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Environmental Breakdown and Inflation Management: A Socio-Ecological Understanding

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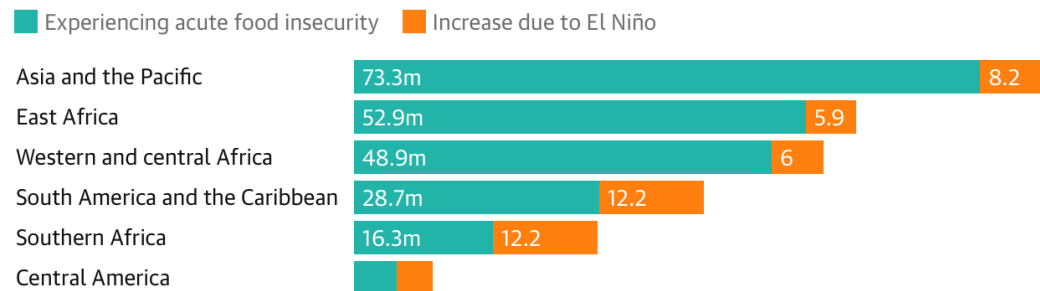
Conference on Nature and the Macroeconomy
Banco Central de Chile, August 10-11, 2026

Motivation

- How should we understand inflation and inflation management in a world of increasing structural supply shocks driven by environmental pressures?

El Niño could push tens of millions of additional people into acute food insecurity by 2027

Projected increase by region

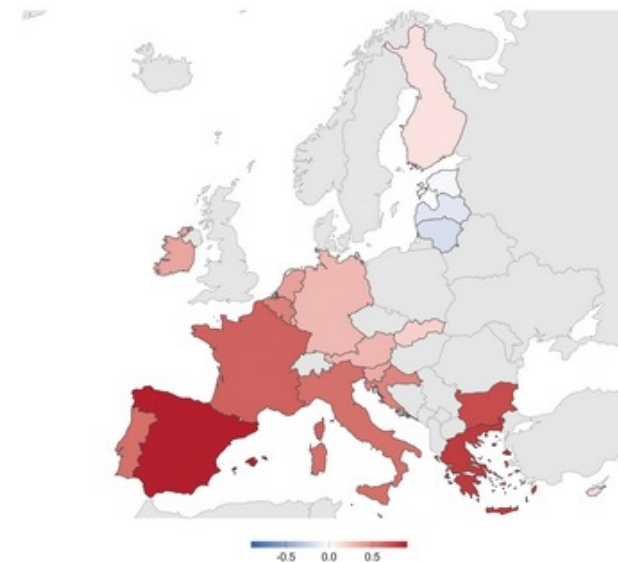


Guardian graphic. Source: WFP regional scenario analyses of 45 countries

Source: The Guardian (2026); <https://www.theguardian.com/environment/2026/aug/05/el-nino-could-push-50m-people-acute-hunger-next-year>

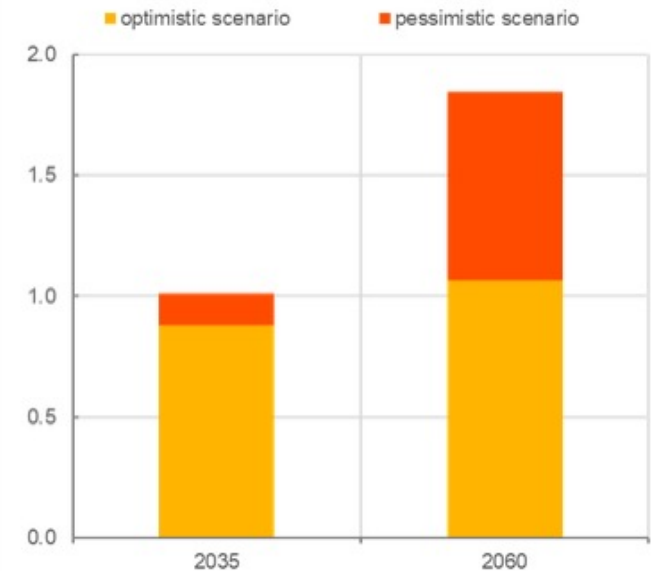
a) Impact of the 2025 heatwave on euro area unprocessed food prices after 12 months

(percentage points)



b) Estimated impact of a typical summer heatwave on food prices in Europe under future projected climate

(percentage points)



Sources: Lane P, (2026) Climate Change and monetary policy, speech in Frankfurt am Main.

https://www.ecb.europa.eu/press/key/date/2026/html/ecb.sp260505_1~2e47b4c747.en.html ECB analysis based on Kotz, M., Kuik, F., Lis, E. and C. Nickel (2024): "Global warming and heat extremes to enhance inflationary pressures." Commun Earth Environ 5, 116.

