

Discussion of
***“The Causal Effects of Global Supply Chain Disruptions on
Macroeconomic Outcomes: Evidence and Theory”***
by Bai, Fernández-Villaverde, Li and Zanetti

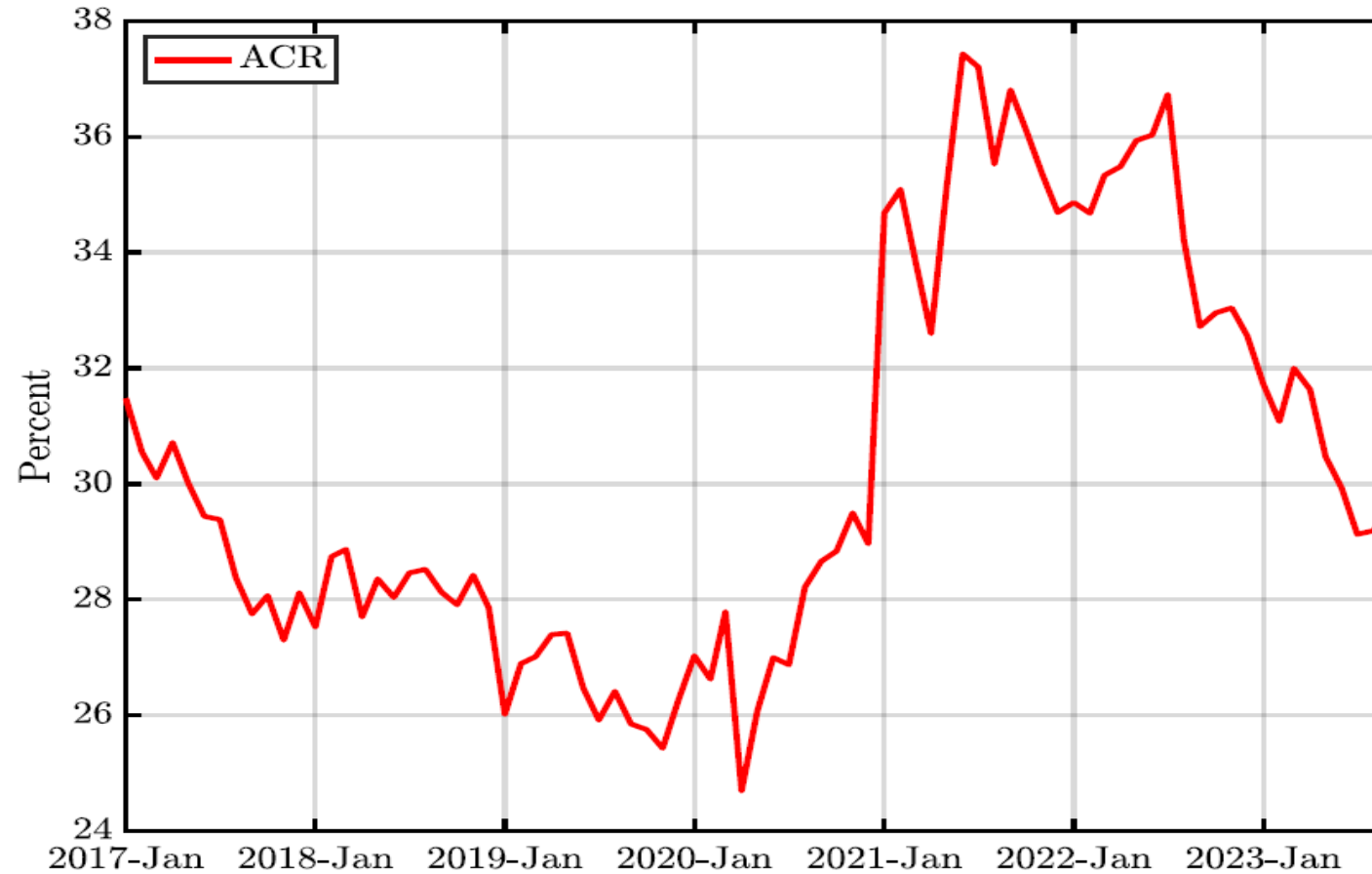
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This paper

- ❑ Introduces a novel index to measure global supply chain disruptions based on the congestion of container ships at major ports worldwide, utilizing high-frequency maritime satellite data.
- ❑ By integrating this index with a theoretical model that explores the dynamics between producers, retailers, and the macroeconomy, it provides insights into how supply chain disruptions influence inflation and real GDP.
- ❑ It assesses the effectiveness of monetary policies in response to these disruptions, showing monetary policy has a role in addressing inflation caused by such disruptions.

