Economic and food security implications of the COVID-19 outbreak

The cost of the attempt to contain a highly contagious disease

A novel coronavirus disease (COVID-19) emerged in China at the end of December 2019. By today, there are more than 115 000 confirmed cases in 110 countries, including some in which WFP operates. While the crude fatality rate is currently at 3.5%, people aged over 60 years and those with pre-existing health conditions are at highest risk for severe disease and death. There is currently no vaccine or treatment for COVID-19.

A spread of the virus could intensify a global downturn

It is difficult to predict the full economic impact of the outbreak. Too much depends on what is not known — how long the outbreak lasts, how many countries it affects, and the type of policies put in place to respond to the crisis.

The disease outbreak has led to economic disruptions and could slow down the global economy, which is already weakened by trade tensions. Disruptions of the economy emerge from different sources: a medical shock resulting in a reduced workforce; containment measures; and panic behaviour. These unfold into both a supply shock, through factory closures, cutbacks in service provisions and supply chain disruptions, and a demand shock, especially for business and tourism travel, education and entertainment services and through a loss of confidence.

Unlike previous outbreaks of infectious disease, COVID-19 first appeared in China, a key producer of industrial intermediate goods deeply tied into global value chains. At least 51 000 companies around the world have one or more tier one supplier in the affected part of China, whereas the number rises to five million companies when including those with tier two suppliers there.[1] These linkages create cascades of contagion, with local disruptions in China – Figure 1 shows a plummeting Chinese manufacturing output index – turning into problems elsewhere. Moreover, the coronavirus disease hit several big economies at once, including the US, China, Japan, Germany, Britain, France and Italy. Together, the latter account for 60% of world GDP, 65% of manufacturing and 41% of manufacturing exports.[2]

OECD simulations result in a downward revision of global GDP growth from 2.9% (as expected in November 2019) to 2.4% should the epidemic peak in China in the first quarter of 2020 and outbreaks in countries other than China turn out mild; and a drop down to 1.5% should the outbreak last longer and be more intensive, spreading widely throughout Asia-Pacific, Europe and North America. Other estimates paint a more dire picture with scenarios resulting in a reduction in GDP of almost ten percent in Japan, followed by Germany, the US, Italy, France, Brazil and Russia at around eight percent GDP loss.[3]

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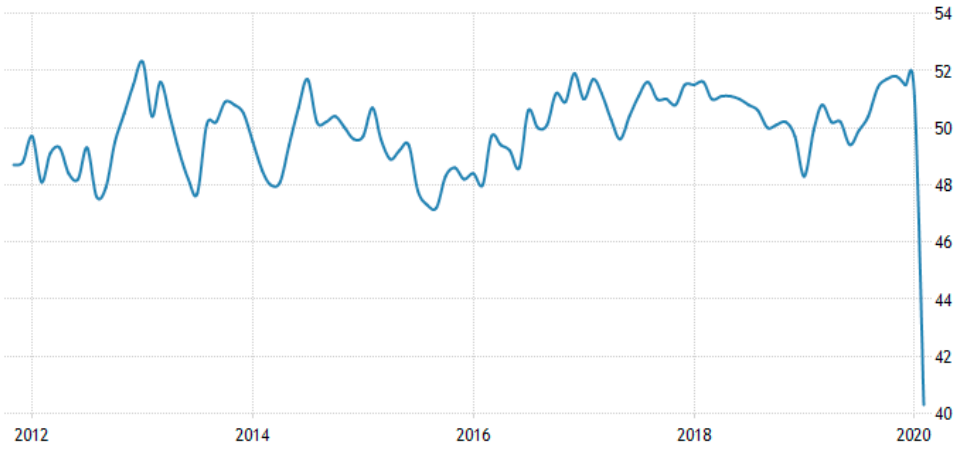
[1] dun & bradstreet, Business Impact of the Coronavirus

[2] Baldwin and Weder di Mauro, Economics in the Time of COVID-19

[3] McKibbin and Roshen, The Global Macroeconomic Impacts of COVID-19: Seven Scenarios

Figure 1: China Ciaxin Manufacturing PMI



Source: trading economics

The impact on the food and agricultural sector is likely to be moderate – conditional on a rational reaction by policymakers

While not immune to the virus, the food and agricultural sector should in principle be less affected by the virus than parts of the economy more exposed to weakened demand or supply issues such as transportation, energy or manufacturing. However, such moderate effect of the disease outbreak on food markets is conditional countries staying calm even in the face of supply chain hiccups and not resorting to protective beggar-thy-neighbour policies.

