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EXECUTIVE SUMMARY

WHO DETERMINES THE COST OF FOOD?

A study on Belgium, Sweden, France, United Kingdom and Argentina.

WWF-EU and WWF-UK commissioned RSK ADAS Ltd (ADAS) to undertake a desk-based review investigating the determinants of the cost of food. More specifically, the study sought to identify government policies and other factors that influence the price of food.

Food pricing is complex and involves various factors from the production process through to the finished product on the shelf. Typically, governments avoid direct intervention in the market until the point of market failure is reached.

This study has been conducted within the framework of WWF's #Eat4Change project, funded by the European Commission's Development Education and Awareness Raising Programme (DEAR).

WWF is an independent conservation organisation, with more than 38 million followers and a global network active through local leadership in over 100 countries.

Our mission is to stop the degradation of the planet's natural environment and to build a future in which people live in harmony with nature, by conserving the world's biological diversity, ensuring that the use of renewable natural resources is sustainable, and promoting the reduction of pollution and wasteful consumption.

The European Policy Office contributes to the achievement of WWF's global mission by leading the WWF network to shape EU policies impacting on the European and global environment.



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WHO DETERMINES THE COST OF FOOD?

A study on Belgium, Sweden, France, United Kingdom and Argentina.

Recent global events, such as the war in Ukraine and the Covid-19 pandemic, caused significant disruption to the food supply chain, contributing to the rise of food prices.

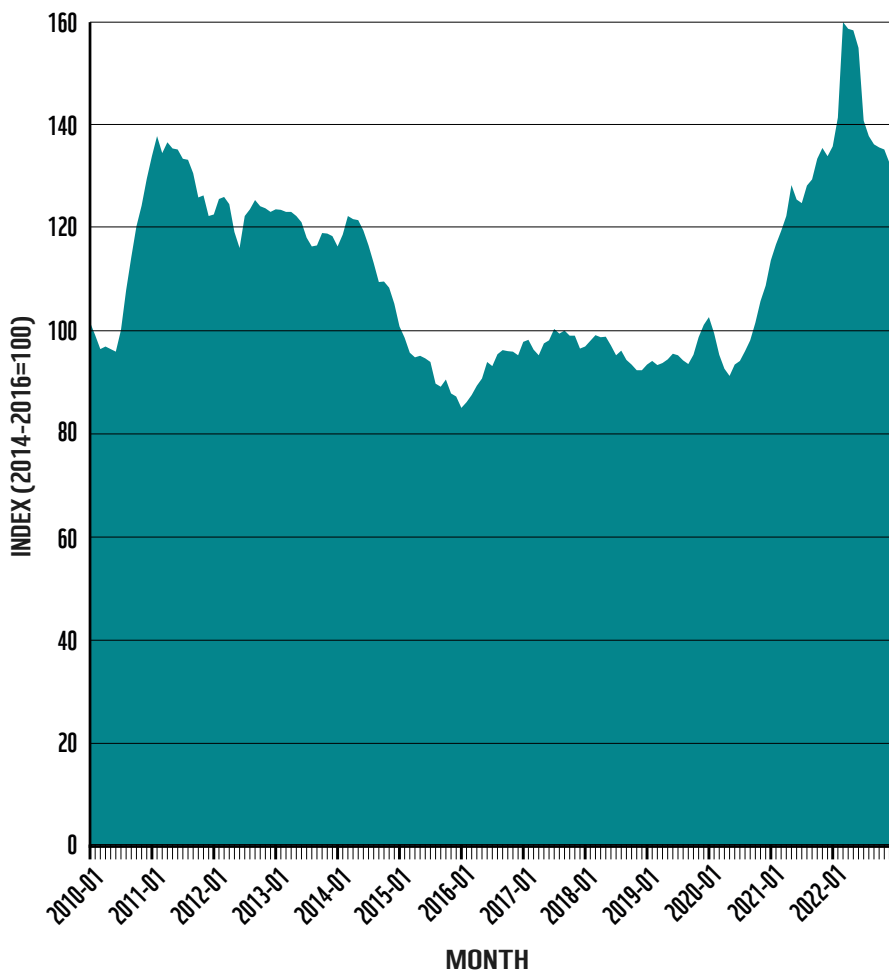


FIGURE 1: World food price index (monthly). Index 2014-2016=100. Source: FAO (2023)