Outline

1. Introduction
2. Inflation management: orthodox and heterodox approaches
3. Inflation as a socio-ecological phenomenon
4. Policy responses to ecologically-induced supply-side inflation
5. Conclusion and further research



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WORKING PAPER
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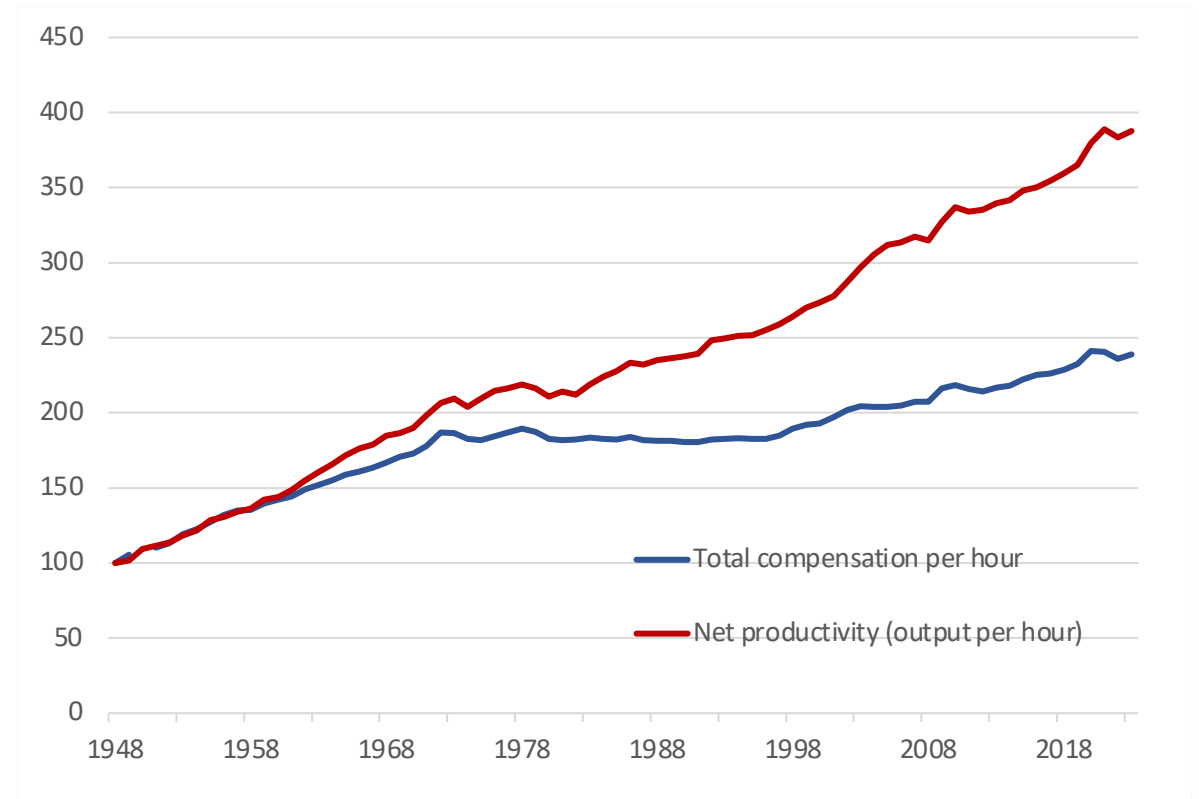
The Orthodox Approach to Inflation Management

- Inflation is managed via the stabilisation of *demand* via monetary policy
 - Single instrument (interest rates) maintains price stability
- Focus: Inflation *expectations* of households & firms, plus output gap (Bandera et al., 2023)
- Inflation targeting independent CB can anchor inflation expectations & prevent wage-prices spirals
- Supply shocks viewed as external/idiosyncratic. Two responses:
 - looking-through if transitory
 - tightening if persistent (impacting core inflation) to prevent de-anchoring
- Fiscal policy: no-long run impact (output is supply-determined). Required only in case of crisis/reactive approach.
- ‘Climateflation’/‘Fossilflation’ increasingly recognised as a risk for central banks (Lagarde, Elderson etc.) but nature less so (c.f. Wegner et al 2025)

Highlighting the role of conflict over resources

- Inflation is a distributional phenomenon determined by struggle for income share (Kalecki 1969; Rowthorn 1973)
- Expectations can only be realized through bargaining and market power
- With the secular decline in labour's bargaining power, firms' price setting decisions play increasing role in inflation transmission and persistence after a supply shock (Kalecki 1969; Weber & Wasner 2023, Weber et al 2025)

