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Climate-related food inflation and social risks

Economic and financial sector implications

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Policy insight

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Contents

Summary

Social risks are underexplored in mainstream analysis of climate change and largely excluded from the analytical work of bodies such as the Network for Greening the Financial System (NGFS). Yet social risks are widely recognised as a material consequence of climate change, including by the Intergovernmental Panel on Climate Change (IPCC) which has linked climate change to adverse outcomes such as food insecurity, migration and conflict.

Social risks are the potential adverse effects of events or circumstances on the welfare of individuals and societies, and on the stability and cohesion of the social fabric. Such risks range from effects on jobs, income, assets, education and health at the individual level, to broader 'social-macro' consequences such as social and political instability, civil unrest, migration and conflict.

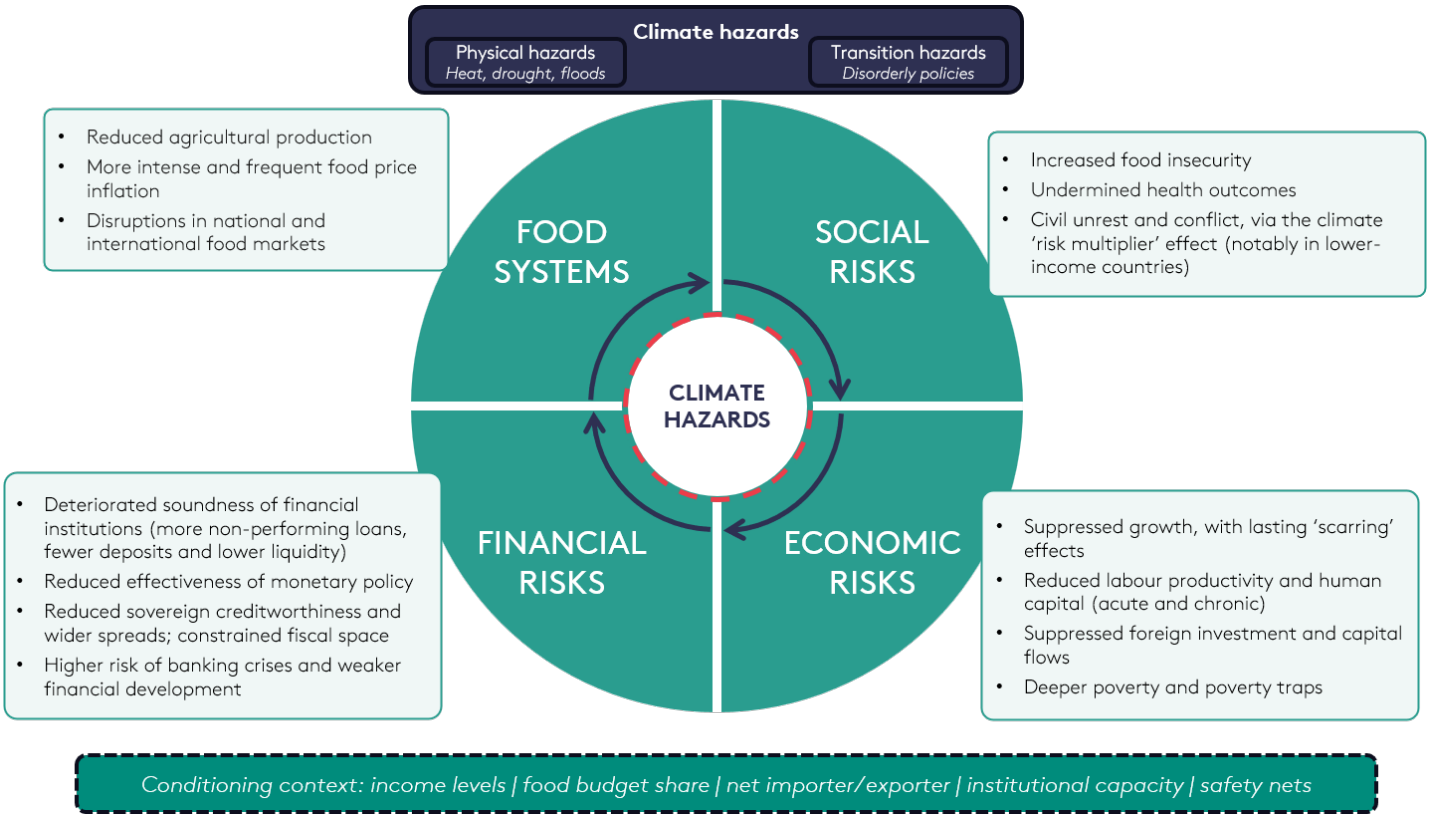
Better understanding these social risks, and how they relate to and affect economic and financial stability, is increasingly important as climate change advances and as financial institutions and international bodies seek to assess the potential consequences of plausible climate scenarios.

Key findings

- **The empirical evidence base linking climate change, food insecurity and conflict is fragmented but indicative.** Climate change is now found to drive persistent and non-linear food price inflation, with global warming projected to add between 0.92 and 3.23 percentage points to annual food inflation by 2035.[1] Food price shocks and rising food insecurity are well-evidenced contributors to civil unrest and conflict, with climate change acting as a 'risk multiplier' rather than a necessary or sufficient driver on its own.
- **Social risks can affect macroeconomic growth and financial stability in diverse ways,** including through suppressed productivity and human capital accumulation, deterred foreign direct investment, reduced sovereign creditworthiness and wider sovereign spreads and a higher probability of banking crises.
- **Low-income countries and lower-middle-income countries are most vulnerable to these risks,** owing to having a higher share of household budgets spent on food, greater reliance on subsistence agriculture, weaker institutional capacity and social safety nets, shallower financial systems more susceptible to exogenous shocks, and limited fiscal and monetary space to absorb climate-related pressures. All these factors risk resulting in adverse feedback loops.
- **High-income countries are not insulated against such risks and may be affected through various potential spillovers,** including cross-border supply chain disruption, contagion in financial markets, disorderly migration and import-driven food price pressures.
- **We propose a nexus-based analytical framework** to capture the compounding interactions between climate change, food price inflation, conflict and adverse economic and financial outcomes, and identify the need for fuller integration of climate-related social risks into the analytical work of relevant international bodies. The framework is illustrated on the next page.