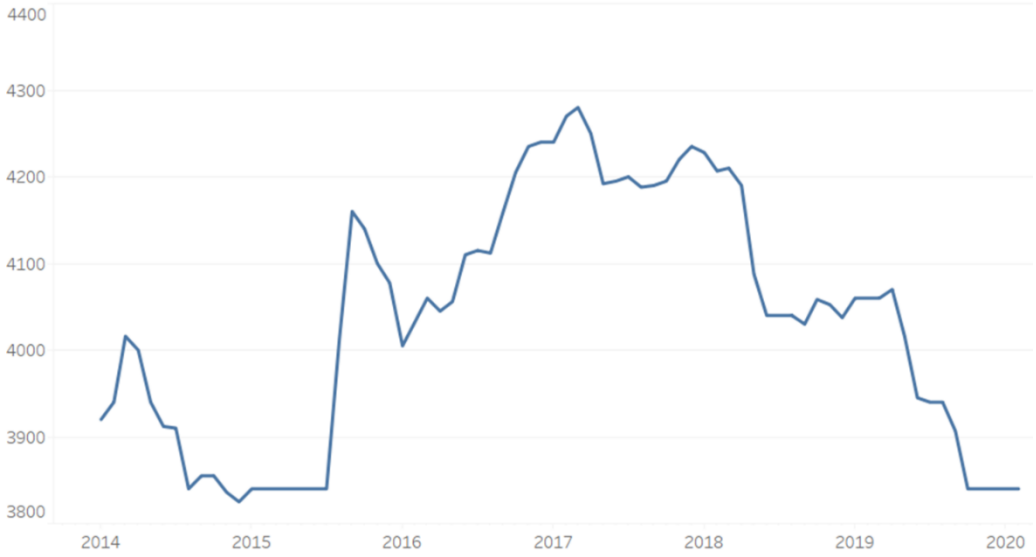
On the supply side, the sector could get hurt via shortages of labour curbing production and processing of food, especially of labour-intensive crops; transport interruptions and quarantine measures limiting farmers' access to input and output markets; and an increase in food loss and waste resulting from food supply chain disruptions. In China, the livestock sector suffered from some of these effects. Meanwhile, global cereal markets are well supplied with currently no noticeable impact on crop production. Potential disruptions from containment measures are expected to be manageable and not last long.[4] Accordingly, price volatility in international grain markets is low.

Demand for food is generally inelastic. A loss of purchasing power because of the disease could, however, change dietary patterns with demand shifting away from value-added foods such as meat and vegetable oils towards basic cereals. Whereas FAO's Food Price Index has been going down in February and prices in affected areas do not necessarily show an impact of the disease – Figure 2 shows a stable rice price in China's Hubei province, where the outbreak started, in January and February 2020 – panic purchases of food in fear of empty shelves could lead to supply chain interruptions and localized price hikes.

Panic behaviour can also occur at the country level; and previous epidemics and global crises have taught valuable lessons on how markets can react. For example, during the 2008 food price crises there was no shortage of rice supply, but due to panic behaviour, many countries imposed higher taxes on rice exports or banned rice exports altogether. Rice prices doubled in the global market in six months, causing severe disruptions in rice trade leading to a food price crisis. If countries panic this time, too, food trade and markets could be disrupted much more severely than necessary.