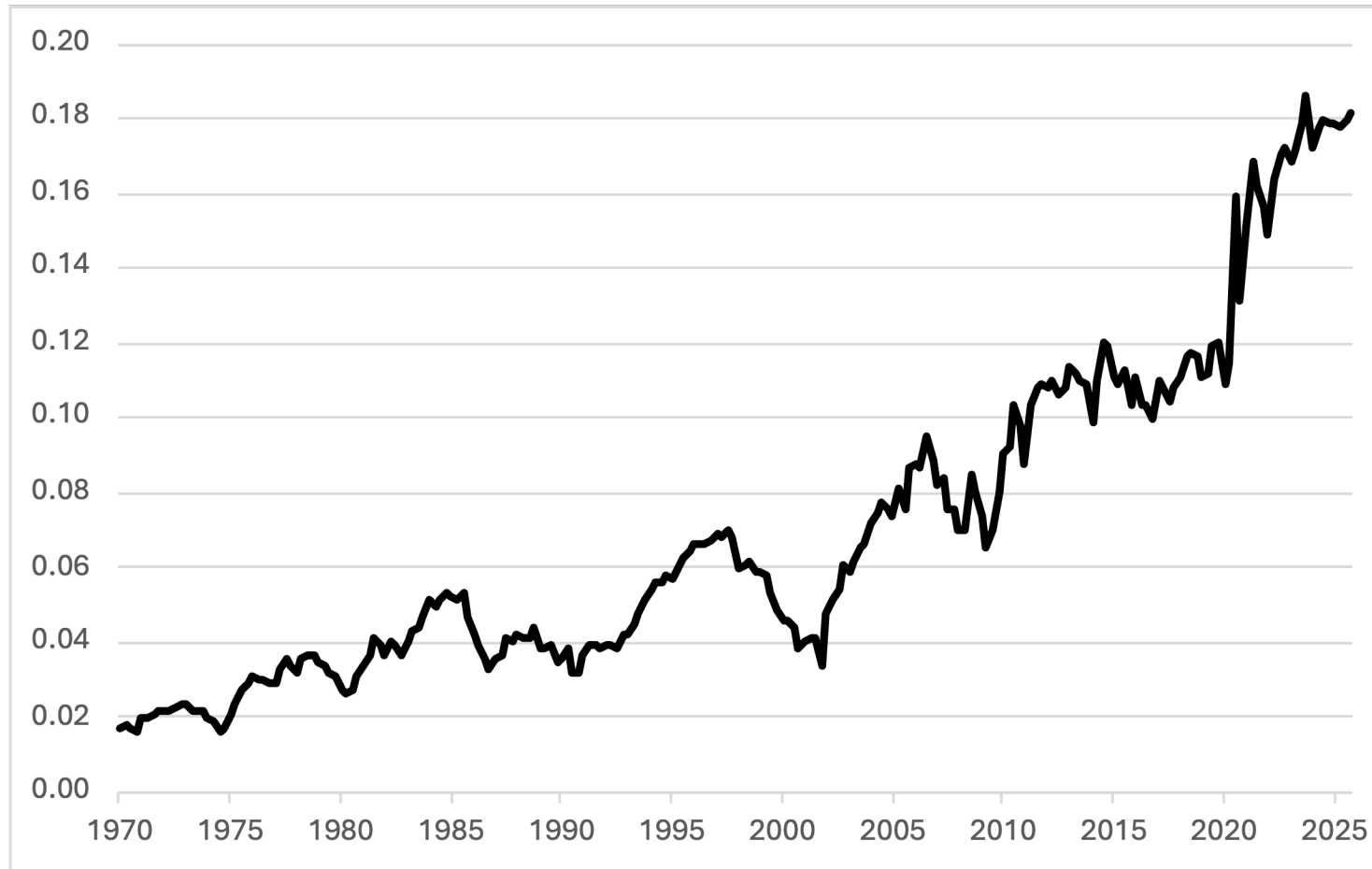
Wages vs productivity growth in the U.S. indexed to 1948; (Source: Economic Policy Institute.)



Sources Economic Policy Institute

Since 2000s, increased market concentration

US non-financial corporate profit margin on every dollar of output, 1970-2025, quarterly



