



MAPPING ASIA'S FOOD TRADE AND THE IMPACT OF COVID-19

JUNE 2020

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EXECUTIVE SUMMARY

The evidence suggests the food supply chain has remained resilient during the COVID-19 outbreak, with limited evidence of specific impacts from the pandemic and associated lockdown measures to supply shortages or price pressures. Policy measures to exempt the sector from lockdown measures have likely been crucial in keeping the food flowing, although some governments are also seeking to “protect” domestic consumers, potentially at the cost of food producers and consumers elsewhere in the continent.

Over the past two decades, Asia's food supply chain has become increasingly integrated. Successive trade agreements within ASEAN, between other Asian economies, and globally, have halved the average tariff rate on food imports into Asia. Lower tariffs have unleashed a surge in food trade, with intra-Asian food trade up from \$22bn in 2000 to over \$70bn by 2018. China accounts for around a quarter of total intra-Asian food supply, but with Thailand a close second. Research by a range of respected organisations such as the IMF, OECD and World Bank finds that food trade liberalisation and integration has brought powerful benefits to living standards in emerging economies, including in Asia.

Imported inputs now play a crucial role for domestic food manufacturing across many of the region's key economies. For Korea, Japan, Thailand and Vietnam, food products supplied by other Asian countries account for 10% or more of total inputs to the domestic food processing sector, and in Singapore the share is close to 100%. The corresponding share for India, China, Indonesia, Thailand and Malaysia is typically around 5%, but likely much higher in certain sub-sectors of the industry.

As with other sectors reliant on sophisticated supply chains, the food industry has faced challenges from the COVID-19 outbreak. Lockdowns and social distancing rules have impacted on operations, albeit in many economies workers in the sector have been exempted. Also, governments in some key food-producing economies, worried about domestic food security, have implemented barriers to food exports.

Early trade data for the COVID period suggests food exports from some key Asian suppliers fell in March. Monthly volumes data for food exports are available for four economies in our geographical scope. In three—Thailand (the second-largest food exporter in the region), Malaysia, and Singapore—there were year-on-year falls in export volumes of around 10% in March. In Thailand's case at least, however, this was clearly part of a longer-running supply shock. For South Korea, food export volumes were up over a quarter versus a year ago, although Korea is only the eighth-largest exporter by value in the region.

Price pressures look well-contained, for now. Commodity prices have eased for grains, oils and meats through 2020 so far—with some exceptions such as rice, which is up 20%. And food producer prices have also remained stable across ASEAN. But producer and consumer prices in India and China were already accelerating into 2020. Given China's role as an export supplier to other Asian economies, and the currency volatility seen in markets through recent months, there is a risk of gathering price pressures for producers and consumers in the months ahead. We will assess this risk in our forthcoming papers

MAPPING ASIA'S FOOD TRADE AND THE IMPACT OF COVID-19

1. INTRODUCTION

Five months into the global COVID-19 pandemic, governments around the world continue to grapple with containing its spread, whilst at the same time mitigating its impact on citizens' daily lives. Lockdown measures that have been central to slowing transmission are having damaging impacts on business and workers' livelihoods, as well as making it more difficult for households to access the goods and services they need for daily life.

As the policy response moves from containment to trying to resume some semblance of "business as usual", difficult choices are being made. Such debates are best conducted in light of a broad and robust evidence base—and nowhere is this truer than in food supply, given the paramount importance for daily life of a reliable and affordable supply of quality food.

To contribute to this evidence base, Oxford Economics and Food Industry Asia are collaborating to produce three papers, to be published through the second half of 2020. Our research seeks to inform the policy debate by providing data on a range of key issues across 10 key Asian economies.¹

In this first paper, we look at what latest economic data can tell us about the structure of the industry and impacts from the outbreak so far. Our second paper will develop and add depth to these key themes, while our third and final paper will look ahead at the sector's role in helping drive recovery.



2. UNDERSTANDING THE ASIAN FOOD SUPPLY CHAIN

In Fig. 1, overleaf, we set out a stylised illustration of the structure of the food industry supply chain from farm to fork. The supply chain consists of three main sub-sectors, fulfilling different parts of the supply chain. Our coverage for this paper is primarily in the second of these three sub-sectors: the food industry. The food industry takes agricultural inputs from the farming, fishing and plantation industries, and processes them to make food which can be distributed by the food distribution sector direct to consumers.

As shown in Fig. 1, the sector has to deal with a range of economic risk factors, including: the risk of volatility in its input prices; trade policies; the cost of adding value (through energy- and labour-intensive processes); and regulatory change. All are potentially affected by the outbreak of COVID-19.

¹ The economies covered in this series of papers are China, India, Japan, South Korea, Indonesia, Malaysia, Philippines, Singapore, Thailand, and Vietnam.