[1] According to Kotz et al. (2024).

The nexus of climate-related food system, social (food price inflation and conflict), economic and financial risks



Source: Authors (including adaptations from Porter et al., 2014; NGFS, 2024)

1. Introduction

This report provides an initial investigation of climate-related social risks and their consequences for the economy and the financial sector by focusing on a single salient risk – climate-related food price inflation. It aims to contribute to how social risks are examined and incorporated into climate change discourse and the analytical work of relevant international bodies. We propose a nexus-based analytical framework to capture the compounding interactions between climate change, food price inflation, conflict and adverse economic and financial outcomes.

Social risks and the just transition

Climate change will have substantial distributional effects which, unless managed, are likely to lead to heightened social risks and pose challenges to a just transition (see Box 1.1). Under a plausible worst-case scenario of 2.2–2.8°C warming above pre-industrial levels, and assuming no further increases in adaptation and resilience, climate change could reduce average income, measured as gross domestic product (GDP) per capita, by 3–15% globally by 2050, with low-income and lower-middle-income countries facing average losses of 8–18% and some regions exceeding 20% (Rising et al., 2026). Losses of this magnitude cannot realistically be absorbed without substantial socioeconomic change, making the question of how such change is managed, and who bears its costs, central to any just transition framework.

Box 1.1. What are social risks and how do they relate to a just transition?

Climate change is a physical phenomenon; however, both its trajectory and implications are shaped by socioeconomic factors. In 2006, Professor Lord Nicholas Stern warned that the social risks associated with climate change could be comparable in scale to those of the great wars and the economic depression of the first half of the twentieth century (Stern, 2006). The concern over managing these risks, including seizing the opportunities that climate action presents, represents a valuable domain that is both conceptually adjacent and complementary to the just transition.

Adapting the UN's (2024) framing, we define social risks here as the potential adverse effects of events or circumstances on the welfare of individuals and societies, and on the stability and cohesion of the social fabric. As such, social risks can range from effects on jobs, income, assets, education and health at the individual level, to broader 'social-macro' consequences such as social and political instability, civil unrest, migration and conflict.

Source: Authors

These issues are of particular importance to developing countries, which are among those with the highest levels of exposure and vulnerability to physical climate risks while having less capacity to respond[2] (IPCC, 2022). This gap between exposure and ability to respond reflects several factors, including lower institutional capacity for risk management and constrained access to climate finance – with least-developed countries facing particular barriers due to weaker credit ratings – and the risk of capital flight from the most climate-vulnerable economies (ibid.). For those developing countries with fragile and conflict-affected contexts, the conditions for more extreme social risks, including civil unrest, migration and conflict, may also be more pronounced, as climate change and social risks can interact to compound vulnerability and undermine adaptation (ibid.).

Developed countries may also face exposure to climate-related social risks. While they have greater capacity to respond, developed countries nevertheless contain vulnerable populations, geographies and

[2] This report adopts the World Bank Country Groups and Harmonized List of Fragile Situations in relation to classifications and countries. 'Lower-income countries' refers to lower-middle-income and low-income countries. 'Fragile situations' (previously termed fragile and conflict-affected states) follows the formal World Bank terminology, available here: https://datahelpdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country-and-lending-groups; https://thedocs.worldbank.org/en/doc/b3c737c4687db176ec98f5c434d0de91-0090082024/original/FCSListFY25.pdf

political economies that are susceptible both to sudden, extreme weather and environmental events resulting from climate change (termed 'climate shocks') and to the structural disruptions that the actions taken to address climate change entail (Stern, 2006; Hanson, 2022). While not directly comparable, experience from structural transitions such as deindustrialisation and globalisation suggests that major economic disruption can marginalise certain groups and places and contribute to political polarisation (Autor, 2020). Moreover, climate change generates economic and societal impacts that can cross national boundaries, including through supply chain disruption (Sun et al., 2024) and human migration and displacement (IPCC, 2022), meaning no country can fully isolate itself from its effects regardless of its individual capacity.

Social risks, the economy and finance

Social risks have implications at both the microeconomic level, affecting individual financial investment cases, and at the macroeconomic and macroprudential level, yet both remain under analysed. At the project level, financial sector practitioners recognise social risks as a key consideration in investment decisions, though how they should be integrated into assessments remains unclear (interview material; Chanda and Tyson, 2025). At the systemic level, the Network for Greening the Financial System (NGFS) explicitly recognises social risks as a key element in the transmission channel from climate change to economic and financial risks (NGFS, 2024), yet its existing work largely excludes them in practice. As such, addressing this gap is of relevance to financial regulators and international bodies leading work on the intersection of climate change and the financial sector, including the NGFS.

Given the prominence of investment and financial stability in determining long-term welfare (Solow, 1956; Romer, 1990), the capacity of social risks to undermine these conditions is a matter of material concern. At the microeconomic level, conflict and political instability deter foreign direct investment, with project numbers and values falling sharply in conflict-affected economies, while heightening perceived political risks and severely constraining access to private debt financing for individual projects (MIGA, 2010). Social unrest similarly generates measurable negative effects on financial market returns (Barrett et al., 2021). At the macroeconomic level, these risks suppress economic growth through contractions in consumption, manufacturing and services (Hadzi-Vaskov et al., 2021), and are associated with a higher probability of systemic banking crises occurring in developing countries (Compaoré et al., 2020). Over time, these microeconomic and macroeconomic pressures can compound, with implications for fiscal balances, balance-of-payments positions and broader financial stability.

Developing countries are most exposed to the financial consequences of social risks, given that they typically have weaker investment environments as well as less-developed financial systems that are more susceptible to exogenous shocks (Levine, 2005; Tyson and Beck, 2018). This intersects directly with their broader climate vulnerability, particularly in low-income countries, where financial and climate pressures compound the multidimensional fragility they already face, risking feedback loops of underdevelopment and poverty.