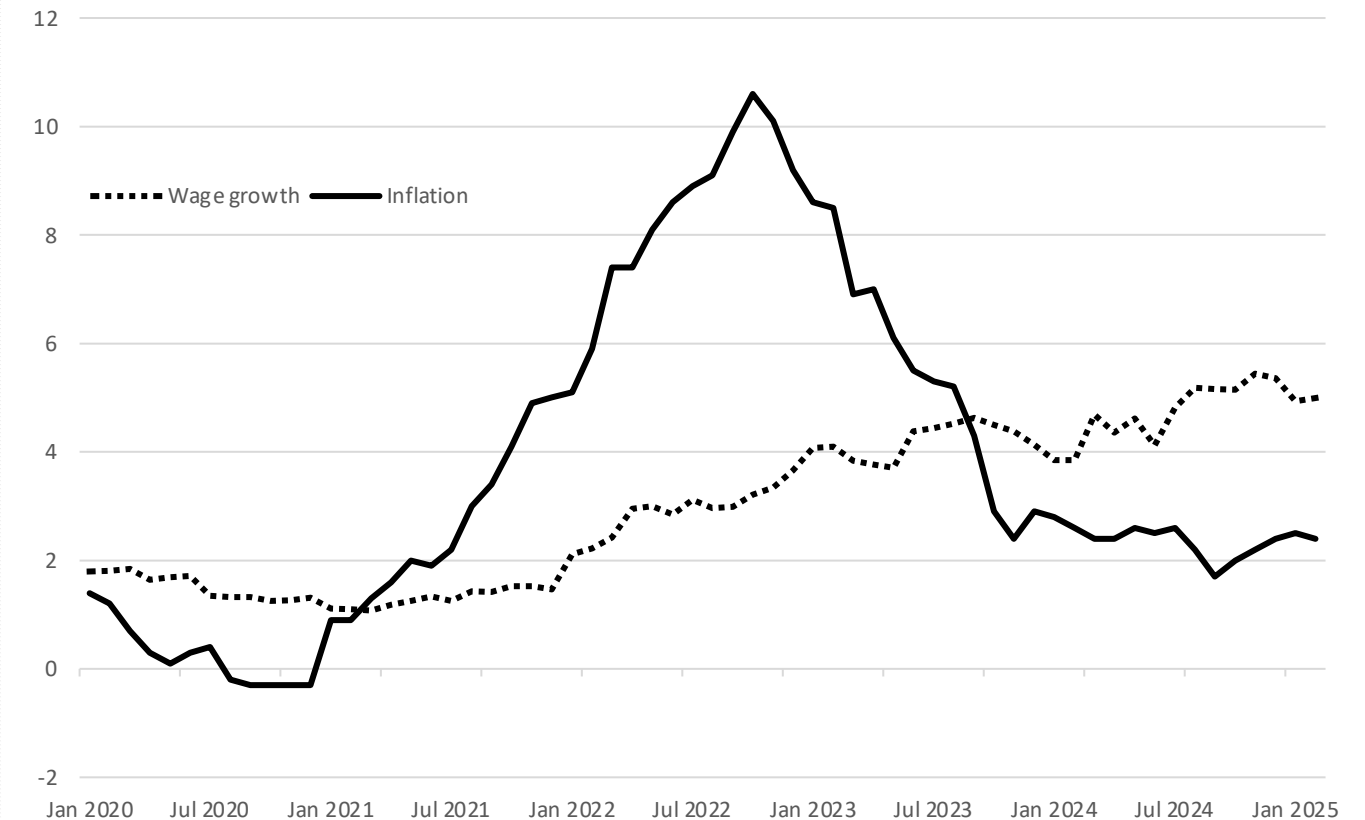
Sources: FRED database; code A466RD3Q052SBEA

Profit-price, not wage-price spirals

- *"..so far there is no convincing evidence that inflation expectations are de-anchoring, which is a necessary condition for a wage-spiral to take hold... Workers have so far borne the brunt of the "Putin tax", suffering a large loss of real income while, on balance, firms' mark-ups remained stable or even increased in some sectors. Ultimately, the "tax" will be absorbed by the factors of production – labour and capital – in proportion to their respective bargaining power in the labour market."*
- Fabio Panetta, ECB board member, "Monetary policy after the energy shock, speech."

