

Energy as a Driver of Inflation

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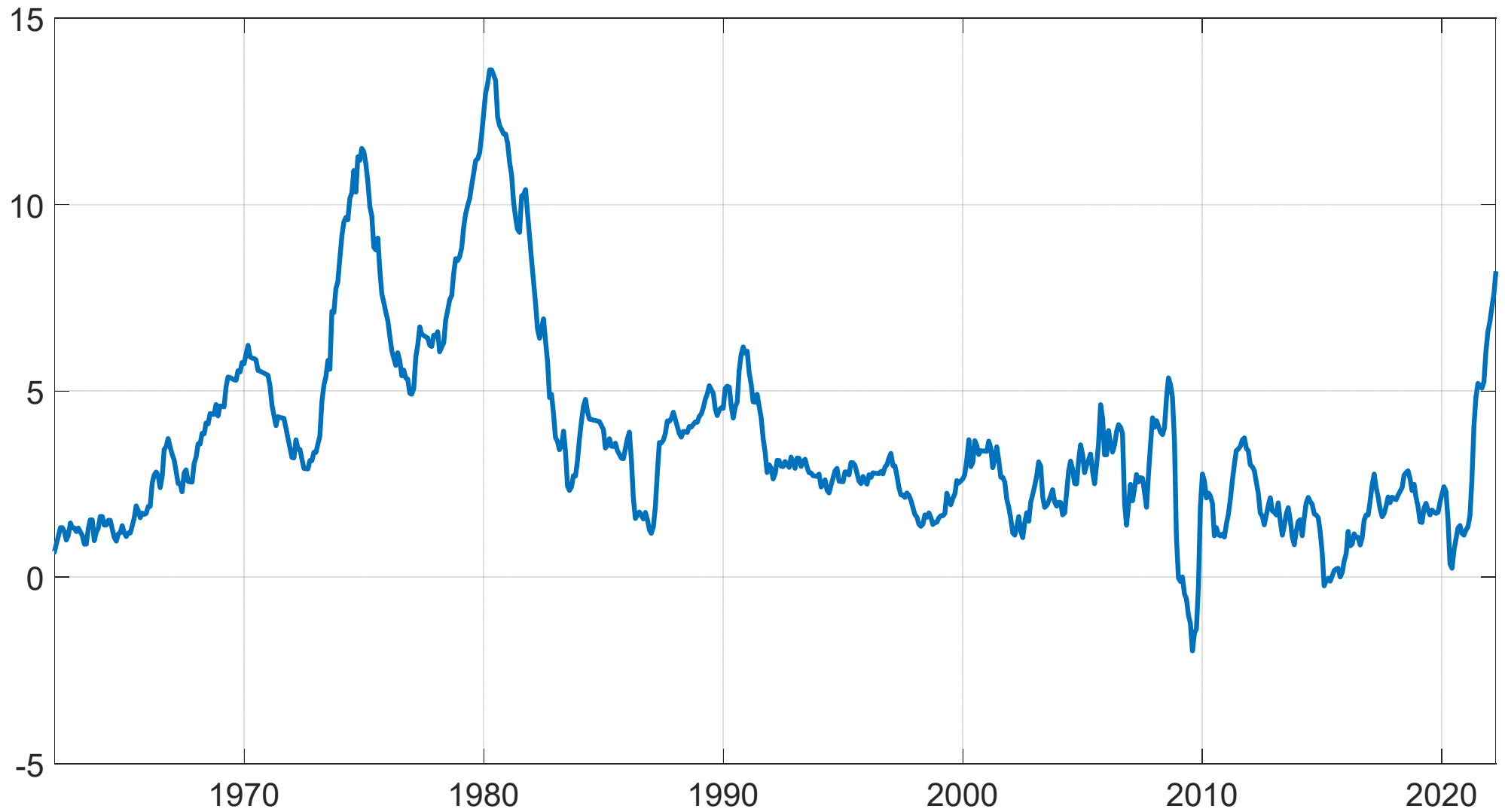
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The views in this presentation are my own and do not necessarily reflect the views of the Federal Reserve Bank of Dallas or the Federal Reserve System.