Fig. 1. Understanding the food industry's supply chain

	Agriculture	Food industry	Distribution
Type of activity undertaken 	<ul style="list-style-type: none"> • Farming • Fishing • Plantation 	<ul style="list-style-type: none"> • Processing primary inputs • Manufacturing food products • Packaging 	<ul style="list-style-type: none"> • Wholesale and retail to households • Supply to food service sector • Food service activities
Common economic risk factors 	<ul style="list-style-type: none"> • Input costs (energy, transport, fertilizers) • Labour costs • Output price volatility • Trade policy (import tariffs and export restrictions) 	<ul style="list-style-type: none"> • Agricultural price volatility • Cost of adding value • Trade policy • Regulatory change 	<ul style="list-style-type: none"> • "Factory gate" food prices • Transport, storage and labour • Fluctuating consumer incomes

Source: Oxford Economics

In this first paper in our series, we build the evidence based on these key issues. First, we analyse the growth and complexity of the intra-Asia food supply chain, and countries' reliance on food imports. We look at latest trade flows data to assess impacts from the COVID-19 pandemic on supply and costs around the region. Finally, we assess latest data on prices along the supply chain to make a preliminary assessment of the impact so far on food costs faced by households.

3. GROWTH OF INTRA-ASIAN FOOD TRADE

Agricultural and food products remain a politically-sensitive area in Asia, when it comes to efforts to increase cross-border commerce. But despite substantial exceptions remaining in some areas (e.g. rice, where many ASEAN states levy import tariffs of 25% or more), there has been a clear trend towards freer food trade across Asia. The average tariff levied by our 10 Asian economies on food imports from the East Asia and Pacific region fell from over 7% in 2000 to just over 3% in 2016 (see Fig. 2). Tariffs on food imports from the rest of the world also fell but remain substantially higher.

In response to trade liberalisation (plus rapid economic growth), food trade within Asia, and between Asia and the rest of the world, accelerated sharply from 2000. During the period of most-rapid trade liberalisation, from 2003 to 2011, the nominal value of intra-Asian trade in food products grew an average of 11%, with imports into Asia from the rest of the world also growing at this rate. Research by a range of major international organisations (see Box 1 for a review of some of the key studies) suggests this wave of trade liberalisation and integration has had substantial benefits across the region.



Average weighted tariffs on food imports in Asian economies fell from around 7% in 2000 to just over 3% in 2017. Over the same period, the value of intra-Asian food trade grew more than three-fold.



Fig. 2. Weighted average tariff levied on food imports by featured Economies, by source of imports

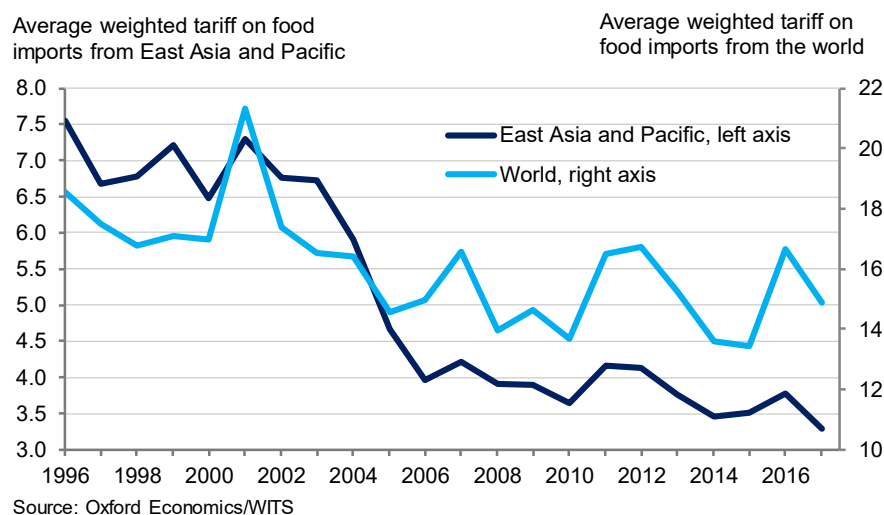
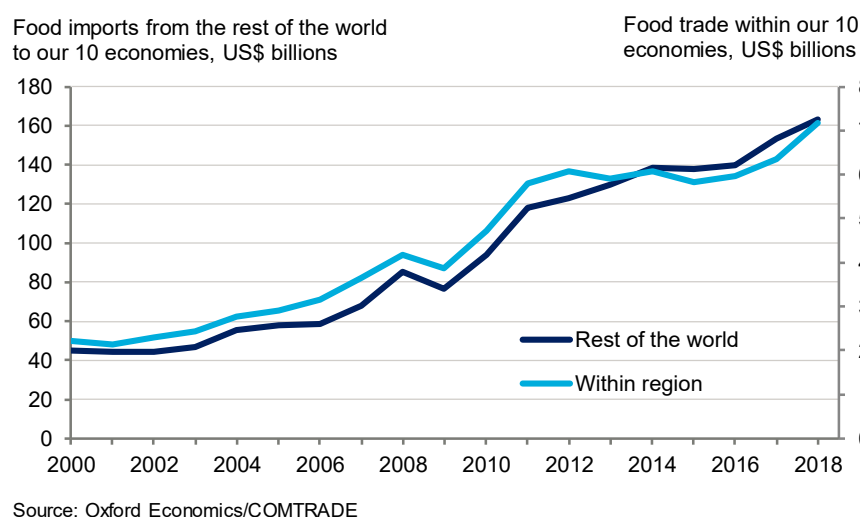