New index: Global supply chain disruptions



Contributions

Great paper:

1. **New Index Development:** Provides a more immediate and precise measurement of disruptions at major global ports. Advantage over other indices, which may suffer from time lags, less granularity and endogeneity issues.
2. **Theoretical Contributions:** The model links supply chain disruptions with macroeconomic variables such as inflation and unemployment, providing a structured framework to analyze these impacts.
3. **Policy implications - New knowledge:**

Policy implications - new knowledge

- ❑ Central banks should consider more dynamic and responsive monetary policy measures during periods of significant supply chain disruptions.
- ❑ Also (outside paper):
 - Different sectors are affected uniquely by supply chain disruptions, may suggest a more tailored approach to policy
 - Global nature of supply chains may require coordinated international policy responses to effectively manage disruptions
 - The persistent impact of supply chain disruptions on macroeconomic outcomes calls for long-term policy planning rather than reactive measures.
 - Role for governments in investing in infrastructure improvements and support digital innovations to enhance real-time monitoring

I. Comments: Model assumptions

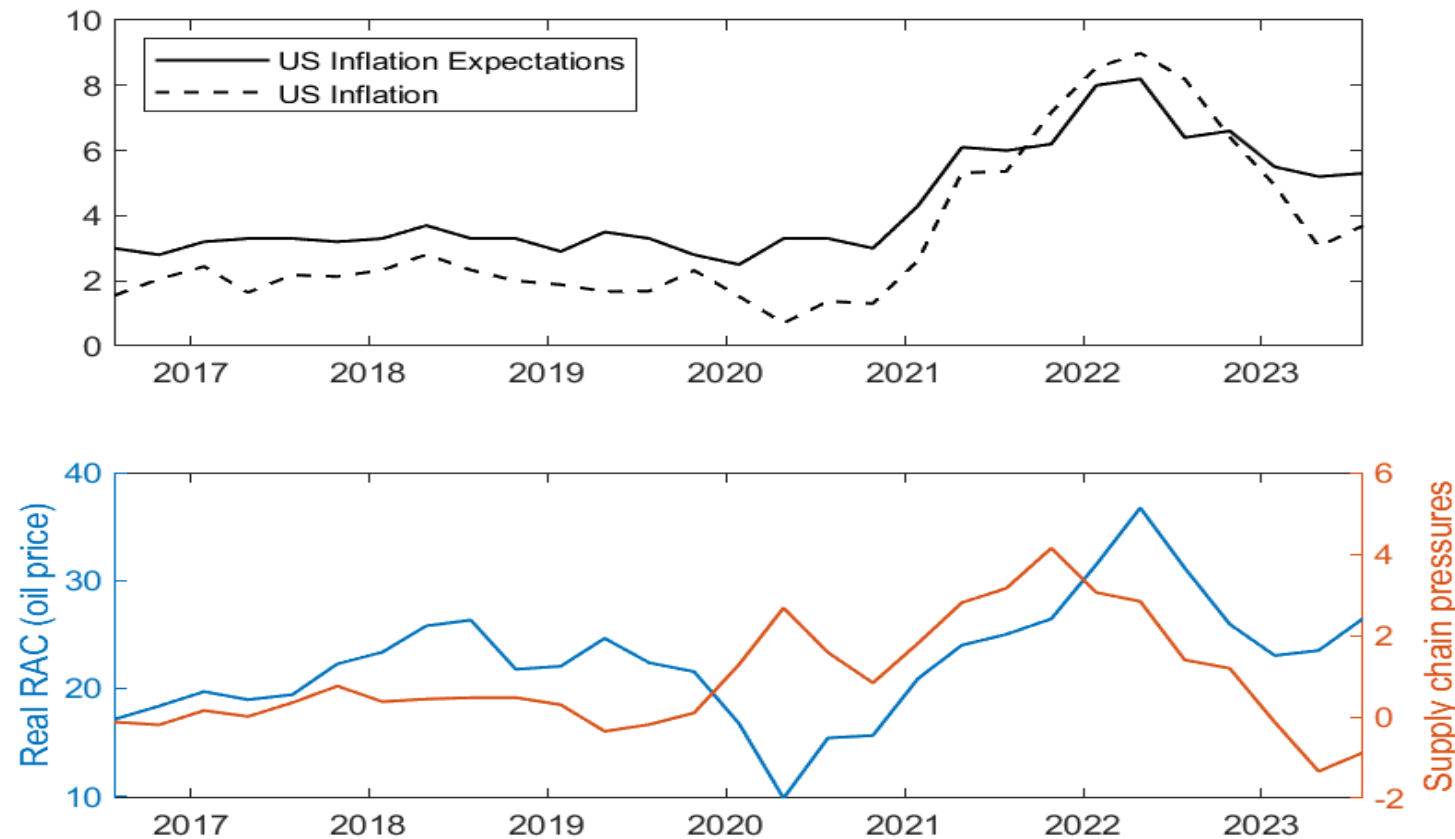
- ❑ Fixed Shipping Routes and Speeds: Is this plausible? How might fluctuations in shipping logistics due to economic sanctions and political unrest affect the model's outputs?
 - Sensitivity analysis when incorporating dynamic adjustments in shipping routes and speeds in response to real-world events