12-Month U.S. Headline CPI Inflation Rates, 1962.1-2022.3



Insights from Academic Studies

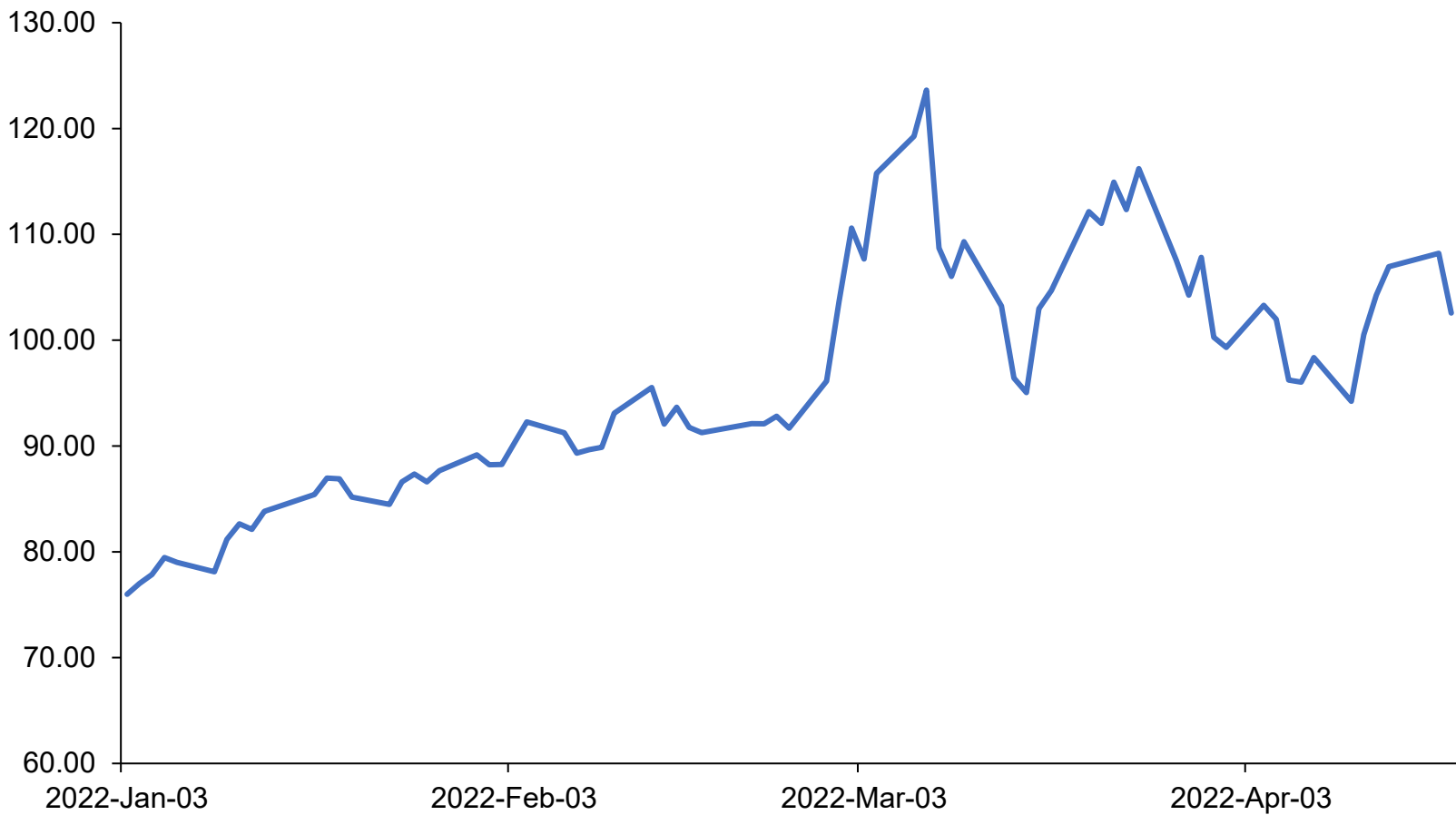
1. U.S. Inflation was well on its way in the 1970s before the oil price shocks. Much of this inflation had little to do with oil prices.
2. It was driven by shifts in fiscal policy and later monetary policy, as policymakers faced an uncertain economic environment and focused on the employment objective.
3. Similarly expansionary monetary policies worldwide pushed up global industrial commodity prices and oil prices both directly (via inflation and dollar depreciation) and indirectly (by stimulating real activity and demand).
4. Oil price increases caused by oil supply shocks (as opposed to oil demand shocks) historically have never caused persistent inflation.