Fig. 3. Nominal value of food imports to featured economies, by source of imports



BOX 1: RESEARCH EVIDENCE ON THE GAINS FROM FOOD TRADE LIBERALISATION

A range of studies published by the Asian Development Bank make several key findings about the costs of barriers to trade in food, and the potential gains to future liberalisation. In an assessment of “food security” policies and their impact on food supply and price volatility¹, ADB authors found that measures aimed to diversify supply sources reduced vulnerability to shocks. In a South Asia context², the ADB finds that the lack of regional integration in food supply chains has limited the potential market for food producers and kept the production capacity of the sector lower than in a liberalised market. Complementing this conclusion, a 2017 study³ found that expanding the current ASEAN free trade area to incorporate China, India, Japan, Korea, New Zealand and Australia would result in an increase in agricultural output in “ASEAN 6” countries of one-sixth, thanks to the comparative advantage ASEAN economies have in land-intensive sectors vis-à-vis more densely populated East and South Asian economies.

These Asia-specific findings support a broader literature looking at the gains to food trade liberalisation at a global level. For example, the IMF found in 2017 that lower tariff barriers to food trade had a clear pro-poor bias, because the poor tend to spend more of their income on food⁴. A year earlier, research by the OECD⁵ concluded the removal of barriers to agricultural trade boosts incomes across different worker types by removing distortions to labour and capital mobility. Moreover, the benefits from liberalised merchandise trade more generally can more than offset the costs to farmers from lost protection in agricultural sectors. However, the World Economic Forum⁶ found in 2020 that while the evidence from gains from trade are overwhelming, and largely driven by lower food prices, in some countries richer households tended to gain more than lower income households. As such, trade liberalisation may need to be accompanied by redistributive measures to ensure that gains are felt equally across income groups.

¹ *Bilateral Trade and Food Security*, Asian Development Bank Economics Working Paper, September 2013.

² *Food Security in South Asia: Developing Regional Supply Chains for the Food Processing Industry*, UN and ADB, 2015.

³ *Re-examining Policies for Food Security in Asia*, Asian Development Bank Economics Working Paper, February 2012.

⁴ *Making Trade an Engine of Growth for All: The Case for Trade and for Policies to Facilitate Adjustment*, International Monetary Fund Policy Paper, April 2017.

⁵ *Evolving Agricultural Policies and Markets: Implications for Multilateral Trade Reform*, OECD Joint Working Party on Agriculture and Trade, July 2016.

⁶ *The Hidden Cost of Free Trade*, World Economic Forum, January 2020.

4. KEY INTRA-ASIA FOOD SUPPLY CHAIN RELATIONSHIPS

With intra-Asian food trade having accelerated so much through the past couple of decades, some key supply routes have become established, regional leaders in food exports have emerged, and consumers in some economies have been particularly able to tap into the opportunity for imported food.

Fig. 4. Intra-Asia food trade in 2018, \$bn

		Importing economy									
Exporting economy	Total Food Exports	CHN	IND	JPN	KOR	SGP	IDN	THA	MYS	PHL	VNM
	CHN	20.4	0.2	8.6	3.6	0.7	2.0	1.8	1.5	1.0	1.0
	IND	4.8	0.6	0.7	0.3	0.2	0.6	0.6	0.8	0.3	0.7
	JPN	2.2	0.8	0.0	0.4	0.3	0.1	0.4	0.1	0.1	0.2
	KOR	2.9	0.7	0.0	1.3	0.1	0.1	0.2	0.1	0.1	0.3
	SGP	2.8	0.2	0.2	0.5	0.1	0.2	0.4	0.5	0.4	0.3
	IDN	6.4	1.6	0.3	1.0	0.3	0.7	0.5	0.9	0.8	0.5
	THA	15.7	4.6	0.1	4.2	0.8	0.6	2.2	1.2	0.9	1.1
	MYS	4.4	0.8	0.0	0.4	0.3	1.5	0.5	0.4	0.3	0.2
	PHL	2.9	0.9	0.0	1.1	0.5	0.1	0.0	0.1	0.1	0.1
	VNM	8.9	3.0	0.4	1.5	0.2	0.6	0.7	0.5	0.7	
Total Food Imports		13.2	1.2	19.4	7.4	4.2	6.3	5.1	5.7	4.4	4.5