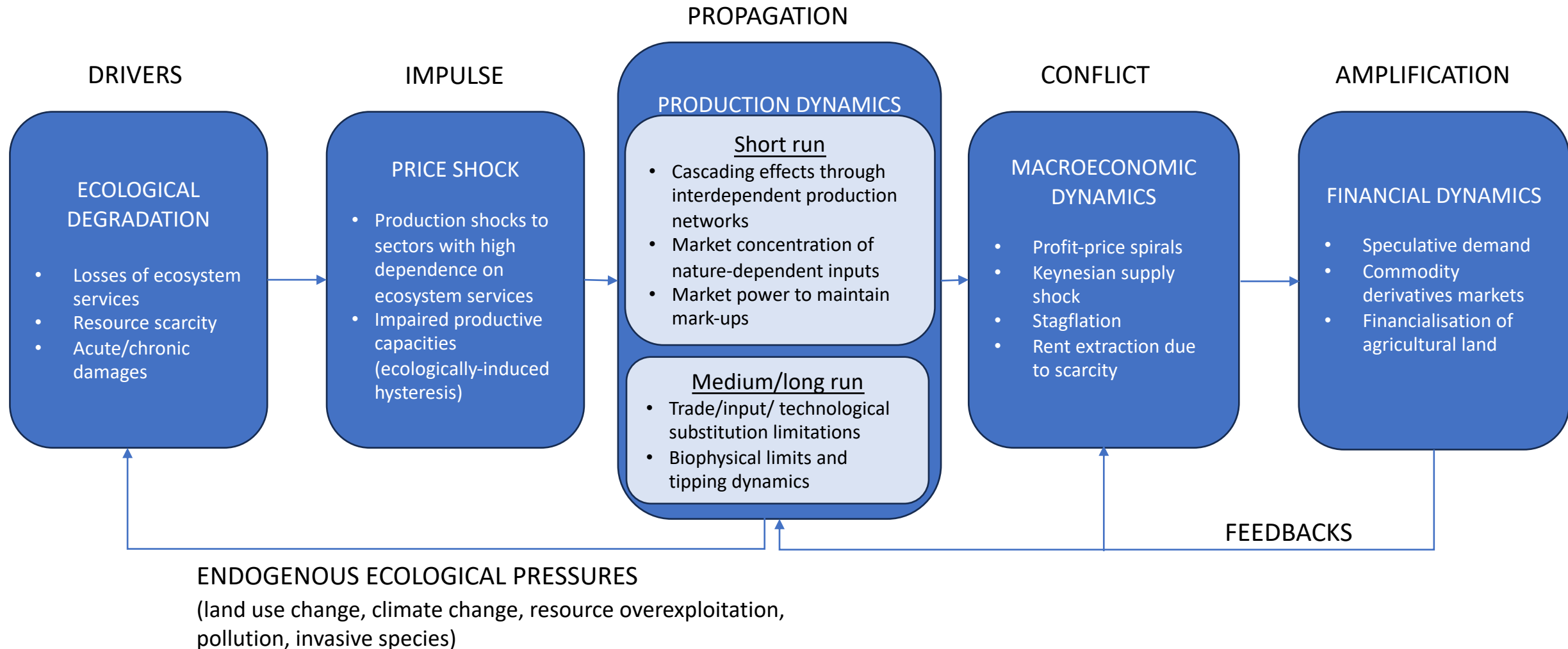
<https://www.ecb.europa.eu/press/key/date/2023/html/ecb.sp230216~a297a41feb.en.html>

Figure 14: Nominal wage growth and inflation (%) in the Eurozone, 2020-2025



Sources: ECB database HICP and ECB Wagetrapper

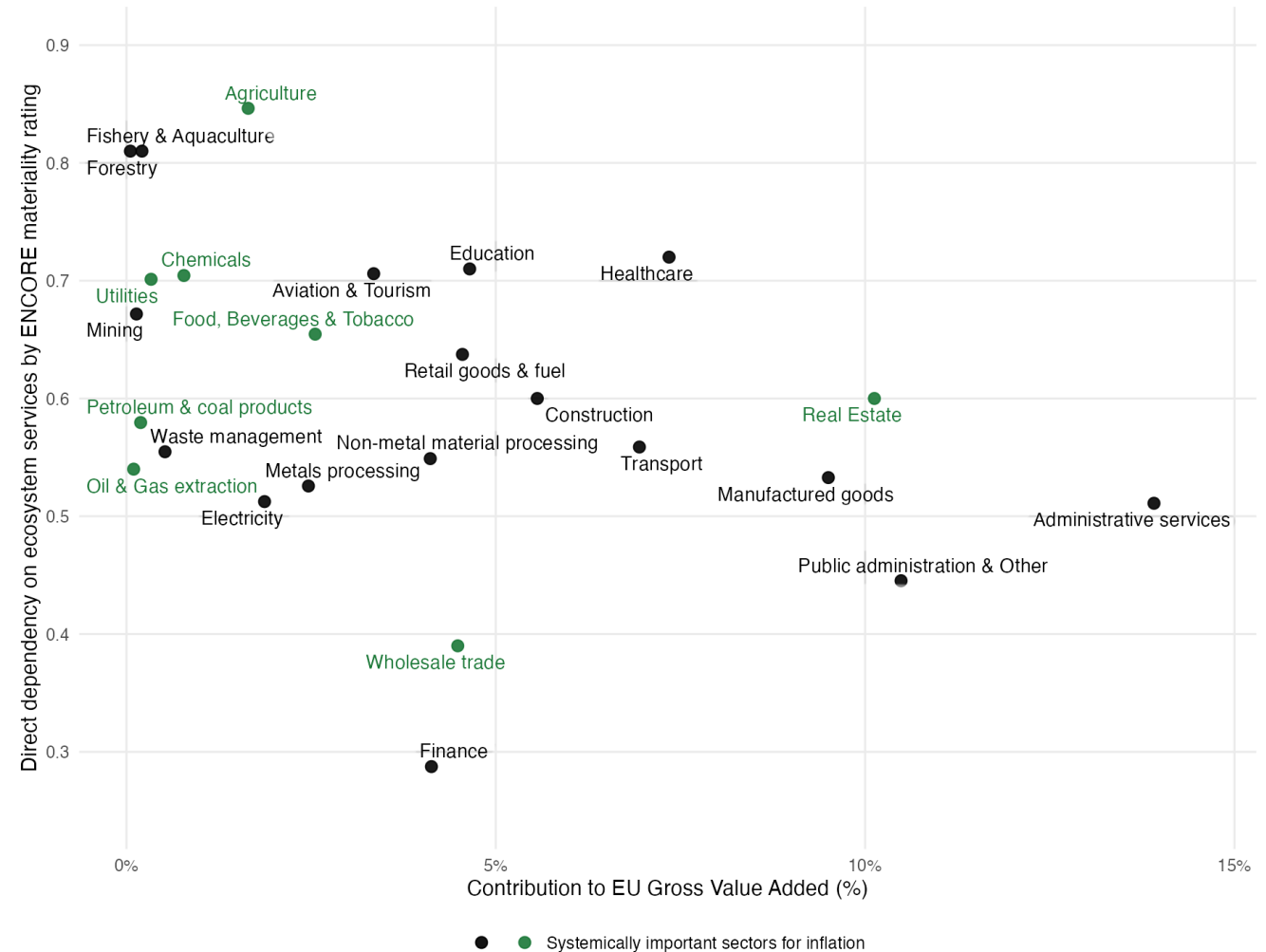
Inflation as a Socio-ecological Phenomenon