Insights from Academic Studies (contd.)

5. An unexpected increase in oil prices, all else equal, causes a blip in the inflation rate. It takes repeated shocks to generate persistent changes in the price level.
6. There is no evidence for large persistent secondary effects of oil price shocks on U.S. inflation in the 1970s (or since then).
7. The evidence for wage-price spirals caused by oil price shocks is extremely tenuous. Such inflationary spirals are implausible in the United States, given the lack of strong unions. U.S. real wages historically have declined in response to real oil price shocks.
8. The cumulative response of inflation to oil price shocks is not driven by changes in the monetary policy reaction function over time.

Daily Price of WTI Crude Oil, Jan 3, 2022-Apr 22, 2022

Dollars per Barrel



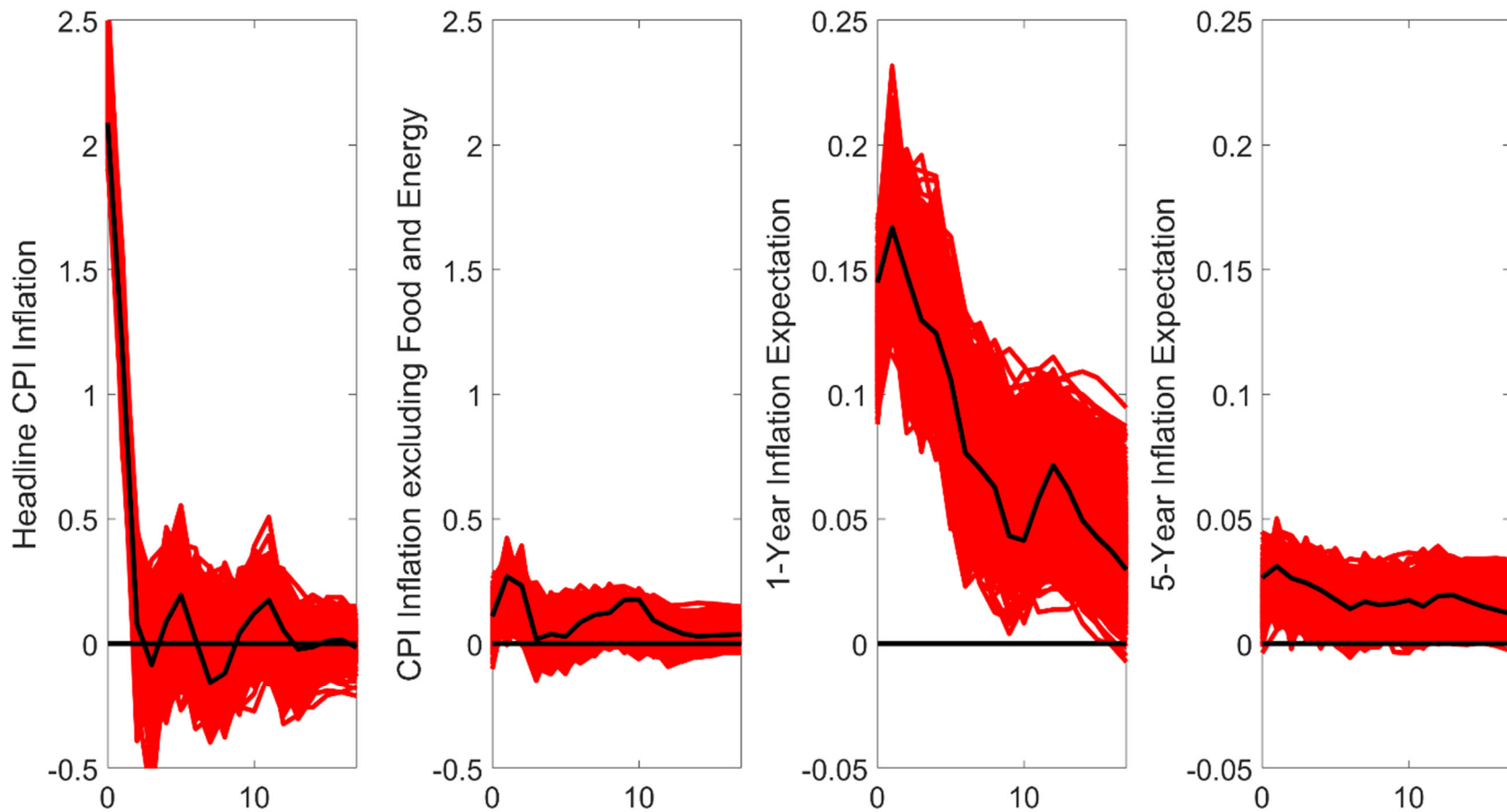
SOURCE: FRED

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Crude Oil Does Not Enter the CPI Directly