Source: Oxford Economics/UN COMTRADE

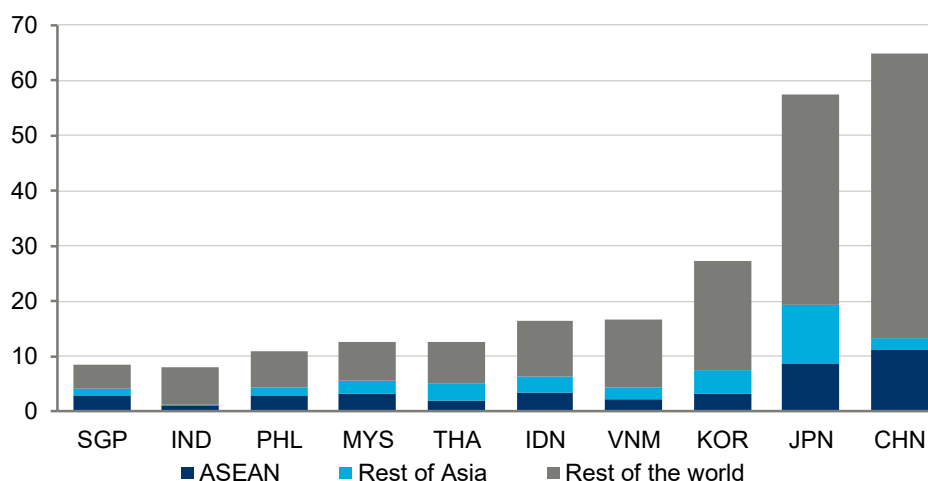
China is the largest supplier of food cross-border in Asia, closely followed by Thailand. Japan is the largest importer of food in Asia.

Fig. 4, above, sets out the matrix of food trade across Asia. Between them, China and Thailand supply just over half of the total food imported into our sample of 10 countries from other countries in the group. China is the largest import supplier for five of its nine trade partners in this grouping, with Thailand the principal supplier to three.

By contrast, two of the region's three largest economies, Japan and India, are very modest agricultural exporters to other Asian economies, with Japan exporting less than Singapore. Other key trade relationships include Singapore's reliance on food imports from Malaysia (around a third of its total imports), and Vietnam's increasing role in supplying China.

Fig. 5. Source of food imports to featured economies

Imports of food and animals by source, 2018, US\$ billions



Source: Oxford Economics/COMTRADE

Japan is by far the largest importer of food from other Asian economies in value terms but lags well behind Singapore on a per-capita basis. India imports by some distance the lowest value of food products amongst our sample of economies, perhaps unsurprising given that as of 2016 its average import tariff on agricultural products (32.7%) was the second highest amongst comparable economies.

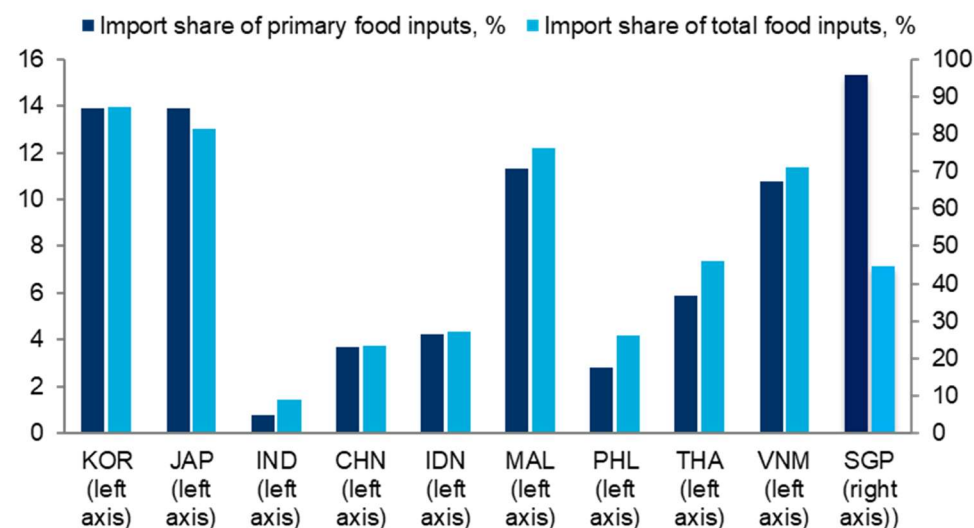
5. BENCHMARKING RELIANCE ON FOOD TRADE ACROSS ASIA

As a result of the liberalisation of food trade within Asia, several countries now draw on imported inputs to the domestic food processing sector to a substantial extent. Singapore imports 96% of the primary inputs to its food processing sector, and 45% of total food consumed in the economy—although Singapore's unique characteristics compared with other economies in the region (its high-income status, high population density, and role as a global trade hub) clearly all predispose it to a greater reliance on imported food than elsewhere.