BACKGROUND

Global events over the past two years have seen basic food commodity prices rapidly increase. With Russia and Ukraine both key players when it comes to ensuring a stable supply of food and energy, it is no surprise the war between the two nations has disrupted global supply chains. The impacts of the conflict, on top of the shocks from Covid-19, have resulted in price pressures being felt around the world. The Food and Agriculture Organization (FAO) estimated that the world food price index (Figure 1) finished 2022 at 132.4 after spiking to 159.7 in March. This constituted a significant increase when compared to previous years.

In 2017, the World Bank International Comparison Program (updated every seven years) estimated that 381 million people could not afford the most basic energy-sufficient diet. With the onset of the pandemic, it was estimated that three billion people could not afford a healthy diet¹(Our World in Data, 2021).

With inflation levels reaching new heights in 2022, many nations including the United Kingdom (UK) and members of the European Union

1 | A healthy diet is defined as one which helps to protect against malnutrition in all its forms, as well as diseases such as heart disease, diabetes, stroke and cancer. A healthy diet should limit intake of sugars, salt and unsaturated fats (World Health Organization, 2020).



(EU) have seen no real wage growth. Paired with plummeting consumer confidence and reduced spending, many economies have been tipped into economic decline and a cost-of-living crisis. As a consequence, many households have been forced below the international poverty line and are unable to purchase even a calorie-sufficient diet. National governments have therefore been tasked with designing intervention measures to support both agricultural producers and consumers.

These interventions have taken a variety of forms, including subsidies and other government spending (through investment or state aid). In many nations, supportive measures have also been coupled with trade-restrictive interventions, such as tariffs and quotas, in an effort to protect domestic markets. These measures, however, have caused significant supply chain disruptions and food price variation.

MOTIVATION FOR THE STUDY

The agricultural sector generates an estimated 34% of total global annual emissions, with more than seven billion tonnes generated in production (Crippa et al., 2022). WWF is striving for more sustainable food production and consumption, including through the transition to more plant-based diets, for the wellbeing of people and the planet (WWF, 2020). For both health and environmental reasons, the demand for more plant-based diets is higher than ever, with a record €5.8

billion sales growth of plant-based food products in 2022, an increase of 21% since 2020 (Good Food Institute, 2023). However, the increasing demand for plant-based food has not always translated into policy measures that effectively support sustainable food production and consumption.

As price is one of the major drivers for food consumers' choices, this study has aimed to identify existing policies that might have or have had an impact on food prices.

In particular, this study looks into the cost of food and existing policies in five countries. These include Belgium, France and Sweden, which are directly affected by EU policies, as well as the UK and Argentina. Argentina was included as an example of a non-EU country where food price inflation represents a daily struggle for the majority of the population, and where the government has tried to tackle rising food prices with targeted policy actions.

The study² focuses on measures and actions taken by governments and other major economic actors such as retailers and investors (market speculators) and their influence on food prices. It draws on qualitative and quantitative evidence identified in the literature and uses empirical evidence to provide conclusions and policy recommendations.

2 | Full report available at <https://wwfeu.awsassets.panda.org/downloads/Report-who-determines-the-cost-of-food.pdf>



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**MILLION
PEOPLE COULD
NOT AFFORD
THE MOST
BASIC ENERGY-
SUFFICIENT
DIET IN 2017**

POLICY INFLUENCE ON FOOD PRICES

EU national governments are currently not sufficiently intervening to make sustainable food more accessible. However, the EU has previously employed various policy levers, mainly to insulate the domestic market and protect producers, which actually had an impact on food prices. Policies have included voluntary coupled support (VCS); production quotas; a grain import levy; purchase and storage; export subsidies; tariffs and tariff rate quotas.