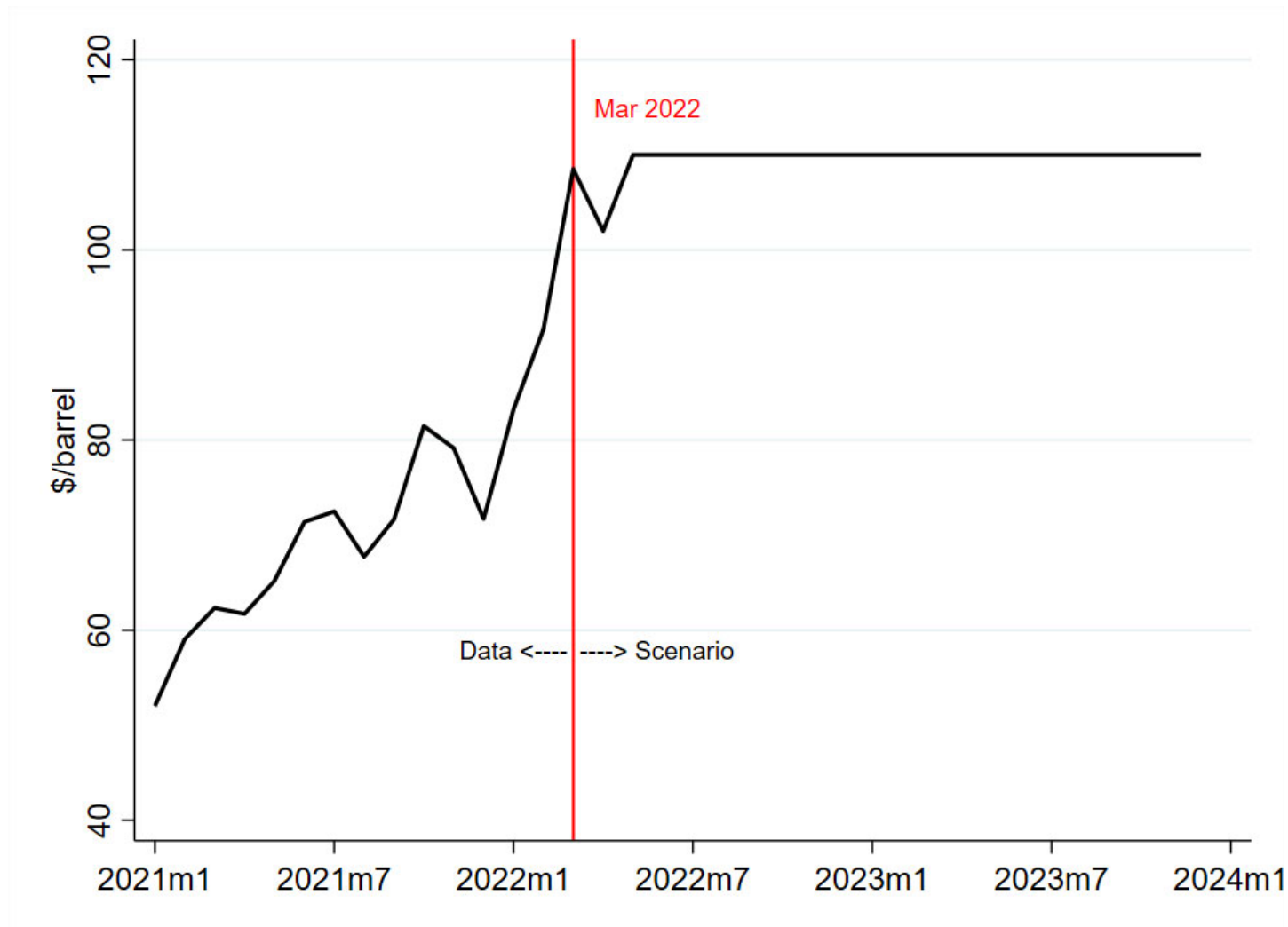
- Consumers do not buy crude oil. They buy refined products such as motor fuel.
- Motor fuel accounts for about 3% of consumer expenditures.
- A 10% oil price increase translates to a 6% retail gasoline price increase, given the 60% cost share of oil in the United States.