Nevertheless, imports contribute 10% or more of total inputs to the food processing sector, and total food consumption overall, in four of the remaining nine countries in our sample. For Japan and Korea, key food trading relations with China, Thailand and Vietnam mean that 12-14% of food inputs are imported. Lower income ASEAN economies such as Vietnam and Malaysia also draw heavily on food inputs, drawing on key relations with China and Thailand in both cases.

“Singapore's food processing sector relies on imports for close to 100% of its primary food inputs, while imports contribute 10% or more of the total inputs in four other countries in our sample.”

Fig. 6. Importance of food inputs to domestic supply



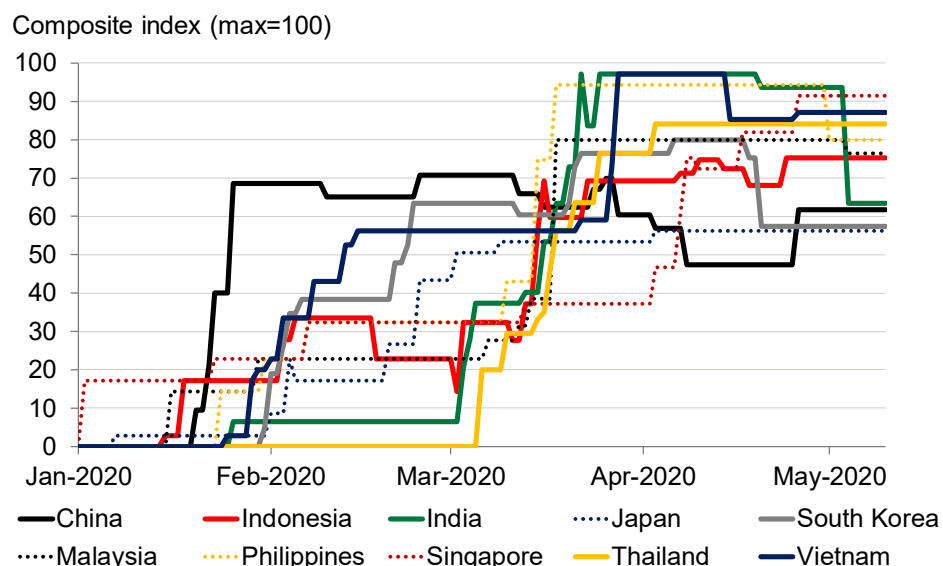
Source: Oxford Economics

6. COVID-19 AND THE FOOD INDUSTRY

Like any other economic sector though, the food industry across Asia is having to deal with the impact of the COVID-19 outbreak on supply chains within—and across—economies. As in much of the rest of the world, economies across the region have been placed under lockdown, with major constraints to movement by workers and households. Fig. 7 shows the Blavatnik School of

Government's assessment of lockdown stringency across our featured economies. From an uneven start, with China imposing major restrictions first, other countries have since followed suit, with major restrictions now in place across all 10 economies in our scope.

Fig. 7. Lockdown stringency across Asian economies



Source: Oxford Economics/Blavatnik School of Government



While partial or total lockdowns have been imposed in almost all countries in Asia, in most economies food processing workers have been exempted from restrictions to movement.



Restrictions to worker movement undermine the food industry from several perspectives. Firstly, restrictions to inbound air travel threaten one of the key routes through which food supplies (particularly of higher value and perishable items) can enter the supply chain. Additionally, if workers in the agricultural or food processing and distribution sectors are subject to the lockdown, they are prevented from going to work. And consumers constrained to staying at home will impact on the bottom line of food producers, processors and distributors.

In most economies in the region, however, governments have recognised the importance of the food industry and exempted workers in related sectors from restrictions on travelling for work purposes. Additionally, firms in the sector can tap into economy-wide measures such as direct loans to firms (or measures to guarantee commercial loans), or employment subsidies to lower the cost of employment during a time of lower demand.

Governments in some economies have stepped up monitoring of and interaction with the sector. In Japan for example the Ministry of Agriculture, Forestry and Fisheries has stepped up monitoring, while Indonesia's Food and Drug Administration has released enhanced guidelines on safety and sanitation in the sector. In Malaysia, the Ministry of International Trade and Industry has engaged with food industry bodies to discuss measures impacting the sector.

Fig. 8. Policy responses affecting the food industry, May 2020

	Macroeconomic Policy			Food Sector Measures		
	Gov't loans or loan guarantees	Tax breaks/subsidies	Employment subsidies	Lockdown exemption for FS workers	Enhanced govt monitoring & guidance	Increased barriers to food exports
CHN	✓	✓	✓	✓	✓	
IND	✓	✓		✓	✓	
JPN	✓	✓	✓	✓	✓	
KOR	✓	✓				
SGP	✓	✓	✓	✓	✓	
IDN	✓	✓		✓	✓	
THA	✓	✓	✓	✓		Yes
MAL	✓	✓	✓	✓	✓	
PHL	✓	✓	✓	✓	✓	
VNM	✓	✓	✓	✓		Yes

Source: Oxford Economics/Food Industry Asia

There are, however, signs that some governments in the region are acting to “protect” domestic consumers from potential price rises by imposing measures to restrict food exports. Vietnam has already acted in this respect, imposing a ban on rice exports lasting from late March through April, before lifting the ban on 1 May. If repeated, or replicated in other countries, this could lead to “multiplier effects” across food prices. The World Trade Organisation found in 2012 that during the 2008-2010 period there was a greater than one-for-one correlation between export tariff increases and increases in world food prices.² In the next section, we will look in more detail at the emerging evidence on food trade since the outbreak, as well as price pressures across the supply chain.