[4] AMIS, Coronavirus: Impact on food markets

Figure 2: Wholesale price for rice (Indica) in China's Hubei province in Yuan Renminbi per tonne



Source: FAO FPMA

A global economic slowdown can spill over to low income countries with negative implications for food security

A global economic slowdown or a downturn in one or more important players in the world economy can damage developing economies, which can in turn negatively affect food security. Economic shocks transmit via several routes. First, contagion of economic harm through global value chains is not limited to the developed world but will affect rich and poor countries alike. Second, amidst the spread of COVID-19 across several important players in the world economy, the oil price has collapsed (Figure 3). Poor countries often heavily depend on exports of primary commodities, exposing their economies to such price swings. Plummeting international commodity prices translate into heavy losses in export earnings, which trigger currency depreciation and an adjustment in the balance of payments. Third, S&P's Volatility Index (VIX), a measure of economic risk and uncertainty, has reached a level close to that of the financial crisis a decade ago (Figure 4). As a matter of fact, on March 9 all the major stock indices plunged by 5 to 11 percent, the combined effect of coronavirus panic and crashing oil prices. When financial markets become spooked by risk, poor countries are put in danger of capital flight – losing their ability to borrow and spend when they most need it. Fourth, revenues from transport and tourism are import in many developing countries. These are taking a heavy hit from restrictions of movement and declining demand.

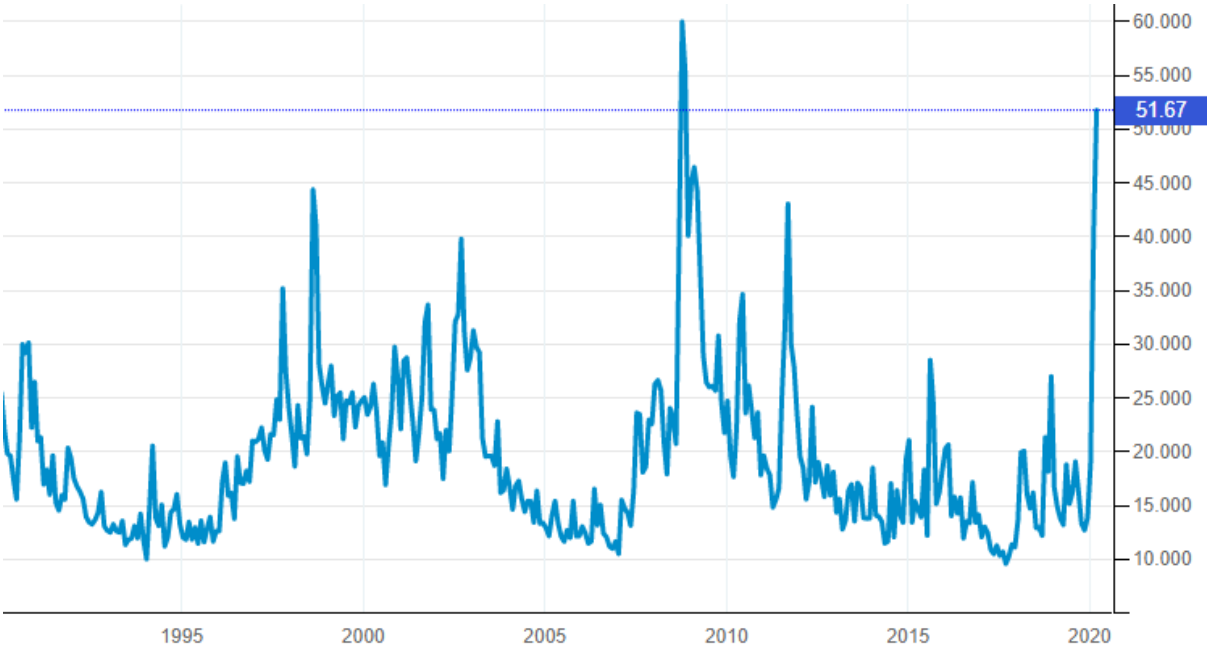
While such economic shocks are rarely the primary of food crises, they can exacerbate the severity of acute food insecurity or protract a crisis. The SOFI 2019 reports that the uptick in hunger between 2011 and 2017 coincided with an economic downturn in 65 out of 77 countries, 52 of which highly dependent on primary commodity trade. Sluggish economic activity brings about unemployment, declining wages, and, hence, loss of income. Households' curtailed purchasing power puts their access to food at risk; and forces them to switch to cheaper, less nutritious foods. Moreover, the flip side of diminished export earnings and ensuing currency depreciation are more expensive imports, including for basic food stuffs. Higher food prices are the consequence, exacerbating the loss of purchasing power. However, depending on the level of integration of local markets, these might not fully trickle down to remote rural markets, where other factors play a more significant role (harvest, seasonality, infrastructure, security). Currently, international markets are also well supplied and international food prices generally stable or declining, which helps to mitigate an increase in import