Ecological Drivers

- Inflation as a biophysical phenomenon
- High dependence of production processes on nature
- Inverted pyramid structure (Daly, 1995)
 - Essential commodities make up relatively small share of GDP but price shocks to them quickly propagate due to forward-linkages in production networks (Cahen-Fourot et al 2020; Ipsen et al 2023; Weber et al 2025)
- High heterogeneity within the production system meaning some goods have outsize importance (centrality)
- High concentration of the production of essential foodstuffs
- **Examples**
 - Pollination services contribute to 35% of agricultural production
 - Soy makes up 80% of animal feed (WWF, 2021)

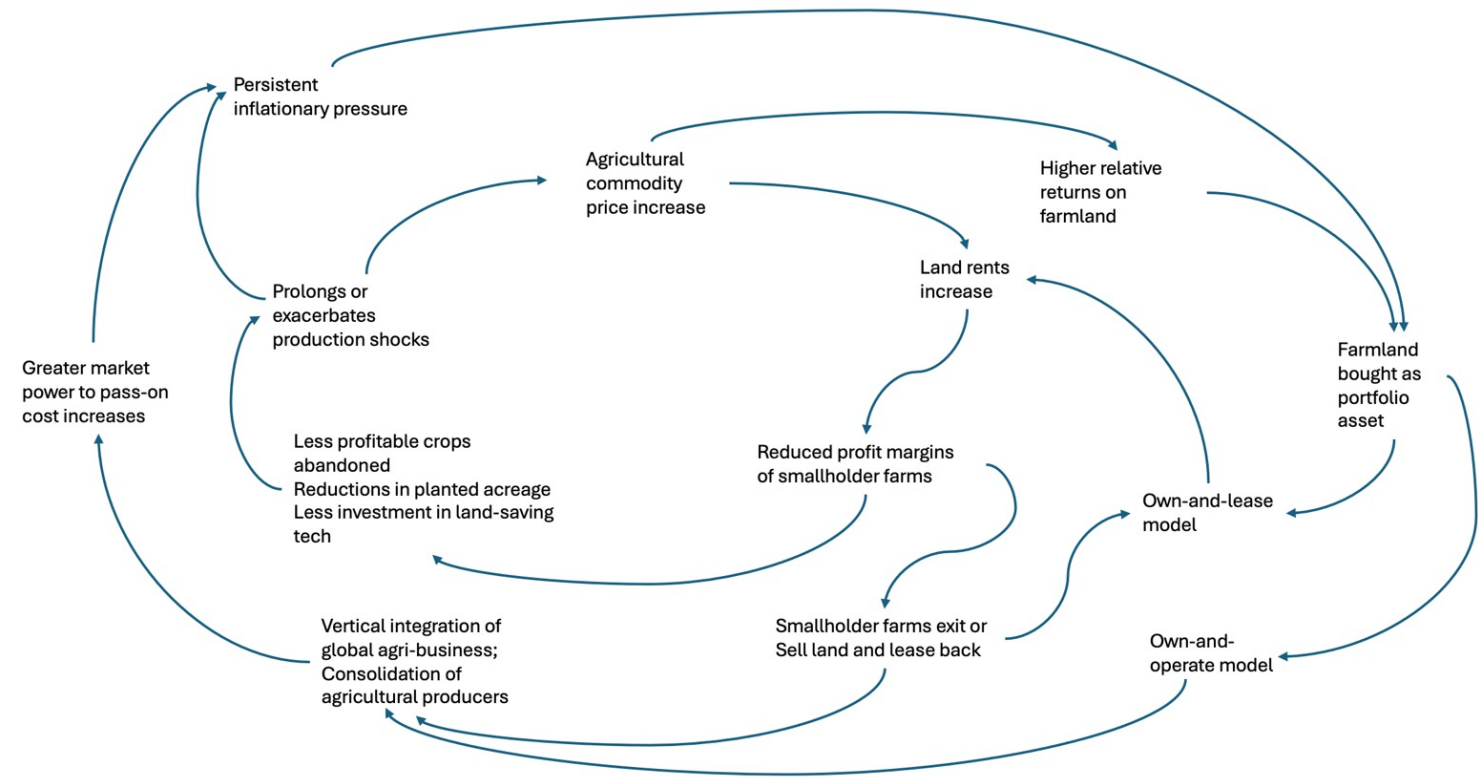
Direct dependency on nature vs contribution to gross value added, by sector, EU27