7. TRADE IN FOOD SINCE THE OUTBREAK

Timely data for food export volumes across Asia is only available for a sub-set of economies in our sample, but on this basis, there seems only limited evidence of COVID-driven interruptions to the supply chain. Thailand's food volume exports were down by 8% in March 2020 compared to the same month a year before—but its volumes have been declining since mid-2019, partly reflecting a long-running drought in key rice-producing regions. Food export volumes in Malaysia were modestly down in March versus a year earlier, with volumes from Singapore also slightly down. By contrast, food volumes from South Korea surged 25% in March 2020 versus 2019.

Nevertheless, given that Thailand exported around 50% more food in value terms in 2018 than these three other economies combined, interruptions in Thailand—for whatever reason—clearly have a major significance across the region.

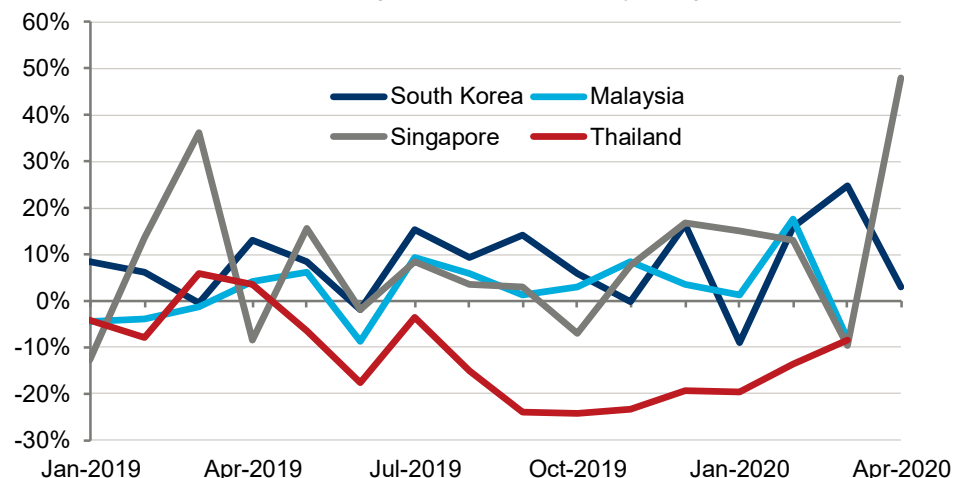
“Latest data on trade volumes suggests only limited COVID-related impacts. However, other blockages to Thailand's food exports are a cause for concern for consumers across Asia.”



² Food Prices and the Multiplier Effect of Export Policy, World Trade Organisation, April 2012

Fig. 9. Food exports down vs one year ago, key producers

Food export volume, percent change versus same month year ago



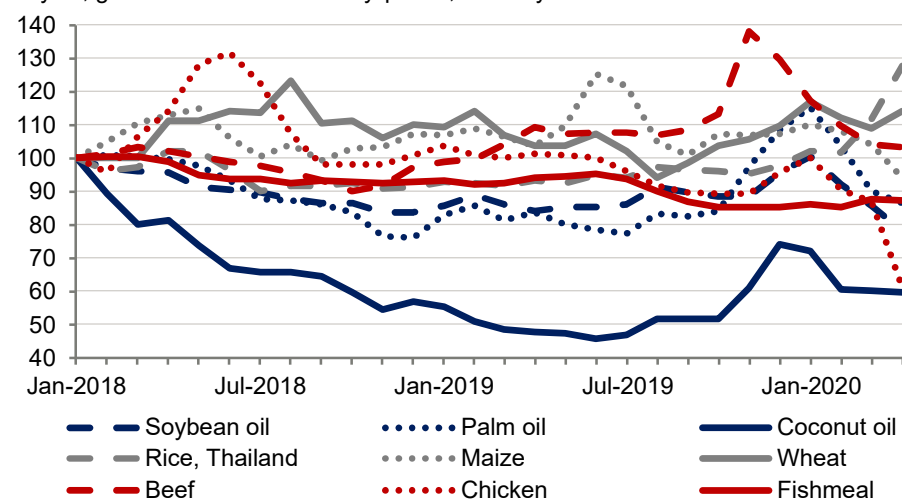
Source: Oxford Economics/Haver Analytics

8. HOW HAVE KEY INPUT PRICES RESPONDED TO THE PANDEMIC?

More encouragingly, global commodity prices for key food inputs have remained stable or eased through the first half of 2020. The World Bank's *Commodity Price Data* indicates dollar prices for key oils and sugar are down around 20% since peaking in January 2020 and are now broadly consistent with their levels through most of 2019. Meat prices have been more volatile but are nevertheless at or below their 2019 averages. But grain prices have trended more clearly upwards, with rice prices accelerating by 14% in April alone. Again, non-COVID factors (including Thailand's drought) are likely a key driver here but given rice's key role as a staple food across the region this is clearly a cause for concern.