costs. Diminishing fiscal revenues – e.g. due to declining international commodity prices – can further lead to the suspension of social programmes and safety nets or cuts in the health budget, with probable negative implications for food security and long-term consequences for development.

Figure 3: Brent crude oil price in USD per barrel

Source: trading economics

Figure 4: S&P Volatility Index (VIX)

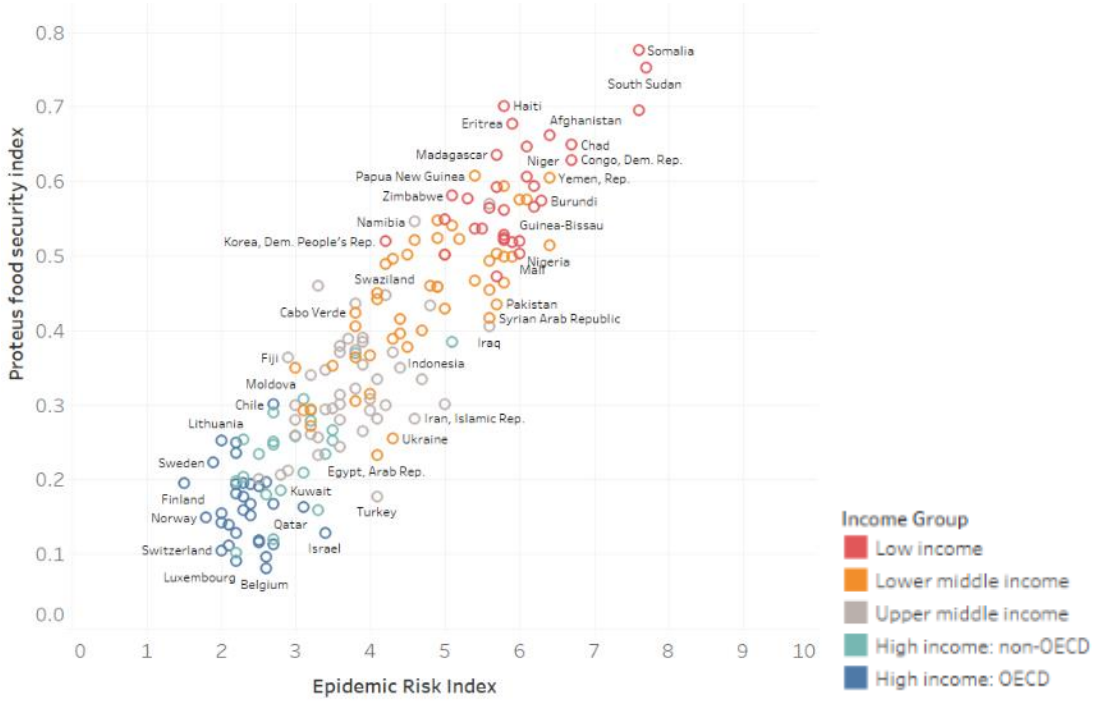


Source: trading economics

The impacts of a severe COVID-19 outbreak in a low income economy are hard to gauge

Apart from the food security implications of a COVID-19-triggered economic slowdown, an extensive spread of the disease in a poorer and more food insecure country could take a heavier toll on the economy than it has in those countries which currently see a rapid spread of the virus. Countries with high levels of food insecurity are generally more vulnerable and less prepared for an epidemic outbreak than those which see a rapid spread of the disease at present. The joint WHO-JRC Epidemic Risk Index, which measures risk based on hazard, exposure, vulnerability and coping capacity is higher for countries with a higher score for the Proteus index of food insecurity (Figure 5). Thus, these countries would likely see higher mortality rates. In addition, vulnerability to morbidity increases with malnourishment. The resulting larger hit to the workforce in more food insecure (or, more generally, lower income) countries would coincide with often more labour intensive production, aggravating the repercussions on production. At the same time, service industries in poorer countries are often less digitized and more reliant on face-to-face contact. This means that containment measures, designed to limit human interaction, or avoidance by scared customers could hit harder.