Responses to Gasoline Price Shock with 68% Error Bands



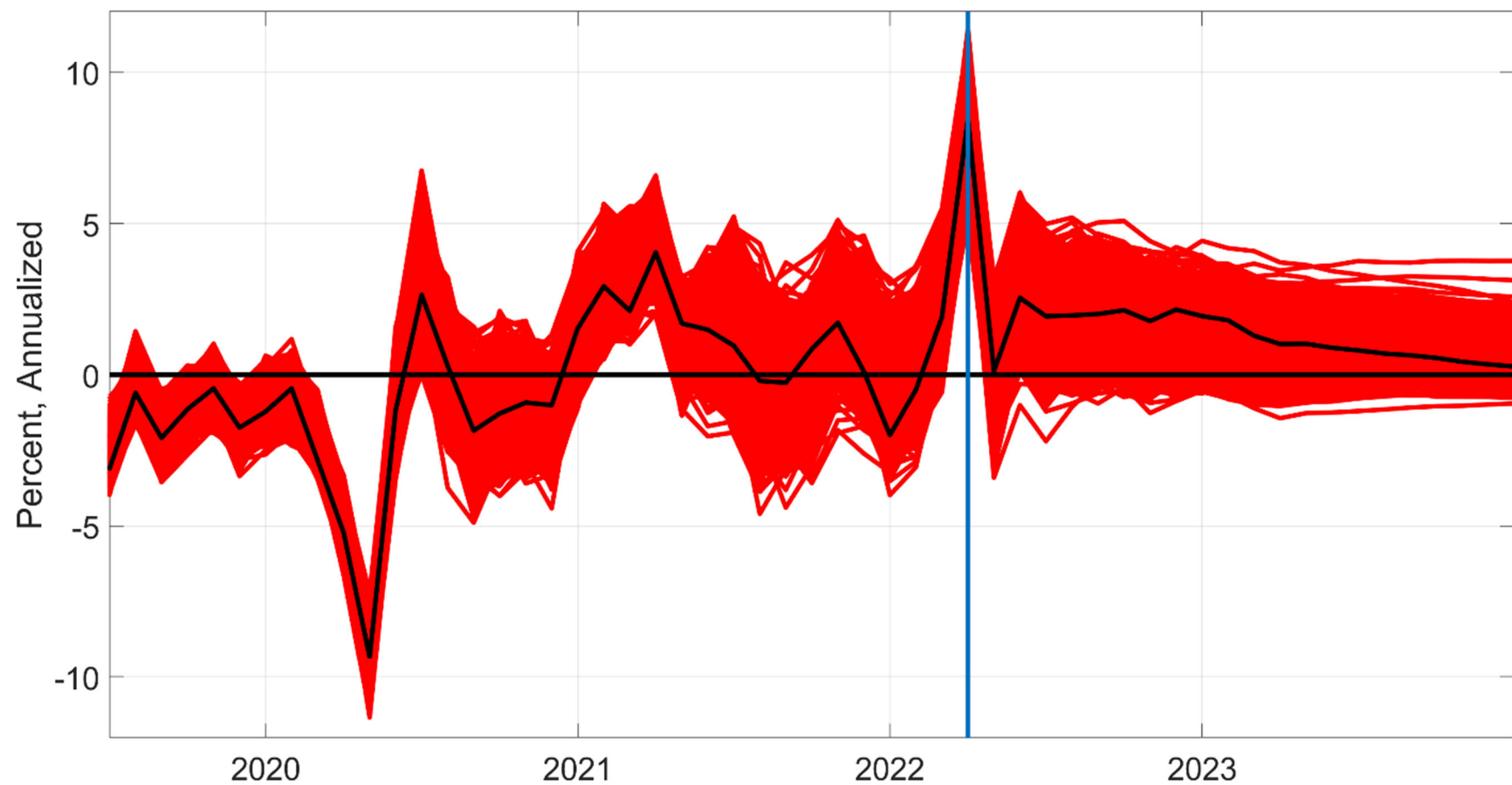
NOTES: The core and headline inflation rates have been annualized. Based on data for 1990.4-2022.3. Methodology based on Kilian and Zhou (2021).