Fig. 10. Key food sector commodity prices

Key oil, grain and meat commodity prices, January 2018=100

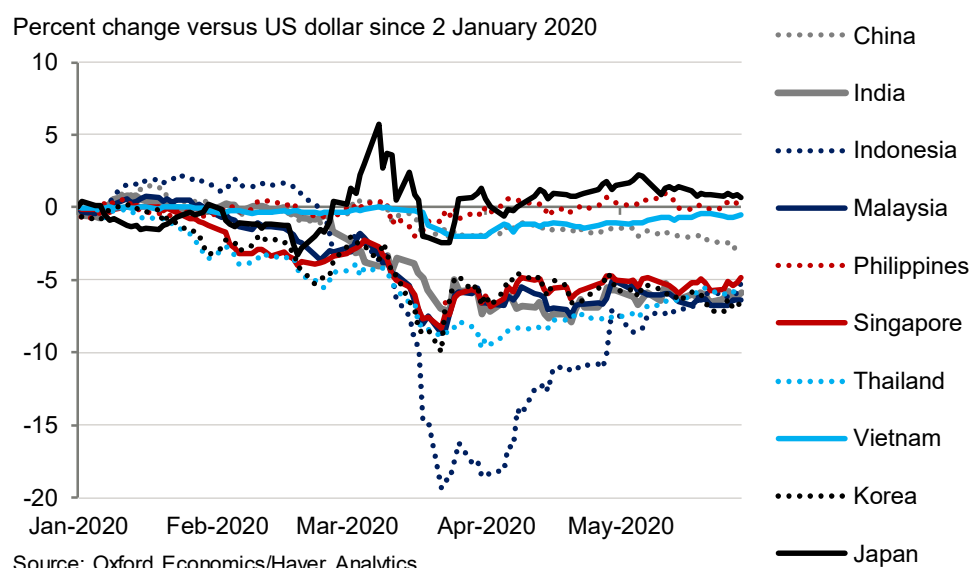


Source: Oxford Economics/World Bank/Haver Analytics

“Key agricultural commodity prices have remained broadly stable through 2020H1—with the exception of rice, which has surged by 20%.”

Exchange rate movements since the start of the global pandemic will also have impacted on food prices, especially for the cost of commodity inputs often priced in US dollars. Emerging Asian currencies typically suffer during bouts of global economic uncertainty, and most are 5-10% weaker against the US dollar than at the start of the year. However, currencies have been broadly stable through April and May, suggesting that this should reflect at most a level shift in food costs, rather than a sustained driver of food price inflation.

Fig. 11. Exchange rate movements since COVID-19



“Investors’ ‘flight to safety’ has exerted major downward pressure on currencies across Asia, with some ASEAN economies losing as much as 20% versus the US dollar”

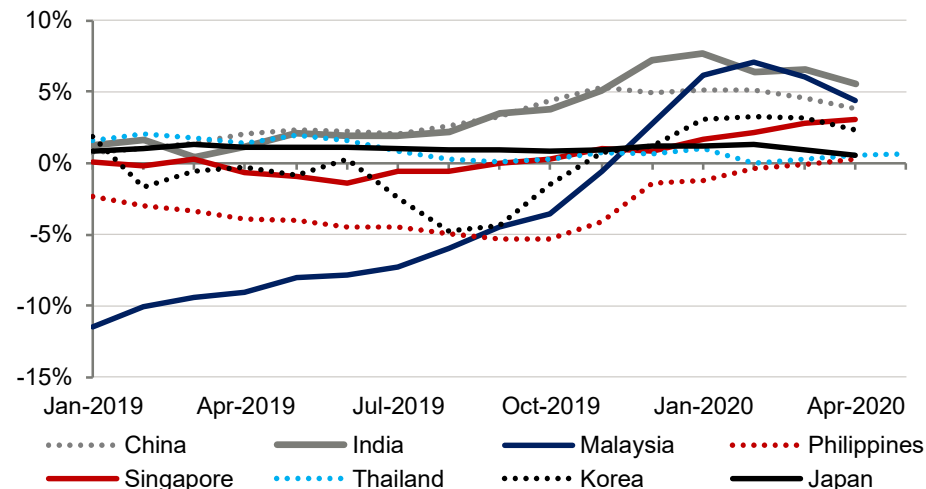
9. PRODUCER AND CONSUMER FOOD PRICE RESPONSES

With agricultural commodity prices relatively calm, and exchange rates either stabilising or (in the case of Indonesia) recouping lost ground through April, the outlook for producer (and by extension consumer) food prices should also be relatively stable. For now, data for producer price inflation across Asian economies is typically only available to April, so it is difficult to draw firm conclusions in this respect.