- ❑ Data Sources and Accuracy: How might biases in satellite data collection, i.e., coverage gaps/delays in data transmission, impact the reliability of the index?
 - ❑ Can data adequately capture disruptions in lesser-trafficked ports/developing regions, which might not have the same level of AIS compliance
 - Alternate data sources such as port authority logs and compare outcomes

II. Comments: Generalisation and other factors

- ❑ Country differences: US Specific? Applicability in areas with different supply chain infrastructures, i.e., countries/regions heavily reliant on air and road transport?
- ❑ What is the role of other factors, i.e., geopolitical events, oil price shocks or major policy changes? How interact with supply chain disruptions?
- ❑ Role of inflation expectations? Supply chain disturbances are difficult to observe. Delayed response to disruptions suggest additional channels, like in the oil market, c.f. Aastveit, Bjørnland and Cross (2023REStat).

Simultaneity - Inflation, expectations, oil prices, supply chains (GSCPI)



Source: Aastveit, Bjørnland, Cross and Kalstad (2024): "Unveiling inflation: oil shocks, supply chain pressure, and expectations", mimeo Norges Bank

III. Comments: Oil prices

- ❑ Assumes oil prices have minimal impact on shipping speeds due to fixed shipping routes and contractual obligations.
 - ❑ Can fluctuations in oil prices impact operational costs and lead to adjustments in shipping behaviors to optimize costs?
 - ❑ Is the model sensitive to variations in operational costs that are not captured if the effects of oil prices are underestimated?
 - ❑ Examining past data during periods of high volatility in oil prices could provide insights

- ❑ If oil prices affect shipping behaviors, will also affect global supply chains, inflation, and other macroeconomic indicators in ways not accounted for by the model.

IV. Comments: Inflation expectations

- ❑ The paper mainly discusses how supply chain disruptions directly impact price levels through changes in production costs, capacity utilization, and market congestion.

- ❑ Bjørnland et al. (2023, 2024) show that inflation expectations can mediate the relationship between supply chain disruptions, oil prices and actual inflation outcomes.
 - ❑ Influence consumer behavior and business pricing strategies, potentially accelerating the effects of actual inflation.

- ❑ Policymakers aim to anchor inflation expectations. Understanding this dynamics could be crucial during periods of supply chain disruptions.