This report provides an initial investigation of such climate-related social risks and their consequences for the economy and the financial sector by focusing on a single salient risk – climate-related food price inflation – the reasons for which are discussed further below. It is a continuation of the Just Transition Finance Lab's work on emerging research on 'social-macro risks' from climate change (Tyson and Weston, 2025).

A preliminary discussion of the evidence base

This analysis faces important methodological challenges. Much of the current academic evidence on social risks draws largely on empirical studies based on historical data which is inherently backward-looking and therefore ill-suited to capturing future climate trajectories. Consequently, it provides limited guidance as to how climate change will interact with social risks. In addition, it also tends to focus on relationships between climate events, food production and food prices, without extending the analysis to the downstream social risks these may generate.

An alternative is to use forward-looking, modelling-based approaches, though these likewise face limitations. Ideal models would capture the full transmission chain from climate change through food production and food price inflation to socio-macro events. However, current models either cover only parts of this transmission chain (e.g. integrated crop assessment models which model food production but not price effects on agriculture[3]) or have known deficiencies of their own (e.g. the arbitrary nature of the discount rate, which has large implications for results, and the omission of tail risks in integrated assessment models[4]). A further limitation of these models is how difficult it is to incorporate adaptation into food production and consumption, as well as trade.

These methodological challenges are not unique to social risks. Given the complexity of the relationships and transmission channels involved, some argue that modelling is of limited reliability and that narrative-based scenarios may offer a more effective method of inquiry (Rising et al., 2022; Stainforth, 2023). Such approaches could have advantages over modelling for analysing social risks and have already been employed in tools such as the IPCC's shared socioeconomic pathways (IPCC, 2022) as well as the scenarios produced by USS Investment Management and the University of Exeter (2023). We return to these alternatives briefly in the conclusion.

In this report, we seek to draw credible inferences across these varied sources of evidence despite their limitations. It should be noted that the evidence base remains fragmented, and synthesising across such sources yields tentative conclusions rather than established findings. However, as the report aspires to make an initial contribution to how social risks might be examined and incorporated into climate change discourse, we proceed with this modest ambition and these substantive methodological and evidential challenges in mind.

Structure of the report

- **Section 2** reviews the available literature on climate-related food inflation and social risks and examines their potential impacts on the macroeconomy and financial sector.
- **Section 3** proposes a nexus-based methodological framework for examining climate-related food system, social, economic and financial risks.
- **Section 4** concludes by identifying the need for fuller integration of climate-related social risks into the analytical work of relevant international bodies.

[3] The IPCC first considered these issues in 2014 (Porter et al., 2014). Since then, modelling of food production and climate change has improved. The most advanced integrated crop assessment models (ICAMs) encompass significant granularity in relation to key variables (including, for example, crop types, soil and aspects; typically, on 10 kilometre grid resolution) and allow scenarios to be produced that allow both for different greenhouse gas pathways and for adaptive practises in agriculture (including in relation to crop variations, irrigation and soil management). However, extending such models from food production to food prices is not yet modelled and presents substantive challenges. There are also additional complexities relating to food imports and exports (which have not been considered in this report) and the effective global food system that they can create.

[4] See Pindyck (2013) and (2017) for a fuller discussion of these issues.

2. A review of the climate-related food inflation and social risks literature

This section reviews the available literature on climate-related food inflation and social risks and examines their potential impacts on the macroeconomy and financial sector.

Climate change, food production and food price inflation

Climate change is negatively affecting food production, with the resulting supply shocks contributing to food price inflation. Statistical analyses of historical data suggest such effects have typically been transitory. Kabundi et al. (2022), for example, find that an average drought raises inflation by 0.2 percentage points but that the effect dissipates within roughly a year; however, they also note that severe droughts and food price effects are considerably larger and that persistence varies with country income and monetary regime. This is largely consistent with broader evidence of short-lived inflationary effects from storms and excessive rainfall (Bao et al., 2023; Moessner, 2022a). In turn, more recent empirical work using larger panels and longer time horizons has identified more persistent effects. Drawing on over 27,000 observations across 121 countries between 1996 and 2021, Kotz et al. (2024) find that higher temperatures raise food and headline inflation across the full 12 months following an initial climate shock, in both higher- and lower-income countries, with no offsetting price decline within the year.

Effects also exhibit high heterogeneity across regions and seasons. Kotz et al. (2024) find that inflationary pressures are largest in hotter regions and seasons, with effects more than twice as large in summer compared to winter at northern mid-latitudes, while higher latitudes can experience downward pressures in winter that contrast with upward pressures in summer. Consistent with this pattern, Ciccarelli et al. (2023), analysing the four largest euro area economies (Germany, France, Italy and Spain), find that above-average summer temperatures consistently increase unprocessed food inflation across all four countries (although effects are larger and more persistent in France, Italy and Spain than in Germany), while temperature rises in other seasons tend to have weaker or deflationary effects.

