

Disentangling Cost-Push Drivers of EU Inflation Divergence (2021–2022): A Country-Sector Structural Decomposition in a Global Leontief Price Model

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Author: Diogo Năpoles Sousa

Co-Authors: Joao-Pedro Ferreira, Vicente Ferreira

The surge in inflation in the European Union (EU) in 2021-2022 marked a clear break from two decades of relative price stability and was accompanied by an unusually wide dispersion across member states. At the peak in October 2022, headline inflation ranged from around 7% in France to above 22% in Estonia (ECB, 2024). Rather than reflecting excess demand alone, recent evidence points to a predominantly supply-driven episode. Particularly, gas price surges and their pass-through to electricity and energy-intensive industries accounted for a substantial share of EU inflation, with global supply constraints amplifying cost pressures (Arce et al., 2024).

These developments have revived interest in cost-push and sectoral approaches to aggregate price dynamics. Weber et al. (2024) argue that, in a context of overlapping global emergencies of the pandemic, climate change, and geopolitical confrontations, inflation can be understood as the outcome of supply shocks in “systemically significant” sectors whose price increases cascade through input–output (IO) linkages. Within this framework, inflation reflects interconnected production structures rather than purely aggregate forces. Recent contributions apply inter-country IO price models to simulate sector-specific shocks and trace cross-border transmission of cost pressures in EU countries (Ferreira et al., 2024; Ipsen et al., 2025). This literature establishes global IO price models as a powerful framework for analysing cost-push inflation in globally integrated supply chains.

However, existing studies in the spirit of Weber et al. (2024) identify systemically significant sectors simulating shocks using static single-year IO-based analysis. The 2021-2022 EU inflation surge instead provides a natural setting for ex-post intertemporal structural identification using a multi-year approach. Building on evidence that the episode was predominantly supply-driven, this paper details and quantifies the contribution of each country-sector cost element to the observed inflation outcomes across EU member states. Thus, we aim to show how differences in production structures and import exposure translated common global supply shocks into heterogeneous national inflation rates.

We address these issues by embedding Structural Decomposition Analysis (SDA) in a global Leontief price model built on the FIGARO inter-country IO tables. The framework moves beyond aggregate decompositions of HICP components and broad exposure indicators such as “energy” or “import dependence”. We explore a novel partition strategy that allows identifying the relevant country-sector-specific shocks within the global production network and isolate their marginal contribution to each national inflation rate. The approach disentangles how distinct cost components - intermediate input prices, wages and profit margins - propagate through supply-chains and shape inflation asymmetrically across member states. Crucially, because the model is global and fully accounts for cross-border production linkages, we quantify the contribution of country-specific supply shocks to national consumer prices regardless of whether they are directly used in domestic production. This allows us to isolate, for example, the direct and indirect effects of Chinese chemical inputs used by Italian industries, as well as the impact of Spanish agricultural labour costs on Dutch inflation. In a context of heightened geopolitical confrontation, the identification and characterisation of shocks by its geographic and sector origin is valuable for assessing macroeconomic vulnerabilities.

The contribution of the paper is empirical, methodological and policy relevant. Empirically, it provides ex-post structural evidence supporting the cost-push interpretation of the 2021-2022 episode by identifying its country-sector origins within a global IO framework. Methodologically, it extends SDA to global Leontief price models. While SDA is standard in quantity-based analysis, its

application to price models remains limited and typically confined to bilateral comparisons (e.g. Fujikawa & Milana, 2002). By embedding SDA in a global inter-country IO model with country-sector partitions, we offer a systematic framework to detail and quantify how specific cost components within a global production network propagate influence asymmetrically the price stability of EU member states. From a policy perspective, the results inform the debate on inflation stabilisation beyond conventional monetary policy and aggregate demand stabilisation tools. By structurally identifying the country-sector cost-push inflationary forces, and tracing their transmission through the global production network, the analysis provides a granular assessment of asymmetric inflation exposure within the EU, with implications for targeted stabilisation and resilience strategies.