Different indicators: Would be interesting to see data prior to 2017

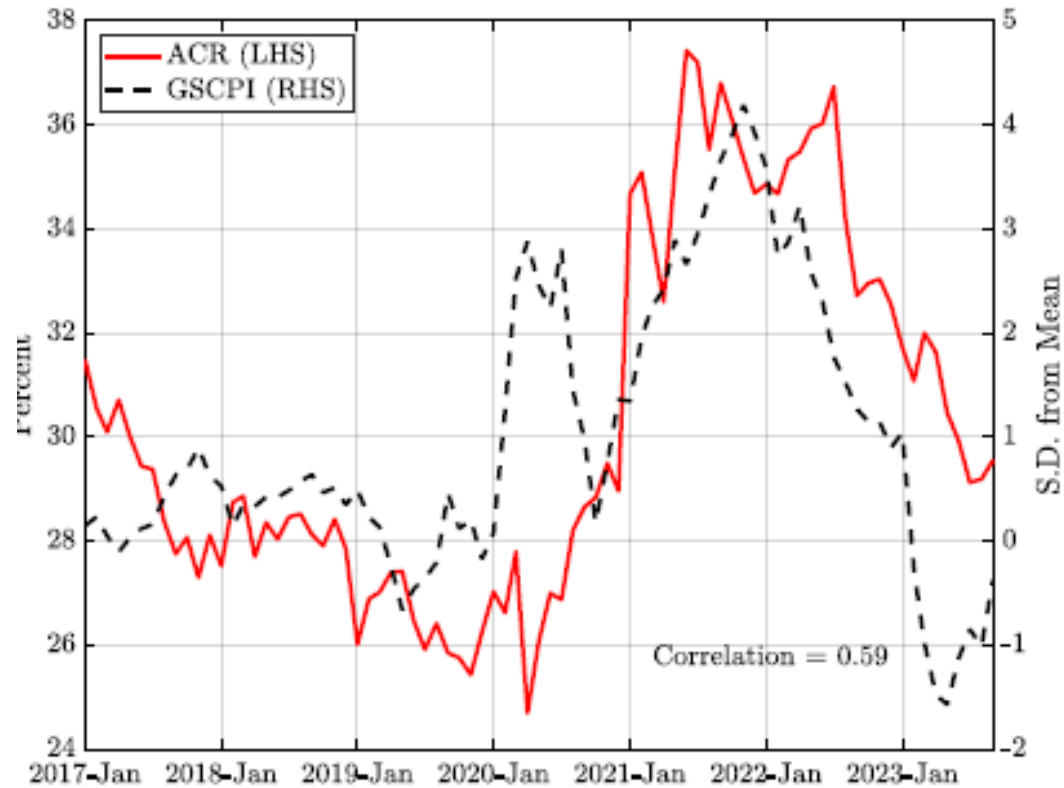