Amplification via rent extraction & speculation/financialisation

- Those who own and control scarce, non-reproducible resources have the power to extract rents as a condition of access (Ricardo 1817; Stratford, 2022)
- Nature-dependent industries are known to be highly concentrated and vertically integrated (e.g. ABCD commodity traders)
- Financial dynamics and financialisation further amplify these price shocks
- Speculative demand in commodity price markets driving price volatility (Van Huellen 2020)
- Demand for land as a portfolio asset & inflation hedge may apply additional upward pressure via rising land rents (Fairburn 2014; Kedward and Jackson forthcoming; Ouma 2020)

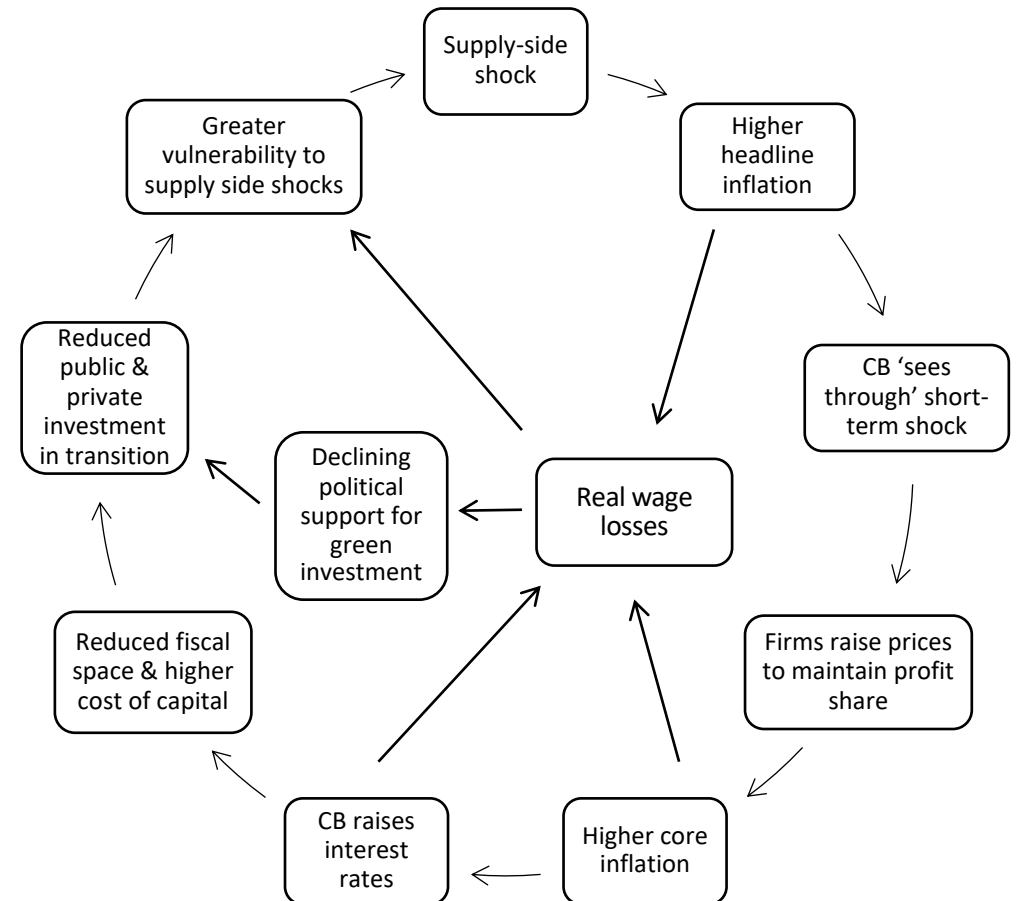
Mechanisms through which speculative demand for land may impact inflation



Source: Ryan-Collins et al (2026) Environmental breakdown and inflation management: a socio-ecological phenomenon, p21

Implications for Inflation Management (I)

- Challenges in looking through minor shocks
 - Allows broad propagation of shock via firms' market/price setting power
 - Need greater understanding of different types of ecological shocks and their duration
- Challenges for monetary tightening
 - New green industries especially sensitive to monetary policy changes
 - Emerging literature showing that short-run MP interventions can lead to long-run scarring (Schmidt et al., 2019, Jordà et al., 2024) and negative impact on green investment (Jordà et al 2026)
 - Tighter monetary policy reduces fiscal space but will require larger fiscal and industrial policy interventions to compensate