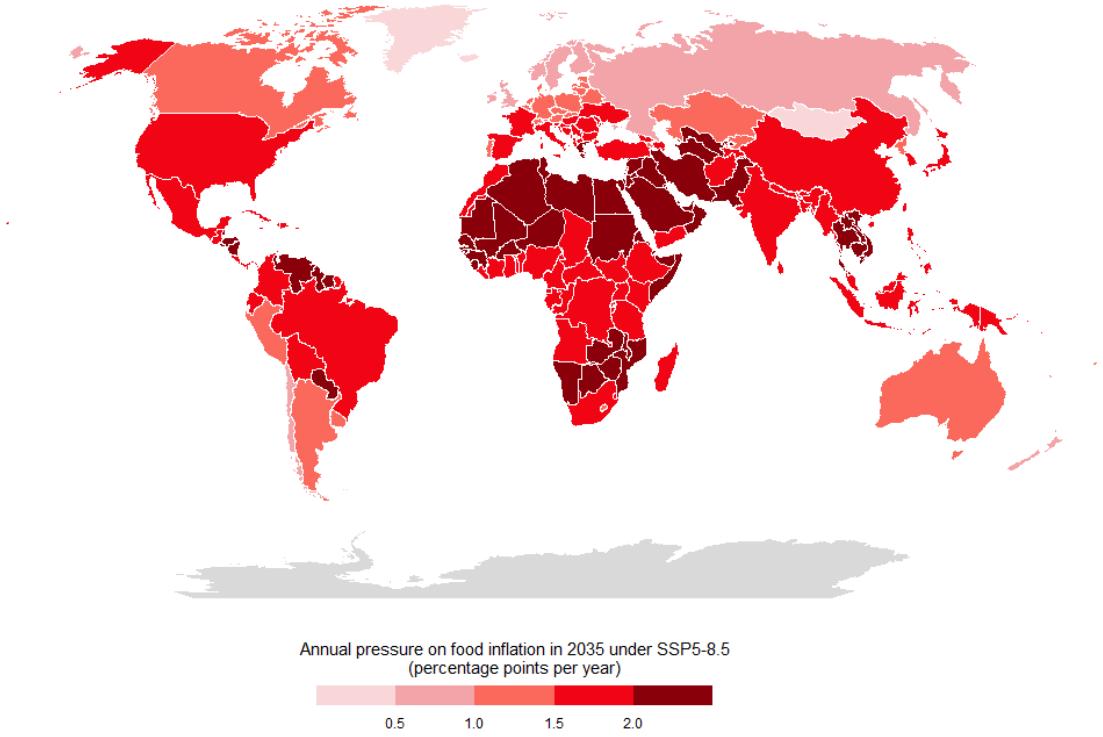
As extreme weather events become more frequent and severe, food production is likely to be increasingly and adversely affected (IPCC, 2012; Porter et al., 2014; Sloover and Jacob, 2024; Maechler, 2024). At the global level, Kotz et al. (2024) project that future warming will increase annual food inflation by 0.92–3.23 percentage points and headline inflation by 0.32–1.18 percentage points per year (see Figure 2.1). These projections are based on 2035 climate scenarios incorporating uncertainty across emission scenarios (including SSP5-8.5, which assumes 4.9°C end-of-century warming), empirical specifications and a range of climate models. Importantly, larger and more persistent climate shocks are found to generate disproportionately greater inflationary pressures, reflecting a non-linear relationship between climate disruption and food prices (Parker, 2018; Kotz et al., 2024). While adaptation is widely considered an important determinant of outcomes, its effects remain less well understood and insufficiently investigated in the literature (e.g. Porter et al., 2014; Hultgren et al., 2025).

The relationship between climate, food production and food insecurity[5] is well-evidenced and is intermediated by food shortages and food price inflation (Porter et al., 2014; see Figure 2.2). Namely, the Food and Agriculture Organization of the United Nations (FAO et al., 2025) finds that a 10% increase in food prices is associated with a 3.5% rise in moderate or severe food insecurity and a 1.8% increase in severe food insecurity. Similarly, a one percentage point increase in food inflation is estimated to raise the share of the undernourished population by 0.06 percentage points (Bogmans et al., 2024). This link operates through two main channels: the income effect, where rising food prices reduce household purchasing power and people's ability to afford adequate food, thereby reducing access; and the substitution effect, where households shift consumption towards cheaper but less nutritious alternatives (FAO et al., 2025). Importantly, low-income households are most negatively affected, as they are less able to mitigate effects through accessing resources to smooth their consumption, that is, to maintain a

[5] Food security is defined by the FAO as encompassing four key dimensions: availability, access, utilisation and stability (FAO et al., 2025).

stable standard over time (Porter et al., 2014). These effects are more pronounced in certain regions, including sub-Saharan Africa and Southeast Asia (ibid.). Further, net food producers and exporters face more mixed effects, since while higher food prices may increase revenues, these gains can be offset or eliminated by rising input costs, such as for fertiliser and seeds (FAO, 2022a; see Figure 2.2).

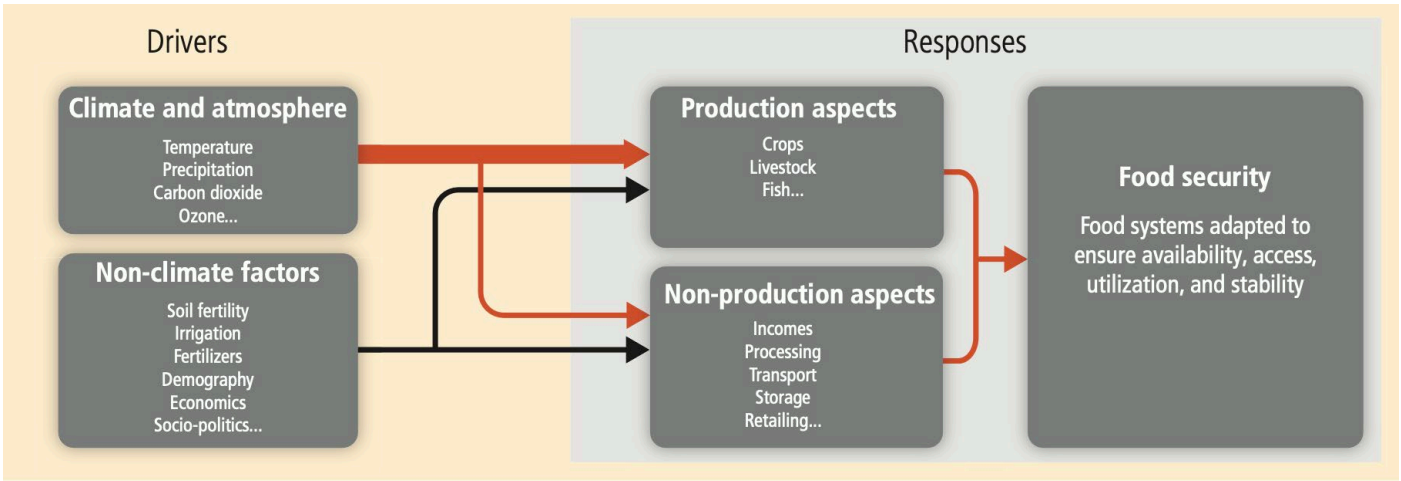
Figure 2.1. Expected global annual food inflation by 2035 under SSP5-8.5



Note: SSP5-8.5 is a climate scenario that assumes 4.9°C end-of-century warming.