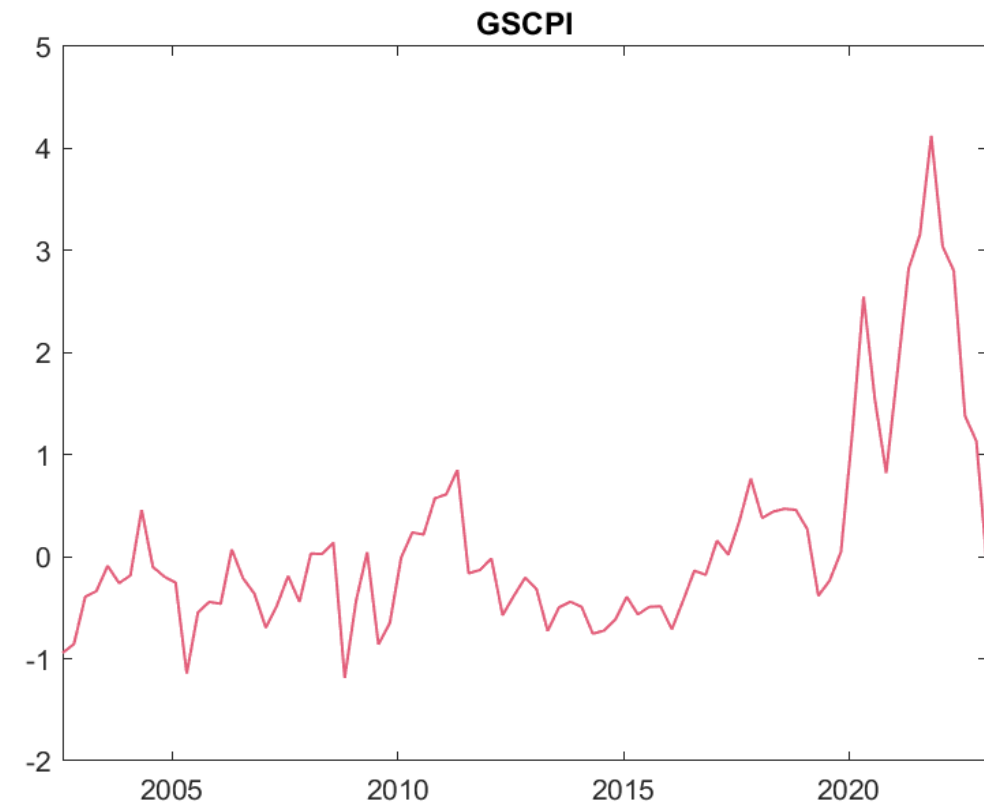
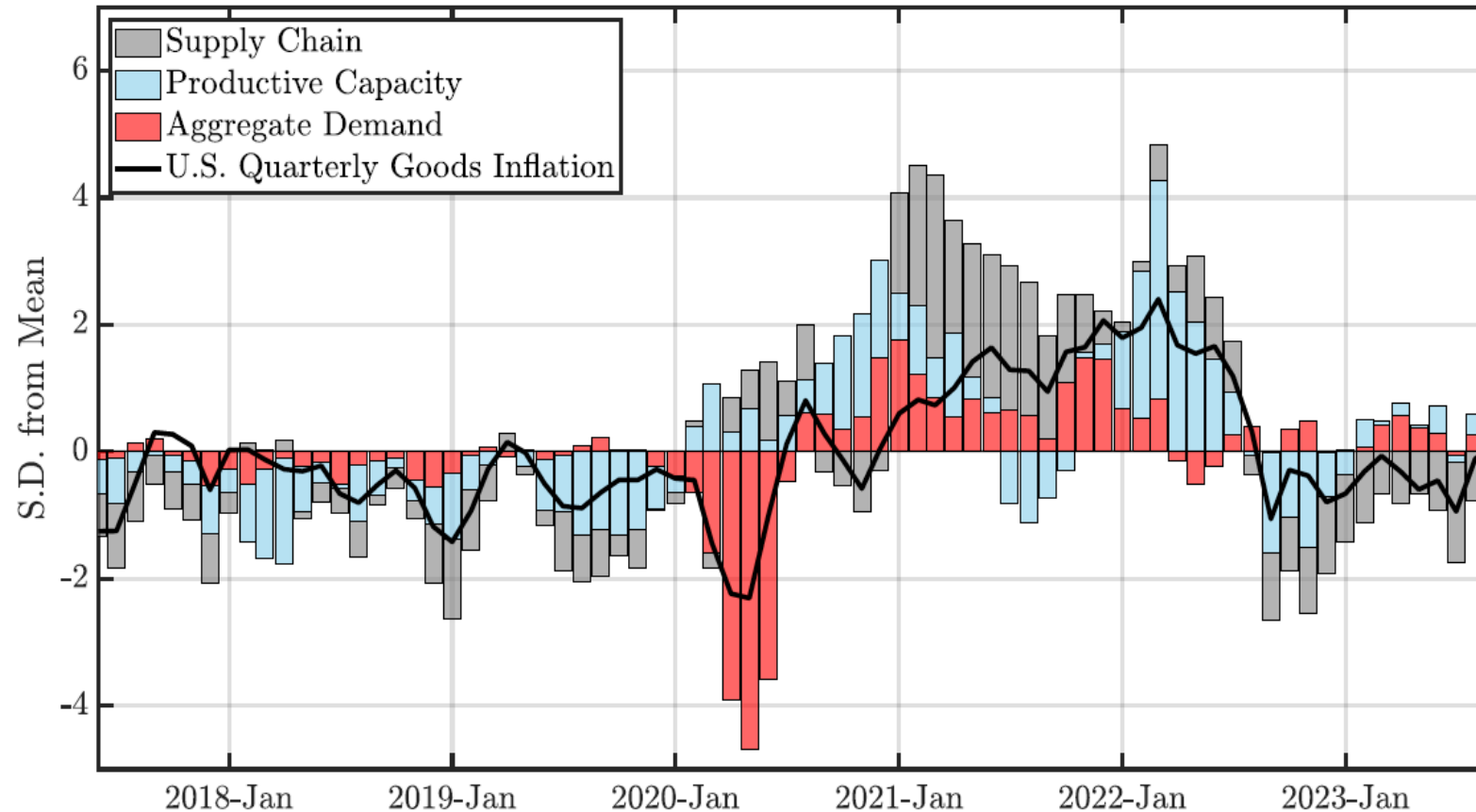