Implications for Inflation Management (II)

- On a deeper level, environmental breakdown and nature loss in particular poses long-run systemic challenges to the functioning of macroeconomic policy for inflation management
- A potential shift of the impact of supply-side shocks from **transitory to permanent** as natural productive capacity is degraded
 - Lack of substitutability for regulating and maintenance ecosystem services (Cohen et al., 2019)
 - Clean air
 - Clean water
 - Nutrient-dense soils
 - Pollinators
 - Risk of breaching ecosystem tipping points that lead to irreversible nature degradation (Marsden et al 2024; Lenton et al 2025)
- A shift from a relatively benign Age of Abundance aka the Great Moderation to Age of Scarcity (Michell, 2023)
 - Input production is increasingly running up against biophysical limits
 - A lack of forthcoming benign supply shocks e.g. dramatic expansion of manufacturing supply from China
 - Rising debt levels and macroeconomic volatility

Towards a New Policy Framework

- Distinguishing between
 - 1) short-run inflation management that seeks to mitigate the negative effects of price volatility arising from ecological supply shocks *ex-post*
 - 2) long-run measures that aim to increase the **resilience** of economies *ex-ante* to future ecological supply shocks

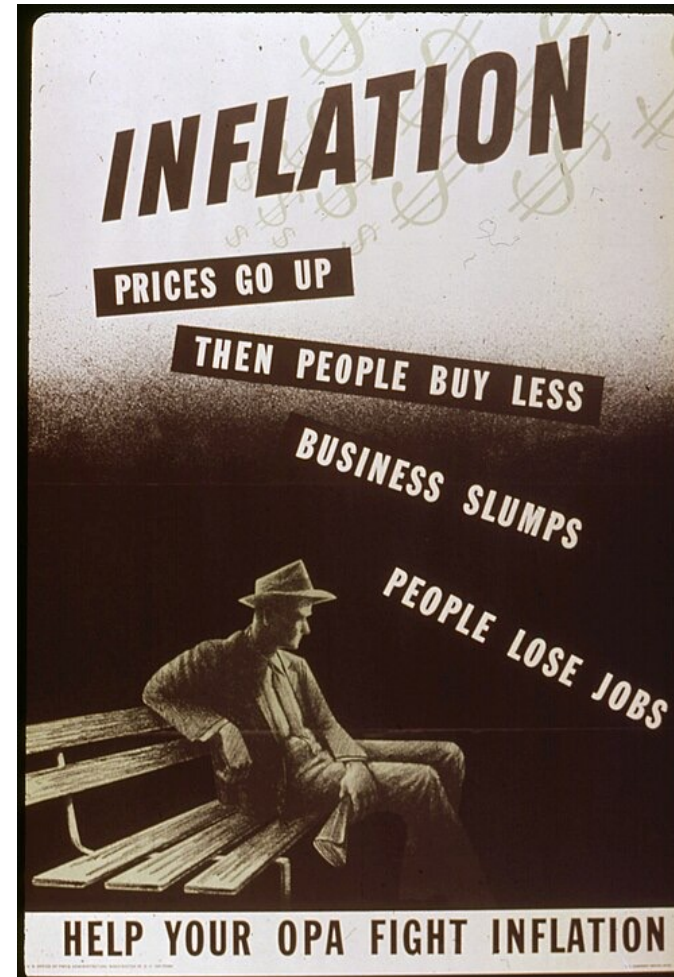
Table 2: Comparison of short-run and long-run inflation management policy responses

	Short run Focus: shock management	Medium to long run Focus: building resilience
Monetary policy	Adaptive inflation targeting, surveillance of staple goods	Fiscal-monetary coordination, green credit policy, e.g. green collateral and refinancing schemes
Fiscal policy	Strategic price controls, taxes on windfall profits, tax relief, subsidies/targeted support to vulnerable groups	Buffer stocks, enhanced public investment in green transition, greater public control/ownership of essential sectors
Industrial & competition policy	Directed fiscal support to strategic input producers	Subsidies, public procurement, antitrust

Source: Ryan-Colins et al (2026), p25

Implications for Institutional Arrangements

- Structural impacts of ecologically-induced inflation requires coordination across monetary, fiscal and industrial policy for investment into resilience
- Institutionalising coordination and communication between state agencies
- Need for **new co-ordinating agencies**
 - Historical model of WWII-era Office of Price Administration in the USA
 - Indonesian inflation control teams (Inflation and Food Prosperity Control Movement)
- Potential learning from emerging market and developing economies (EMDEs) on the forefront of environmental breakdown



Source:

https://en.wikipedia.org/wiki/Office_of_Price_Administration#/media/File:%22Help_Your_OPA_Fight_Inflation%22_-_NARA_-_514468.jpg

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