Source: Authors based on Kotz et al. (2024)

Figure 2.2. Impacts of climate change on agricultural production and food security (IPCC AR5)



Note: Drivers are divided into climate and non-climate elements, affecting production and non-production elements of food systems, thereafter combining to provide food security. The thickness of the red lines is indicative of the relative availability of [IPCC-]reviewed publications on the two elements.

Source: Porter et al. (2014), Figure 7-1

Vulnerability to climate-related food price pressures is greatest in developing countries, which experience stronger and more persistent food production shocks and inflation following climate events and have less capacity to absorb them (Porter et al., 2014; Faccia et al., 2021; Mukherjee and Ouattara, 2021; Kabundi et al., 2022; Qi et al., 2025). Beyond climate vulnerability, the magnitude and direction of food inflationary effects are linked to patterns of agricultural production and food consumption. The share of GDP and trade accounted for by agriculture, alongside production composition (such as across different crops and between subsistence and cash crops) are key determinants of exposure. In low-income countries, food expenditures represent a larger share of household budgets (52% on average, compared to 14% in high-income countries), reflecting higher poverty levels. Reliance on subsistence agriculture is also considerably greater (FAO, 2022b). In addition, developing economies are also less integrated into global food markets and rely more heavily on domestic agricultural production which increases their vulnerability to domestic climate-related shocks (Faccia et al., 2021). Nonetheless, high-income countries remain vulnerable to climate-driven food inflation, including through their reliance on imported food and despite their lower direct exposure to physical climate impacts and smaller agricultural sectors relative to GDP.

While a large body of literature focuses on physical risks, transition risks may also put upward pressure on food inflation. Such risks stem from the shift towards a low-greenhouse gas economy and may arise from the implementation of new policies (e.g. price-based interventions, such as carbon pricing), the adoption of new technologies or changing consumer preferences. For example, in Canada, carbon taxes were found to make an observable contribution to wholesale food prices (Charlebois et al., 2024), while simulation exercises suggest negative impacts of carbon taxes on food prices and food consumption (Wu and Thomassin, 2018). The type of instrument used to manage the transition also matters. In Organisation for Economic Co-operation and Development (OECD) countries, a US$10 per tonne increase in carbon taxes raises food Consumer Price Index (CPI) inflation by 0.1 percentage points, whereas the same increase in emissions trading system (ETS) prices has no significant effect on food or core inflation (Moessner, 2022b). Global simulations further suggest that mitigation efforts targeting producer incentives (e.g. taxes) increase food prices, while those targeting consumer behaviour (e.g. education programmes) lower food prices (Stevanović et al., 2016).

Climate change has been associated with a higher incidence of interpersonal and intergroup conflict, either directly or through the weakening of protective factors such as institutional capacity.[6] Drawing on a meta-analysis of 80 econometric studies, Burke et al. (2024) find that a one standard deviation increase in temperature is associated with a 2.45% increase in intergroup conflict and a 1.90% increase in interpersonal violence; rainfall, by contrast, does not have a statistically significant relationship with intergroup conflict. Importantly, the review identifies several distinct channels through which climate translates into conflict, including agricultural, income and broader economic conditions, sociodemographic factors, climate-induced migration, political institutions, and direct psychological and physiological mechanisms. Of these, economic and agricultural channels are described as the largest sub-literature. Specifically, shocks to agricultural production, prices and rural incomes consistently raise conflict risk, and the climate–conflict relationship is significantly stronger in more agriculturally dependent economies. Notably, income-smoothing mechanisms, such as irrigation, drought-resistant crops and cash transfer programmes, have been shown to substantially dampen these effects, indicating that the climate–conflict link is mediated by economic conditions rather than determined by climate alone. Climate is therefore best understood as a contributing factor or 'risk multiplier' to conflict risk.

Food price inflation has been found to raise the risk of unrest and conflict, particularly in low-income and lower-middle-income countries. Arezki and Brückner (2011) find that international food price increases lead to significant deterioration of democratic institutions and increase the incidence of anti-government demonstrations, riots and civil conflict in low-income countries while having no significant effect in high-income countries. Using monthly global data over 1990–2011, Bellemare (2015) similarly finds that food price increases lead to greater social unrest. Hendrix and Haggard (2015) show that the relationship is mediated by regime type. Specifically, drawing on data of urban unrest in 55 major cities across 49

[6] Conflict is defined as both interpersonal conflict – such as domestic violence, road rage, assault, murder and rape – and intergroup conflict – including riots, ethnic violence, land invasions, gang violence, civil war and other forms of political instability, such as coups (Burke et al., 2015).

countries in Asia and Africa for the period 1961-2010, democracies and anocracies (which combine authoritarian powers with some democratic practices) were shown to experience more urban unrest in periods of high food prices, while autocracies do not. This reflects the more permissive opportunity structures and more pro-rural agricultural (less pro-consumer) policy in democratic and anocratic systems compared to autocracies. Meyimdjui (2020), using panel data for 101 low-income and middle-income countries, finds that imported food price shocks increase socio-political instability, with effects being stronger in countries with less access to private credit (proxied by the ratio of private credit to GDP) and lower income per capita.

While the climate–conflict and food inflation–conflict relationships are each well-evidenced, comparatively few studies directly examine the full transmission channel from climate-related food inflation to conflict. Smith (2014) finds that a one standard deviation rise in domestic food prices as a result of rainfall shocks increases the probability of urban unrest in major African cities by approximately 14–18% (as reported in Burke et al., 2024). Raleigh and colleagues (2015), using simultaneous equations on 113 African markets, find that negative rainfall shocks increase the likelihood of conflict indirectly through raising food prices. The scarcity of work in this area (only 2 out of 80 studies identified by Burke et al. (2024) use food inflation as a mediator between climate and conflict) may reflect a methodological challenge identified by Burke et al. (2015; 2024): namely, climate shocks affect conflict via many pathways at once, including agricultural income, employment, migration, and even via direct effects on health and behaviour. This makes it difficult to isolate the role of any single channel, e.g. food prices, from the others. Closing this evidential gap appears increasingly relevant given the projections of climate-driven food price inflation discussed earlier in this report.