Figure F.5: ACR vs. GSCPI

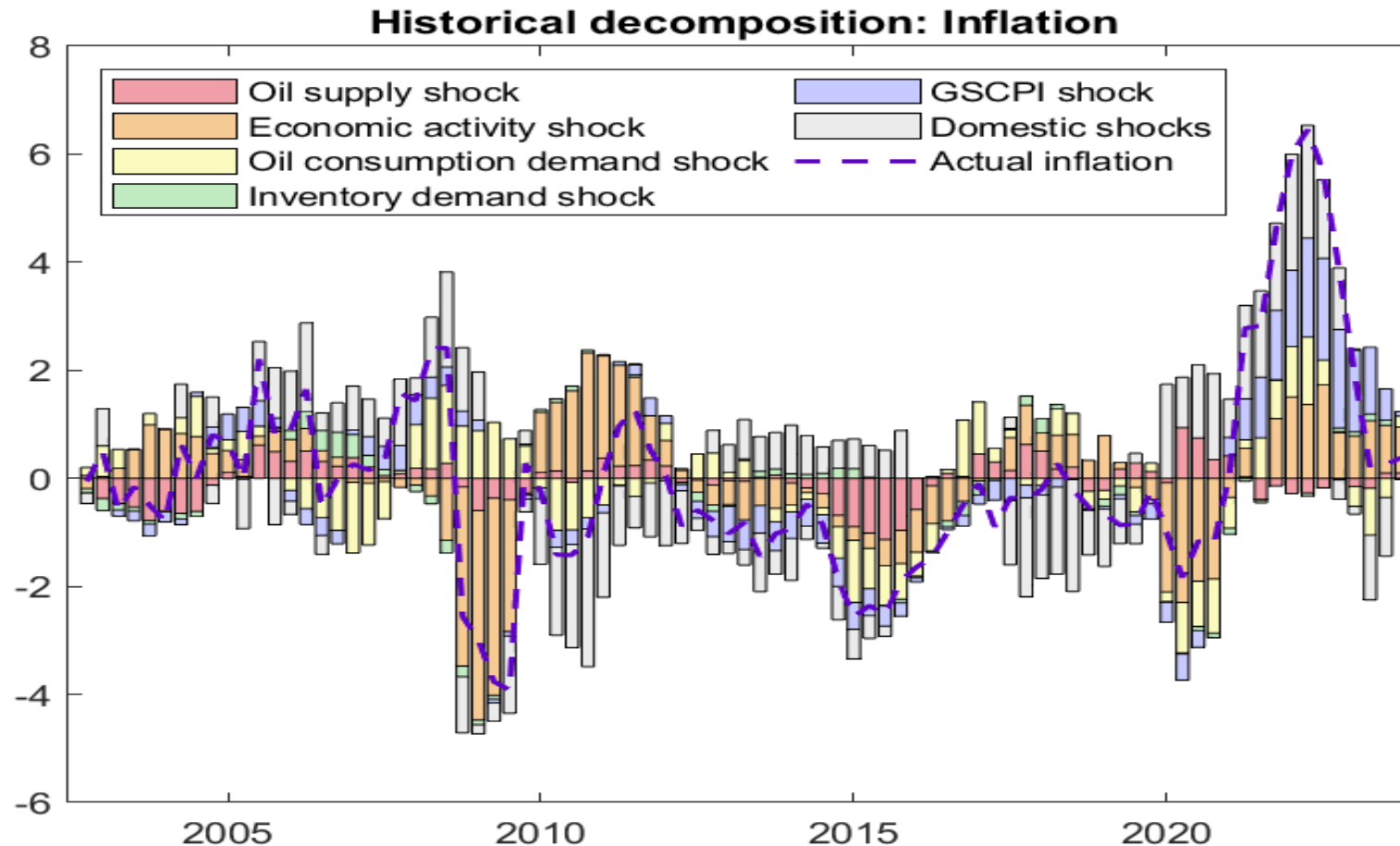


Historical Decomposition of U.S. Quarter-on-Quarter Goods Inflation



Source: Bai, Fernández-Villaverde, Li and Zanetti (2023)

Historical Decomposition of U.S. Annual Inflation using GSCPI



To conclude

- ❑ **Very nice** paper
- ❑ **Important** to understand the effects of global supply chain disturbances (we want more)
- ❑ **Policy implications** for central banks, but also governments
- ❑ Main challenge is with regard to the unobservable nature. Other disturbances affecting the economy simultaneously. More to learn still.

Thank you!