VOLUNTARY COUPLED SUPPORT – OVERCONSUMPTION OF MEAT AND DAIRY

VCS (only applicable to EU member states) is the main scheme where the impact on market prices has been quantified within the literature. The scheme links payments to production of certain agricultural products. As the VCS subsidy increases, so too does production, leading to more supply of the subsidised product. Ultimately,

this results in lower prices on the shelf, making subsidised products more affordable for consumers.

VCS constitutes on average 8–13% of the Common Agricultural Policy (CAP) European Agriculture Guarantee Fund, which stands under the first pillar of the CAP (also known as “direct payments”). VCS has a significant impact on the price of dairy and meat. **Currently, around 70% of the VCS goes to the livestock sector, which results in lower prices of meat and dairy products, ultimately fostering their overproduction and overconsumption.**

Simulation of removal of VCS payments in all sectors

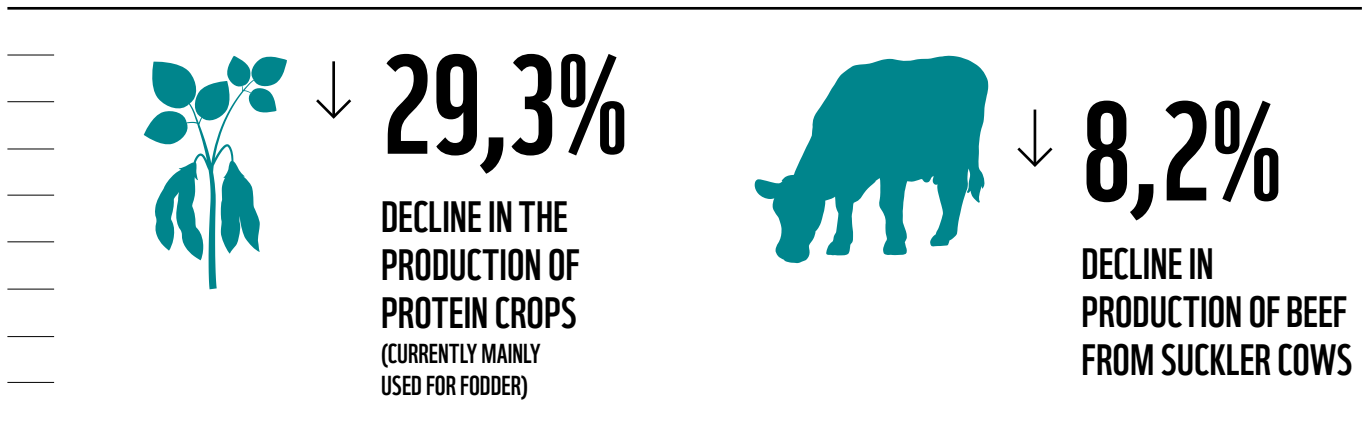


FIGURE 2: A 2015 study showed that if VCS payments in all sectors were removed, the production of meat and protein crops largely used for fodder would decrease significantly (Offermann et al., 2015).

VCS is pumping livestock production while decreasing the price of meat products, despite clear evidence of the sector's significant environmental impacts. Policy measures that stop overproduction of meat are essential to face the ongoing climate and biodiversity crises. These policies should be combined with actions to support more sustainable diets – otherwise the EU might simply increase imports of meat and dairy from third countries, leading to an increase in greenhouse gas emissions outside its territory (carbon leakage).

THE EU FIXED PRICE MECHANISM – NOT THE SAME PROTECTION FOR ALL PRODUCTS

The EU fixed price mechanism is an EU policy acting as a price floor. It aims to fix a price at which a given quantity of food product will be purchased, preventing prices of products from falling to levels that are not economically viable for

producers. However, this mechanism does not apply to fruit, vegetables and organic products, despite their potential benefits for the environment and human health. This means that certain categories of products do not benefit from the same level of market protection. This may discourage farmers from producing more sustainable food and make environmentally friendly products less accessible to consumers.