Importantly, most studies find that while food price inflation can contribute to or trigger conflict, it is neither a necessary nor sufficient cause, with the realisation of unrest depending on the interaction of food price shocks with pre-existing economic, political and social conditions (Smith, 2014; Burke et al., 2015; Brinkman and Hendrix, 2011). Further, the policy context is also important as food subsidies, cash transfers, price controls and the lowering of import tariffs may mitigate the risk of conflict following food price inflation (Brinkman and Hendrix, 2011).

The potential impact of climate-driven social risks on the macroeconomy

The constituent links between climate change, food price inflation, food insecurity, conflict and macroeconomic outcomes are typically treated by separate literatures, with limited integration across them. As established earlier in this section, climate change is expected to drive persistent food price inflation, and both climate change and food price inflation are associated with deteriorating food security and a heightened risk of conflict, especially in low-income and lower-middle-income countries. A separate and more developed body of literature documents the economic consequences of food insecurity and conflict. Drawing these literatures together permits a structured account of how climate-driven food price pressures may transmit to the macroeconomy, even if the full chain has not been established end to end.

At the household level, food insecurity carries adverse implications for short- and long-term welfare and, in turn, for poverty reduction. Pressure on poor households is intensified by the structural features of low-income economies. Food accounts for a substantially larger share of household spending in low-income countries, and pass-through of global to domestic food prices (the degree to which a percentage rise in global prices translates into an equivalent percentage rise in domestic prices) is also typically higher than in advanced economies, meaning that external shocks transmit rapidly and disproportionately to the poor (Rather et al., 2022). Following climate shocks that raise food prices, households in low-income sub-Saharan African countries cut their food intake or sell productive assets – those that generate a regular income – to buy food, with lasting consequences for their future productivity (Baptista et al., 2022). When the poor lack such buffers, evidence from Kenya shows that they resort to dysfunctional coping mechanisms such as withdrawing children from school, child labour and reducing nutrition, a pattern observed in response to a range of household-level shocks (Tyson et al., 2020). Among the most impoverished households, the pressure can extend to taking on unwanted debt, i.e. forced indebtedness (Tyson, 2015). UN DESA (2024), applying the poverty-traps framework of Barrett and colleagues (2018), characterises four self-reinforcing channels through which shocks, including those that are climate-

related, can entrench chronic poverty. These are loss of human capital, which can affect nutrition, health or schooling and thereby lower current and future productivity; irrecoverable loss of income-generating physical assets; psychological feedback loops, such as shock-induced depression; and destruction or degradation of natural resource systems that are often the primary source of rural livelihoods. Conflict can likewise cause or compound these effects, including by deterring school attendance, disrupting market access and driving impoverishment (SIDA, 2017; Tyson et al., 2020).

At the macroeconomic level, food insecurity and conflict suppress growth by undermining both productivity and investment. Productivity effects operate over both the short and the long term. Inadequate nutrition reduces labour capacity directly through diminished concentration and physical strength in the short term (Baptista et al., 2022), while child malnutrition impairs cognitive and educational development, with long-term consequences for human capital accumulation (AUC and WFP, 2022; Baptista et al., 2022). A conceptual model calibrated to a typical low-income sub-Saharan African country further suggests that climate shocks which drive sales of distressed assets can produce a permanent decline in agricultural output and have a lasting scarring effect on growth, productivity and aggregate welfare (Baptista et al., 2022). Evidence on the investment channel comes from two distinct literatures, neither of which directly addresses climate-driven social risks. In conflict-affected and fragile economies, the Multilateral Investment Guarantee Agency's analysis of over 45,000 greenfield projects finds that civil war is associated with a 44% decline in the number of foreign direct investment projects, with the decline in their value reaching 90% under conflict more broadly, and with private debt and portfolio flows minimal in such contexts (MIGA, 2010). Separately, analysing social unrest using media-based indices, Hadzi-Vaskov et al. (2021) find that a one standard deviation increase in the social unrest index produces sharp contractions in consumption, manufacturing and services, leaving GDP still 0.2 percentage points below its pre-shock baseline six quarters later.

The potential impact of climate-driven social risks on the financial sector

Social risks can have direct consequences for financial stability. Conflict and political instability can transmit to financial stability through several channels, including lower economic growth, greater numbers of non-performing bank loans, lower bank deposits and liquidity, and fiscal channels (IMF, 2020). Drawing on a panel of 92 developing countries from 1970 to 2016, Compaoré et al. (2020) find that the odds of a banking crisis are 2.5 times greater in conflict-affected countries, with the probability rising from 16.4% under two-year conflicts to 25% under conflicts lasting ten years. The magnitude of these effects is illustrated by country experiences. For example, during the Sierra Leone Civil War in 1995, 40–50% of banking system loans were non-performing, while the Syrian conflict increased the proportion of non-performing loans from below 5% to 35% of total loans between 2010 and 2013 (IMF, 2020). Roe and Siegel (2011) corroborate this pattern, finding that political instability is a robust primary determinant of weak financial development across multiple measures and over a forty-year study period.

Indirect effects are also transmitted through the macroeconomic consequences of food insecurity and conflict, which generate fiscal pressures, raise sovereign borrowing costs and reduce sovereign creditworthiness (Rother et al., 2022; IMF, 2020). Conflict and political unrest are constituent components of the political risk that bond markets price into sovereign spreads, and Bekaert et al. (2014) show this component is quantitatively significant, averaging 129 basis points across African countries and reaching 511 basis points for fragile states such as Somalia. Compaoré et al. (2020) further find that the principal channel through which conflict translates into banking crises is the occurrence of simultaneous fiscal crises. In an IMF note, Rother et al. (2022) document that the 2022 global food crisis, triggered by Russia's war in Ukraine on top of earlier COVID-19 and climate-related pressures, increased external and debt vulnerabilities particularly in low-income and fragile and conflict-affected states, with the 48 most affected facing an additional US$9 billion in foreign exchange financing needs over 2022 and 2023. In 2022, 25 developing countries, the highest number since 2000, spent over 20% of government revenue on external debt servicing (UN DESA, 2024). By 2025, interest payments alone were estimated to absorb 14.7% of government revenue across Africa (UN, 2026). Elevated sovereign risk constrains the fiscal space needed to finance climate adaptation and mitigation.