Nevertheless, some economies across the region went into the COVID period with food prices already accelerating. In China, India and Malaysia, producer prices were up by 5-10% on year ago through the first quarter of the year. In China, an outbreak of African swine fever resulted in a loss of around half of the pig herd, and a rapid acceleration in the cost of hogs and pork products for both producers (see Fig. 12) and consumers (Fig. 13). In India, disruptions to vegetable production through late 2019 (and the barriers to imported substitutes) pushed consumer food price inflation into double figures. Data for consumer prices in Vietnam suggest price pressures continue to intensify, with price growth reaching 12% in May.

Fig. 12. Food producer prices picking up in China, India and Malaysia

Producer price index for manufactured food, percent change versus same month year ago



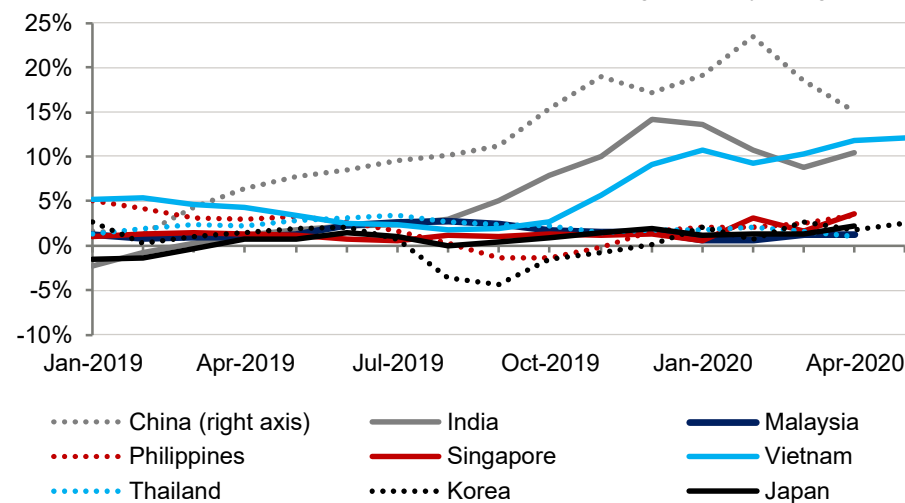
Source: Oxford Economics/Haver Analytics

However, the broader picture is one of relative calm in food prices. Producer price growth has been cooling in China, India and Malaysia since the turn of the year, and remained modest elsewhere. Except for Vietnam, consumer prices also look to be easing or remaining muted into 2020 Q2. And with commodity prices and exchange rates stable for the past couple of months, the broader picture is one of modest price pressures at the factory gate.

Of course, this should not be taken for granted, considering the major uncertainty over when business can start to get back to normal (or indeed a “new normal”). But the evidence thus far does suggest a sector functioning with a high degree of normality, given the circumstances.

Fig. 13. Consumer prices cooling from early 2020 peaks

Consumer price index for manufactured food, percent change versus year ago



Source: Oxford Economics/Haver Analytics

“ Factory food prices in Asia’s two most populous nations were accelerating going into the crisis. ”

“ Pressures are being felt by consumers in India and China, with food prices in Vietnam also up 10% on a year ago. ”

10. KEY FINDINGS AND FUTURE RESEARCH AGENDA

In our first paper in our series, we have mapped the increased integration in the food supply chain across Asia, and the key bilateral trading relations which underpin it. We find the evidence suggests the supply chain has remained resilient during the COVID-19 outbreak, with limited evidence of specific impacts from the pandemic and associated lockdown measures to supply shortages or price pressures. Policy measures to exempt the sector from lockdown measures have likely been crucial in keeping the food flowing, although some governments are also seeking to “protect” domestic consumers, potentially at the cost of food producers and consumers elsewhere in the continent.

We will pursue these themes in our future research. In our second paper, we will quantify in more depth the key trading relationships making up the pan-Asia food supply chain (see Fig. 4 in this paper), and assess the evolving evidence on price pressures along the supply chain (as summarised in Fig. 1).

In our third paper, we will assess the outlook for the sector's recovery, as well looking at other economic risk factors that form part of the post-COVID landscape. We will assess which are the key issues to analyse closer to the data of publication, but these could include:

- the lasting impacts on consumer incomes and spending power;
- the lasting impacts on key cost metrics facing the sector; and
- the need to restore balance to public finances (including via increases in the tax burden on producers and consumers).

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