FERTILISERS – MAKING OUR MARKET MORE SUSCEPTIBLE TO EXTERNAL SHOCKS

The price of fertiliser is a major driver of food prices. The EU's vulnerability to market distortions in fertiliser trade is especially acute since fertilisers represent 18% of input costs for arable crops and 74% of EU farmland is currently fertilised.

Policies directed at supporting a decrease in fertiliser use would therefore not only reduce the environmental impact of the

agriculture sector but would also decrease the exposure and vulnerability to price shocks.

LACK OF TRANSPARENCY – NO ROBUST DATA TO DESIGN EFFECTIVE PUBLIC POLICY

Robust data is needed to design effective public policies that address the complexity of food environments in order to foster more healthy and sustainable food consumption. There is a lack of publicly available data and transparency on marketing policies of food retailers. Additional barriers that prevent robust data collection and analysis of food prices within each nation include significant differences in methods of collection and a lack of standardised approaches.



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COUNTRY COMPARISONS

The study also assessed evidence related to policy influence on food prices for five countries: Belgium, France, Sweden, the UK and Argentina.

BELGIUM

The recently accepted CAP strategic plan for Belgium makes provisions to diversify the fruit and vegetable sector, as well as to diversify sales and investment in new plantations, by supporting both infrastructure and digital infrastructure. In the long term, consumers should start to see increased choice of Belgian-produced fruit and vegetables on supermarket shelves and less price fluctuation for these products.

VAT rates on meat are set at 6%, exactly as for food products that are more sustainable and healthy, such as fruit and vegetables. No literature was identified that quantified the impact of the reduced rate on the prices of basic foodstuffs in Belgium. However, reduced VAT rates are aimed at lowering consumer prices (IMF, 2022).

To assist with the cost of living, the Belgian government is considering collaborations with large supermarkets to freeze consumer prices. This initiative, however, does not prioritise sustainable food.

FRANCE

The recently accepted CAP strategic plan in France rewards farmers in the livestock sector who also produce protein crops (e.g. soy) by providing extra financial support.

In June 2022, hail, strong winds and torrential rain caused damage to agricultural lands, with some farmers seeing 100% of their crop affected, particularly those producing wheat and fruit. As a result of extreme conditions, driven by climate change, there have been supply shortages contributing to the rise in food prices. At the time of this study, no clear policies have been put in place to support climate adaptation and mitigation measures in the agricultural sector or to address other environmental factors, such as ecosystem degradation and biodiversity loss, that undermine the resilience of food production in France.



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SWEDEN

Sweden, like Belgium and France, is a member of the EU and therefore benefits from the European Free Trade Association (EFTA). However, Sweden is not a member of the Eurozone. Exchange rate volatility between the Swedish Krona and the Euro can lead to reduced price stability and potentially higher food prices in Sweden.

The VAT rate imposed on meat is 12%, the same as for basic foodstuffs such as cereals, fruit and vegetables. This shows that there is not much action from the government to incentivise plant-based food consumption.

A study which simulated the impact of an environmental tax on consumption in Sweden suggested this would reduce the consumption of meat and animal products (Säll and Gren, 2015). In particular, the simulation showed a 19% reduction in beef consumption, equating to a reduction of 4.7 kilos per capita per year. However, a unilateral implementation of the tax would likely result in increases in emissions where the product is imported from, if other measures to support dietary changes are not combined with this type of taxation.

UK

The UK departed the EU on 31 January 2020 after 40 years of implementing the CAP. Since leaving the EU, the UK has negotiated a number of free trade agreements (FTAs) and there are now 70 in force. The OECD (2022) outlined the potential for the FTAs with Australia and New Zealand to increase competition in the beef and sheep market. As a result, the FTA could increase the quantity of agri-food products imported into the UK, in particular beef and lamb. Increased consumer choice and a reduction in prices of meat are the likely outcomes.