Chronic climate-related food inflation may also undermine the effectiveness of monetary policy, with implications for financial stability (Bernanke and Gertler, 1995; Mishkin, 1996). Conventional central bank

practice has been to 'look through' the first-round effects of food and fuel price shocks on the grounds that such shocks are typically transitory, with policy intervening only to prevent second-round spillovers into wage and price spirals or de-anchored inflation expectations (IMF, 2008).[7] If climate change instead makes food price disturbances more frequent, persistent and synchronous across producing regions, this approach becomes harder to sustain. Persistent supply shocks present sharper trade-offs between stabilising prices, supporting output and consumption, and safeguarding financial stability, with central banks tightening into such shocks by raising interest rates, which risks financial stress and adverse output effects (Barmes et al., 2024; IMF, 2025). These trade-offs are particularly acute in countries with weak central bank credibility, high exposure to exchange rate movements and limited fiscal space, where tight policy can trigger capital flight while looser policy can undermine credibility and trigger exchange rate depreciation (IMF, 2025).

[7] Looking through is a traditional policy response by central banks that keeps interest rates fixed or low during shocks (e.g. energy or food shocks) that are assumed to be temporary. The rationale is that raising interest rates may barely move inflation (e.g. due to lag effects, or if the shock is already fading) yet this action may have trade-offs for the real economy (e.g. higher costs due to higher interest rates). See discussions on looking through practices and debates in Buss and Traficante (2025) and Bandera et al. (2025).

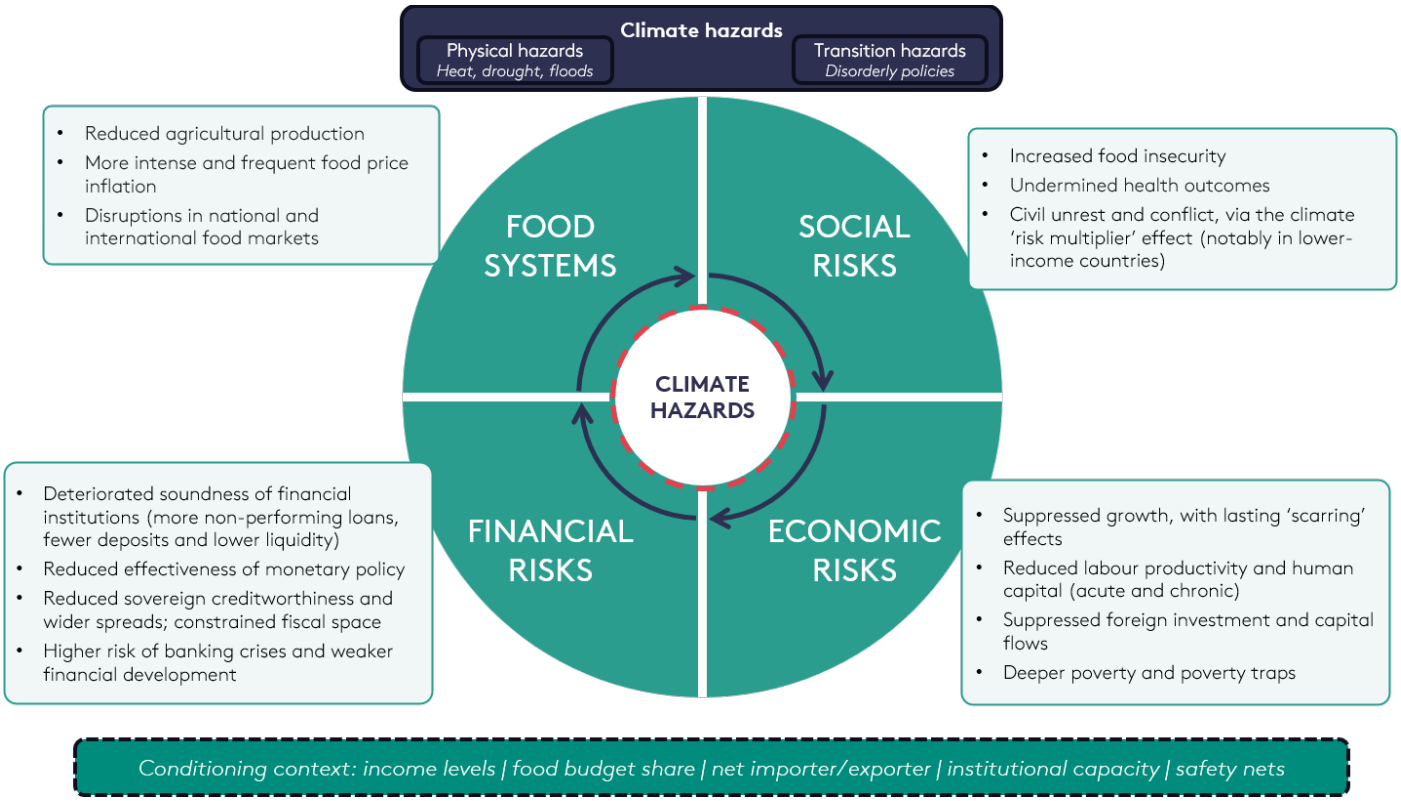
3. The nexus between climate-related food inflation and social risks

This section presents a nexus-based methodological framework for examining climate-related food system, social, economic and financial risks.

The insights in the previous section support treating the relationship between climate change, food price inflation and conflict as a nexus, in which each element compounds the others. While less empirically rigorous than statistical approaches, nexus analysis is a widely used tool for understanding complex, multidimensional systemic interactions, and is particularly appropriate where modelling faces the limitations discussed above. It is commonly applied in the climate change context, including by the FAO which identifies conflict, climate extremes and economic shocks as the primary external drivers of food insecurity and emphasises that these factors increasingly interact and intensify one another (FAO et al., 2025). Nexus thinking is also reflected in humanitarian and development practice, including in evolving recommendations for its incorporation into core diagnostic tools used by international institutions such as the World Bank (World Bank, 2021).