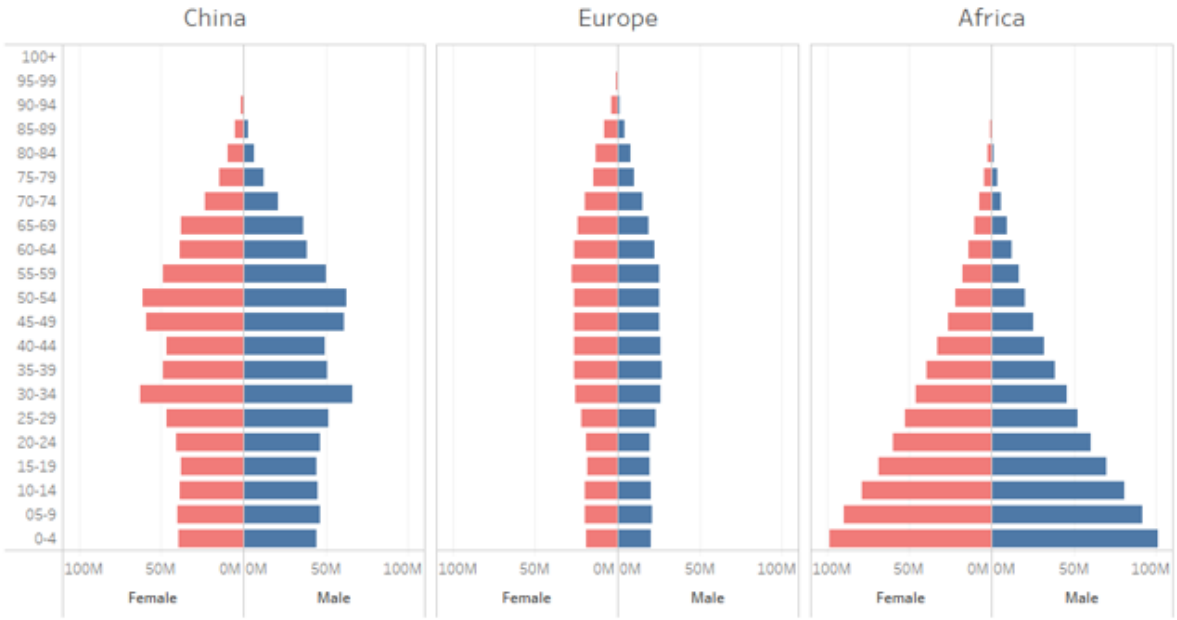
Figure 5: Food security and epidemic risk



Source: WHO/JRC and own calculations

However, there are also factors that could mitigate the damage of a COVID-19 outbreak in, for example, Sub-Saharan Africa. First, a warmer climate might slow down the virus' transmission. While it is not certain that heat stops its spread, the disease appears to be transmitted in the same fashion as the flu and common cold, through respiratory droplets; and warm, humid weather can make this more difficult. Second, the age structure in Africa differs substantially from that of currently affected regions (Figure 6). The share of people with the highest risk (by age) of developing severe disease or dying is far lower in Africa than in, for example, China or Europe. Third, less dense and predominantly rural based population and more limited travel networks both within and between countries could reduce the pace at which COVID-19 spreads.