Unlike the other nations in this study, the UK has a 0% VAT rate on basic foodstuffs including cereals, meat, animal products, fruits and vegetables. This study could not identify empirical evidence of the impact of the flat rate on the final consumer price.

3 | A product can be zero-rated (0%) providing it has some measurable nutritional value (UK Government, 2022).

ARGENTINA

Agricultural policy has typically played a significant role in both the import substitution policy and raising revenue in Argentina (Regúnaga and Rodriguez, 2015; Piñeiro et al., 2019). Import substitution assumes domestic demand should be met through domestic production and should be the main source of economic growth. The government has therefore imposed high rates of export taxes (which have been adjusted in the last decade) on many agricultural products, such as soybeans, cereals, vegetable oils and bovine meat. However, this policy has halted improvements in international competitiveness and economic performance.

A simulation by Piñeiro et al. (2019) showed that a progressive reduction of export taxes on cereal grains would reduce the world price by 2.17%. This reflects Argentina's global importance as a cereal producer.

Consistent droughts caused by the La Niña weather phenomenon have caused significant issues for Argentina's agricultural sector in recent years, reducing farmers' yields. Buenos Aires Grain Exchange has estimated the loss could be up to US\$4 billion (the actual figures are due to be published by the end of 2023). This has contributed to substantial supply chain shortages, driving consumer prices up further.

FOOD	VAT RATE (%)				
	BELGIUM	FRANCE	SWEDEN	UK	ARGENTINA
MEAT AND EDIBLE OFFAL	6%	5.5%	12%	0%	10.5%
MILK AND DAIRY PRODUCTS, AND OTHER ANIMAL PRODUCTS	6%	5.5%	12%	0%	10.5%
VEGETABLES	6%	5.5%	12%	0%	10.5%
FRUIT	6%	5.5%	12%	0%	10.5%
OTHER PROCESSED FOOD PRODUCTS	21%	20%	12%	0% ³	21%

FIGURE 3: VAT rates imposed on food products.

OTHER DETERMINANTS OF FOOD PRICES

WAR IN UKRAINE

As a result of the war in Ukraine which began in February 2022, 16 nations have imposed trade restrictions, ranging from exporting bans to licensing requirements. Russia and Ukraine are major producers and exporters of grains, accounting for 4.4% and 4.3% of total global calories respectively. Both have imposed export restrictions on major cereal grains including wheat, barley, rye and maize.

Overall, measures from all 16 nations accounted for 17% of total global traded calories. The outcome has been substantial supply shortages, which have driven consumer prices up.

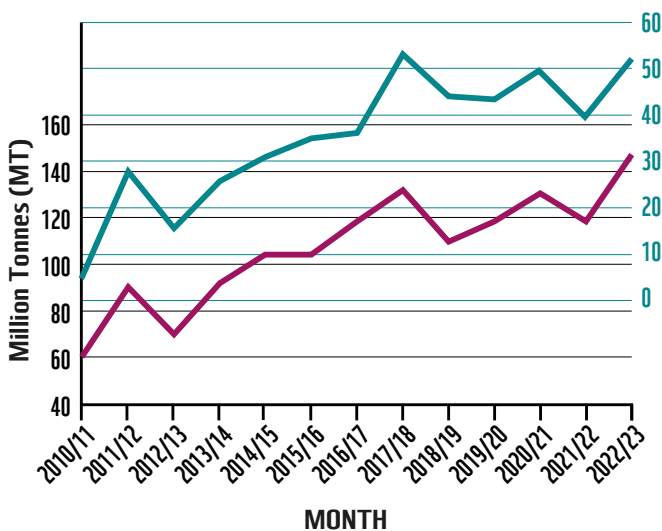


FIGURE 4: Russia production and exports of cereals in millions of tonnes (2010/11 – 2022/23). Source: FAO AMIS (2023).

