety nets to ensure food access.

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Covid-19 placed unprecedented stresses on food supply chains. Farms faced bottlenecks for some inputs, notably seasonal labour. Processing was disrupted by labour shortages and shutdowns, especially in meat processing. Air freight, important for fruits and vegetables, was severely disrupted. Demand from restaurants and food service collapsed, while retail food demand surged. Yet supply chains in the developed world have been remarkably resilient to date. Store shelves were replenished as stockpiling behaviour subsided and as supply chain actors expanded operating hours, increased staff, simplified the product range and found alternative suppliers. This rapid recovery was facilitated by policy decisions to reduce border waiting times, to streamline certification procedures and to relax regulations on trade in food. Importantly, policymakers have so far mostly avoided new supply risks as Covid-19 spreads in Latin America. Overall, the biggest risk to new supply risks as Covid-19 spreads in Latin America. Overall, the biggest risk to food security is not food availability, but consumers’ loss of income. Safety nets and food assistance are essential to avoid this. Food security is not food availability, but the loss of income. Safety nets and food assistance are essential to avoid this.

La pandémie de Covid-19 a exercé des pressions sans précédent sur les chaînes d’approvisionnement alimentaire. Les exploitations agricoles ont été confrontées à des goulots d’étranglement pour certains intrants, notamment la main-d’œuvre saisonnière. La transformation a été perturbée par des pénuries de main-d’œuvre et des fermetures, en particulier dans la transformation de la viande. Le fret aérien, important pour les fruits et légumes, a été gravement perturbé. La demande des restaurants et des services alimentaires s’est effondrée, tandis que la demande de produits alimentaires a bondi au niveau du détail. Pourtant, les chaînes d’approvisionnement des pays développés ont été remarquablement résilientes à ce jour. Les étagères des magasins ont été réapprovisionnées à mesure que le comportement de stockage diminuait et que les acteurs de la chaîne d’approvisionnement allongeaient les heures d’ouverture, augmentaient le personnel, simplifiaient la gamme de produits et trouvaient des fournisseurs alternatifs. Cette reprise rapide a été facilitée par des décisions gouvernementales visant à réduire les temps d’attente aux frontières, à rationaliser les procédures de certification et à assouplir les réglementations sur le commerce des denrées alimentaires. Il est important de noter que les décideurs de l’action publique ont jusqu’à présent évité la plupart du temps une répétition des erreurs de la crise des prix alimentaires de 2007–2008, qui a été grandement exacerbée par les interdictions d’exportation. Certains goulots d’étranglement subsistent et il peut y avoir de nouveaux risques d’approvisionnement alors que la Covid-19 se propage en Amérique latine. Dans l’ensemble, le plus grand risque pour la sécurité alimentaire n’est pas la disponibilité de la nourriture, mais la perte de revenus des consommateurs. Les filets de sécurité et l’assistance alimentaire sont essentiels pour éviter une augmentation de la faim, en particulier dans les pays en développement.

Die Covid-19-Pandemie stellte eine noch nie dagewesene Belastung für die Lebensmittelieferketten dar. Die landwirtschaftlichen Betriebe sahen sich mit Engpässen im Bereich einiger betriebswirtschaftlicher Input-Faktoren konfrontiert, insbesondere im Bereich der Saisonarbeitskräfte. Auch die Verarbeitung der landwirtschaftlichen Produkte wurde durch Arbeitskräftemangel und Betriebsstilllegungen, insbesondere in der Fleischverarbeitung, unterbrochen. Der Warenverkehr per Luftfracht, der für Obst und Gemüse wichtig ist, war erstmals gestört. Die Nachfrage der Restaurants und der Gastronomie brach ein, während die Zulieferbetriebe ihre Arbeitszeiten ausgeweitet hatten. Darüber hinaus stockte der Lebensmitteleinzelhandel Personal auf, vereinfachte die Produktpalette und fand alternative Zulieferbetriebe. Diese rasche Erholung wurde durch politische Entscheidungen zur Verkürzung der Wartezeiten an den Grenzen, zur Straffung der Zertifizierungsverfahren und zur Lockerung der Vorschriften für den Handel mit Lebensmitteln erleichtert. Besonders bemerkenswert ist dabei, dass die politischen Entscheidungssträger, die Wiederholung der Fehler der Lebensmittelpreiskrise von 2007–2008, die durch Exportverbote damals erheblich verschärft wurde, weitgehend vermieden haben. Einige Engpässe bestehen aber nach wie vor und mit der Ausbreitung von Covid-19 in Lateinamerika könnten sich neue Versorgungsrisiken ergeben. Das insgesamt größte Risiko für die Ernährungssicherheit besteht allerdings nicht in der Verfügbarkeit von Nahrungsmitteln, sondern in den Einkommensverlusten der Verbraucherinnen und Verbraucher. Sicherheitsnetze und Nahrungsmittelhilfen sind daher unerlässlich, um einen Anstieg des Hungers, insbesondere in den Entwicklungsländern, zu verhindern.