The path of the WTI price of crude oil under a \$110 oil scenario



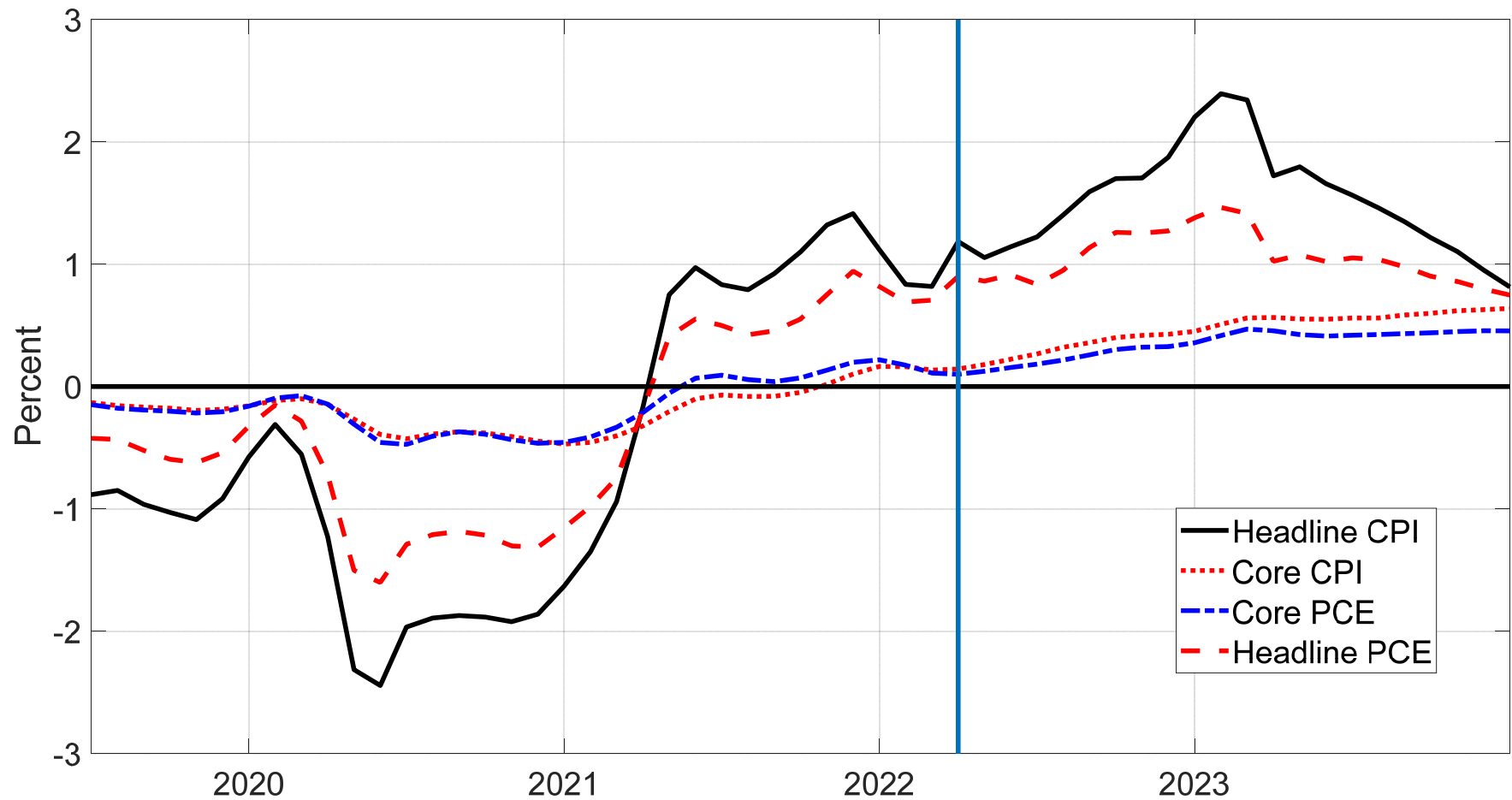
NOTES: The March 2022 observation is the last historical observation (red line). Under the scenario, the oil price drops to \$102 in April 2022, recovers to \$110 in May and stays there until December 2023.