MARKET FACTORS

Market factors such as import prices, exchange rates, transport and fertiliser prices play a significant role in food prices. Key influences include:

Import prices and exchange rates. These influence what the consumer pays for products on the shelf. In the case of Sweden, the Krona has depreciated in value against the dollar in the past couple of years. This means that imports have become more expensive for importers paying in dollars, which has put an upward pressure on consumer prices.

Transport cost. The cost of transporting food has direct implications for the supply of food (Cooke, 2009). As the cost of crude oil increases, so too does the cost of fuel at the pump, resulting in higher prices on the shelf.

Fertiliser prices. Fertiliser prices are an input cost of production (Cooke, 2009). Increases in the cost of production are often passed through to consumers in the form of higher prices so producers can uphold their profit.

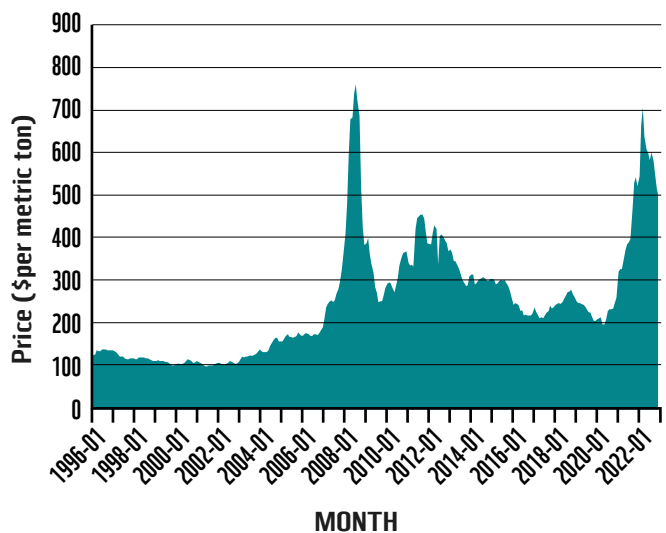


FIGURE 5: Monthly trend in fertiliser prices from January 1996 to January 2022. The impact of the war between Russia and Ukraine has seen fertiliser prices soar to highs not seen since the global financial crisis in 2008. This is no surprise given Russia was, at the start of the conflict, the global leader in fertiliser exports, controlling around 15% of global fertiliser exports⁴. Russia is also the leading exporter of ammonia, urea, phosphate and potash, key fertiliser raw materials. Unless other countries are able to increase production or substitute them with more environmentally sustainable materials to offset the loss of supply from Russia, the price of fertiliser will remain high and will continue to have flow-on effects to crop production and ultimately the price of food.

4 | See www.worldstopexports.com/top-fertilizers-exports-by-country



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POLICY RECOMMENDATIONS

ALL NATIONS

Education.

Promote nutritional and environmental benefits of plant-based diets in schools and in the public domain.

Research and Data.

Pursue a more unified global approach to data recording, including production and consumption data.

Additional studies on VAT.

Conduct further research to better understand the effect of flat and differential VAT rates on final consumer price.

EU AND UK

Production quota.

Consider a meat production quota in specific regions to mitigate emissions and excess nitrogen.

Direct consumption tax.

Add a tax on products with negative environmental and health externalities, similar to the sugar taxes in Belgium, France and the UK that target consumers directly. Elasticity of demand for each product should be considered.

Welfare schemes.

Assess how schemes at the national level could make sustainable food more accessible to low-income households.

CAP subsidies.

Repurpose CAP subsidies to support farming practices with higher social and environmental standards in order to increase availability and affordability of sustainable products.

Coupled support payments.

Repurpose VSC allocations directed to the intensification of livestock farming.

OUR MISSION IS TO STOP THE DEGRADATION OF THE PLANET'S NATURAL ENVIRONMENT AND TO BUILD A FUTURE IN WHICH PEOPLE LIVE IN HARMONY WITH NATURE.



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