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Oil, Gas, Pandemics, and War: The Drivers of Inflation

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The euro-area inflation surge of 2021–2022 did not come from a single source. Europe was reopening after COVID-19 at the same time as Russia's invasion of Ukraine drove gas, oil and coal prices sharply higher. The paper asks how much of the inflation episode can be traced directly to energy shocks, and how much came from broader post-pandemic recovery forces. This matters because energy is not just another consumer good. Households need it for heating, electricity and transport, and firms use it as an input into production. When energy becomes much more expensive, the effects spread well beyond utility bills into the wider economy.

To study this, we build a model of the euro-area economy with two linked sectors: a core sector that produces most goods and services, and an energy sector that turns oil, gas and coal into the refined energy used by households and firms. The key feature is that the model allows energy and non-energy inputs to behave as complements rather than easy substitutes. In plain language, firms and households cannot quickly or fully replace energy with something else when prices jump. The model is estimated on euro-area data and is used to separate pandemic-related shocks from shocks that were specific to oil, gas and coal prices.

The main conclusion is that energy shocks were a major driver of the inflation surge. Over 2020:Q2–2022:Q3, we estimate that shocks specific to oil, gas and coal raised retail energy inflation by about 36 percentage points and headline inflation by about 1.8 percentage points. Put differently, refined energy prices rose by about 57 percent in the data, but would have risen by only about 16 percent without those energy shocks. Headline prices rose by about 12 percent over the same period, versus roughly 9 percent in the counterfactual without energy shocks. Oil and gas explain most of the increase, while coal plays a smaller role.

The same shocks also weakened real activity. By 2022:Q3, euro-area GDP is estimated to have been about 0.75 percent lower than it would have been without the oil, gas and coal shocks. The paper therefore interprets recent energy disturbances as adverse supply shocks: they raise inflation while reducing output. The reason the GDP effect is meaningful is that energy and other inputs appear to be complements in both production and consumption. When energy prices rise, firms cannot easily reorganize production away from energy, and households cannot

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easily cut energy use without cutting other spending too. This makes the inflationary and contractionary effects larger and more persistent.

The paper also shows that policy choices mattered. A stronger monetary-policy response helps restrain inflation, but it deepens the output loss. In a counterfactual where the policy rate is held at its 2021:Q4 level instead of tightening thereafter, GDP ends 2022 about 1.6 percent higher, but headline and core inflation are around 80 basis points higher as well. The message is not that central banks should ignore energy shocks. Rather, they face a difficult trade-off: tighter policy can reduce inflation faster, yet it can also amplify the fall in activity when the original disturbance is coming from energy costs.

Fiscal support can cushion the shock, but it is neither free nor fully self-financing. When the government offsets higher retail energy prices through subsidies or price caps, it supports households' demand and lowers firms' costs, which raises GDP and reduces inflation relative to a no-subsidy case. To hold the effective price of energy at its pre-shock level, however, the subsidy rate would need to rise sharply—by about 62 percent by 2022:Q4—and the financing requirement reaches about 5.3 percent of GDP. Support aimed at firms is more powerful than support aimed only at households, because it works directly through production costs. At the same time, subsidies can partly undermine themselves: by increasing demand for energy, they can push up crude fuel prices, especially gas, and reduce the net relief.

Overall, the paper argues that Europe's inflation episode cannot be understood by looking at oil alone or by treating energy as a small side issue. The mix of oil, gas and coal matters, the inability to substitute away from energy matters, and both monetary and fiscal responses shape the final outcome. For policymakers, the broader lesson is that large energy shocks create a stagflationary environment in which inflation control, income protection and output stabilization cannot all be pursued without trade-offs.