Figure 6: Population pyramids for China, Europe and Africa



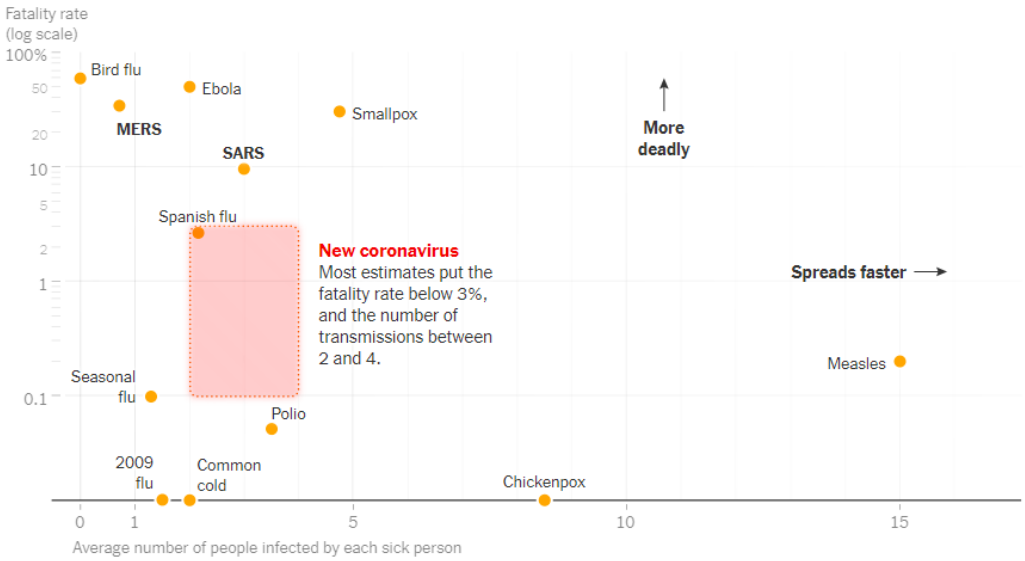
Source: https://www.populationpyramid.net/

When it comes to the implications for staple food production of a severe outbreak in Sub-Saharan Africa, the Ebola outbreak is frequently referenced. Some West African countries saw food prices skyrocketing during the Ebola epidemic in 2014. Rice prices were up by more than 30% in Guinea, Liberia and Sierra Leone, while cassava prices more than doubled in some places. 40 percent of the agricultural land was left uncultivated as a consequence of labour shortage and road blockages rendering it impossible to access seeds and other inputs. At the same time, fear of contracting the disease disrupted trade as vessels headed to these countries were cancelled.

However, Ebola and COVID-19 differ substantially, rendering such inferences problematic. Ebola has a mortality rate of about 50% while the crude fatality rate of COVID-19 is currently at 3.5% (**Error! Reference source not found.**). While already significantly lower, this is probably an overestimate as reported early in the epidemic; and could be lower still for Africa, given the age structure of the population. Moreover, 80% of the confirmed patients in China developed a mild or moderate disease. Without downplaying the potential effect of a loss of agricultural workforce, especially in countries with labour intensive agricultural production, it seems difficult to justify projections based on the Ebola outbreak.

Yet, COVID-19 appears to be more contagious than Ebola. Consequently, containment measures limiting person-to-person contact and, thus, contagion are crucial. As witnessed during the West African Ebola epidemic, these can pose a threat to the normal functioning of food supply chains, putting production as well as distribution at risk and leading to dysfunctional markets.

Figure 7: Transmission and fatality rate for various contagious diseases



Source: https://www.nytimes.com/interactive/2020/world/asia/china-coronavirus-contain.html

Measures must be taken to prevent a food security crisis

While COVID-19 is a global health emergency it *could* become a food security emergency as well if proper measures are not taken. Beyond measures to contain the disease it is essential to minimize the harm to both people and the economy. Thus, it is important

(1) To contain economic harm by ensuring the smooth flow of global trade as this will help secure food supply. Protectionist policies will exacerbate disruptions to global value chains and amplify already elevated levels of uncertainty.
(2) To monitor food prices and markets and make sure that information is transparently. disseminated to all actors. This will help strengthen government policies and prevent people from panicking. WFP's strength in gathering price and market information on local level can be drawn upon.
(3) To provide support to the most vulnerable countries and populations. Countries which lack the health-related infrastructure necessary to contain the epidemic will need international assistance in case of an outbreak. Vulnerable populations in affected countries will not only need free medical care but also assistance through shock-responsive safety nets. The latter will help societies and households recover after the epidemic.