Monthly Headline CPI Inflation Caused by Gasoline Price Shocks, 2019.6-2023.12



NOTES: Based on methodology in Kilian and Zhou (2021).

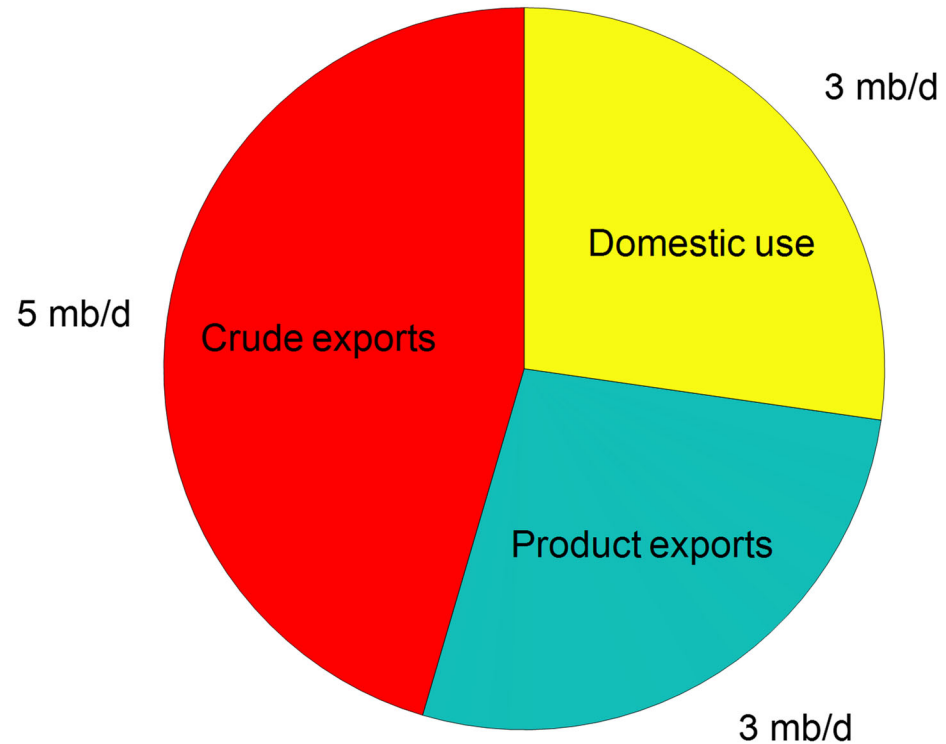
12-Month Inflation Caused by Gasoline Price Shocks, 2019.6-2023.12 \$110 Oil Price Scenario



NOTES: Based on methodology in Kilian and Zhou (2021).

The 2022 Russian “Oil Supply” Shock

Russian crude oil production:



Europe:	Self-sanctioning; pending embargo decision
Canada, United States:	Petroleum embargo
UK:	Selective petroleum embargo
ROW (incl. China):	No sanctions, but caution

How Has Russia Been Affected?

- Russian seaborne crude oil exports remain robust as of April.
- Decline in product exports and domestic demand caused Russian refiners to cut production runs and oil production to drop about 8%.
- Russia no longer reports production data.
- 3 mb/d of Russian petroleum exports to OECD are at risk of being shut in by end of 2022, as imports from Russia approach zero.
- Once shut in, oil production becomes difficult to restart, especially without foreign technical assistance.

Outlook

1. We have likely only seen the beginning of this oil supply shock.
2. Given inelastic oil production elsewhere and inelastic gasoline demand in the short run, it will take a substantial oil price increase to bring oil consumption down to match available production, unless:
 - a. the global economy slows down for other reasons.
 - b. the oil deliveries are redirected to Asia.
 - c. sanctions are circumvented.
3. Predictions of 150, 200 and 300 dollar oil are merely conjectures and tend to reflect vested interests. The truth is no one knows. As a benchmark, the peak price in June 2008 in today's dollars was 184.
4. This is not just about oil, but also about natural gas, other industrial and food commodities and about global supply chain disruptions.