An initial nexus analysis of the social risks associated with climate-related food price inflation is presented below, drawing on the discussion in Section 2. As Figure 3.1 illustrates, climate change drives multiple changes in food systems, with complex interactions and feedback loops across social, economic and financial risks manifesting at both microeconomic and macroeconomic levels. Climate risks can also arise from both physical and transition hazards, including the design and execution of policies. The nexus identifies specific transmission channels between microeconomic effects and the macroeconomy and financial system, including an increased volume of non-performing loans, suppressed investment, undermined sovereign creditworthiness and disrupted or ineffective monetary policy. The analysis further highlights important conditioning factors, including household and national income levels, food as a share of household expenditure and reliance on agriculture as a share of GDP.

Figure 3.1. The nexus of climate-related food system, social (food price inflation and conflict), economic and financial risks



Source: Authors (including adaptations from Porter et al., 2014; NGFS, 2024)

Such a nexus is most commonly observed in lower-middle-income and low-income countries, and is strongest in fragile states, where conditioning factors that compound vulnerability are most pronounced. These factors include limited adaptive capacity, high dependence on subsistence agriculture, a higher share of household income spent on food, weaker buffers against income shocks, and weaker institutional capacity and social safety nets relative to high-income countries.

The nexus also suggests that, while outcomes from climate-related social risks in high-income countries may be more moderate than in lower-income countries, they nonetheless carry material implications. These matter not only in themselves, for example by compounding poverty and inequality, but also through their effects on political support for climate action and economic policy more broadly. In particular, political responses to climate-related social risks may heighten the risk of disorderly transitions, weakening public support for climate action and undermining the political will to make appropriate trade-offs between short-term costs and long-term benefits (Stern, 2006). Moreover, while high-income countries can moderate social and economic outcomes through fiscal and monetary policy in the short term, sustaining such responses over the longer term presents substantial challenges. Prolonged fiscal expansion risks deteriorating public finances, while extended monetary tightening carries its own adverse economic consequences, both of which could ultimately undermine the longer-term stability they seek to protect.

Climate-related social risks are also transmitted to the financial sector with consequences for financial stability. Section 2 set out three principal transmission channels. First, conflict and political instability raise the probability of banking crises and depress financial development (IMF, 2020; Roe and Siegel, 2011), and are priced into sovereign spreads at quantitatively significant magnitudes (Bekaert et al., 2014). Second, climate-related food and fiscal pressures can compound existing sovereign vulnerabilities, as observed during the 2022 global food crisis (Rother et al., 2022; UN DESA, 2024), constraining the fiscal space needed to finance adaptation and mitigation. Third, more frequent, persistent and synchronous climate-driven food shocks complicate the conventional central bank practice of looking through supply shocks, sharpening trade-offs between price stability, output and financial stability, particularly in countries with weak central bank credibility, high exchange rate exposure and limited fiscal space (Barmes et al., 2024; IMF, 2025).

Because climate risks are likely to become more persistent and recurring rather than discrete, these effects on the financial sector may accumulate rather than dissipate. This carries implications for systemic financial stability and macroprudential regulation. Concentration risks may be amplified by feedback mechanisms, for example where countries or communities most exposed to climate and climate-related risks experience capital flight or reversed financial development, which in turn weakens their capacity to invest in adaptation and so deepens their exposure to future shocks, with further knock-on consequences for economic growth and the mobilisation of climate finance. There is also potential for cross-border transmission, with the global nature of recent crises having shown that shocks can spread rapidly across financial systems (Claessens and Kose, 2018).

4. Conclusion

Addressing social risks and integrating them into climate action is central to the just transition. However, to date these risks have been underexamined in mainstream climate narratives and their integration faces significant methodological challenges. This report has contributed to addressing this gap by drawing together indicative evidence from the broader academic literature to map which social risks may be relevant and how they might interact with physical climate change and its macroeconomic implications. Identifying well-evidenced, granular transmission channels remains challenging, though certain elements of the analysis rest on a sound evidential basis.

In particular, the relationship between physical climate change and food insecurity, which has already been established as a key risk by the IPCC (Porter et al., 2014), is well-established. The broader literature also provides reasonable evidence that physical climate change will result in food price inflation with potential negative consequences for household welfare, which itself has macroeconomic and financial stability implications, and that such effects will be most pronounced in lower-income and lower-middle-income countries.

The direct relationships between climate change and conflict, and between food price inflation and unrest, are each reasonably well-evidenced. The full transmission chain linking the three is, however, considerably less well-established, with only a small number of studies directly examining it. This seems to reflect the methodological challenge of isolating food prices from the many other channels through which climate shocks affect socioeconomic outcomes (Burke et al., 2015; 2024). Nevertheless, within these constraints, there is reasonable evidence that climate change acts as a 'risk multiplier' for both inter-group and inter-personal conflict, and that food price-driven unrest is most pronounced in lower-income countries (Burke et al., 2024; Arezki and Brückner, 2011; Hendrix and Haggard, 2015).

Further research relating to climate-related social-economic risks is warranted. In particular, three areas merit deeper examination. First, the interaction of these risks with monetary and fiscal policy, particularly over the medium and long terms as climate change advances. Second, how climate-related social risks and their impacts are concentrated in particular communities, sectors and countries, and the policy implications of this concentration. Third, how social risks interact with climate policy itself, including through social discontent, civil unrest and political instability that may undermine the political conditions for transition.

This report has also proposed that a nexus-based approach, which could be further accompanied by narrative scenarios and case studies, offers a promising methodological framework for examining these issues. Such an approach presents advantages over purely modelling-based methods for analysing social risks, providing a discursive basis for both policymaking and risk assessment (Rising et al., 2022; Stainforth, 2023), and represents a key area for methodological development.

Our findings indicate that climate-related social risks, and the food-inflation channel in particular, warrant better integration into the analytical frameworks of financial regulators, central banks and international bodies, including the NGFS. We have noted that the NGFS recognises social risks as part of the climate-to-finance transmission chain but largely excludes them from its existing analytical work; the evidence drawn together in this report suggests this gap is consequential. Bringing climate-related social risks within scope is a precondition for assessing systemic financial stability under plausible climate scenarios, and for designing policy responses that protect both financial stability and the political conditions required for a just transition.

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