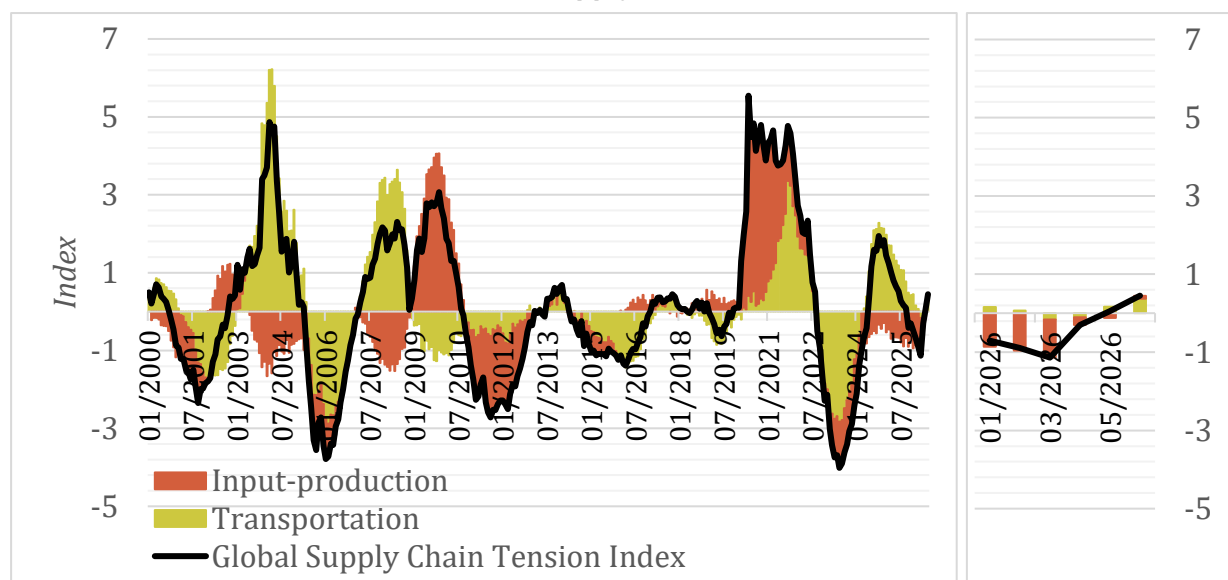


Global supply chain tensions: not all disruptions are alike

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Not all supply-chain disruptions have the same macroeconomic consequences. We developed the Global Supply Chain Tension Index (GSTIX), a novel set of publicly available indicators. It distinguishes transportation disruptions from input-production disruptions, which reduce the availability of critical intermediate inputs. We show that the latter have more persistent effects on inflation. The GSTIX offers a tool for assessing inflationary pressures and informing policy.

Chart 1: Global Supply Chain Tension Index



Source: Banque de France, GSTIX data. The monthly indicator is regularly updated and available for download from the Webstat data portal (see Webstat link below).

Note: The GSTIX decomposes global supply-chain tensions into input-production disruptions (red) and transportation disruptions (yellow). The corresponding Webstat series are GSTIX_COMP, GSTIX_INPT and GSTIX_TRNS.

Measuring global supply chain tensions

A common approach is to measure supply-chain tensions using indicators such as supplier delivery times, shipping costs, or composite indices of supply-chain pressures. These indicators have proved useful for tracking disruptions in real time and are now closely monitored by policymakers and market participants. However, they share an important limitation. They capture the symptoms of supply-chain stress but provide little information about its underlying source. As a result, similar movements in commonly used indicators may reflect fundamentally different disturbances with potentially very different implications for macroeconomic dynamics.

This blog post presents the Global Supply Chain Tension Index (GSTIX), a new indicator we developed to distinguish the underlying sources of supply-chain stress and assess their dynamic

impact on the economy. Based on monthly data from January 1969 onward, the index combines an empirical model with narrative evidence. It distinguishes two supply-side tensions: transportation disruptions, which constrain the movement of goods, and input-production disruptions, which reduce the availability of critical intermediate inputs. The methodology is described in detail in a [BdF working paper](#). The paper uses monthly global data on transportation costs, supplier delivery times and industrial production from 1968 to 2025.

The distinction between the two types of disruption can be illustrated by several historical episodes. An example of an input-production disruption involves cobalt, a raw material whose extraction is highly concentrated (>95%) in the Democratic Republic of the Congo and which could no longer be exported following the outbreak of the Angolan Civil War in 1975. Examples of transportation disruptions include the 2023–24 Houthi attacks in the Red Sea off the coast of Yemen, which led to significant rerouting of maritime trade around Africa, and the 2010 volcanic eruption in Iceland, which led to the suspension of cargo flights between Europe and North America for several weeks.

The index measures the combined effects of current and past supply-side shocks on transportation costs and supplier delivery times. This gives it a direct economic interpretation and allows it to be broken down into transportation and input-production components.

Chart 1 focuses on the period since January 2000. The pandemic clearly stands out as an episode with elevated tensions in more recent years. While the first shutdown in April 2020 is reflected mainly in the input-production component, the method attributes the second spike, associated with the Shanghai shutdown from February to August 2022, primarily to transportation disruptions.

Not all supply-chain disruptions are alike

Separating transportation and input-production events in global supply chains enables us to compare their effects on the economy. Chart 2 shows how each shock affects US manufacturing, inventories, producer price inflation and headline inflation. Both types of global supply-chain disruption deplete inventories, lower economic activity and raise inflation, as expected following a supply-side deterioration.

What is striking is the difference in the persistence of the macroeconomic effects: transportation disturbances lower industrial production for a short period only, and inflation returns to its pre-shock level after two years. The effects are relatively short-lived. This may reflect the scope for rerouting and for adjustments to storage and planning; these mechanisms make the effects less persistent.

Input-production disturbances, in contrast, cause persistent reductions in manufacturing output and have longer-lasting effects on inflation. This greater persistence may also reflect the limited substitutability of highly specific inputs, as well as the rigidities and frictions that arise when established export relationships are disrupted. Because these disturbances often originate higher up in value chains, their effects can then cascade through the system, amplifying and prolonging their real and nominal effects.

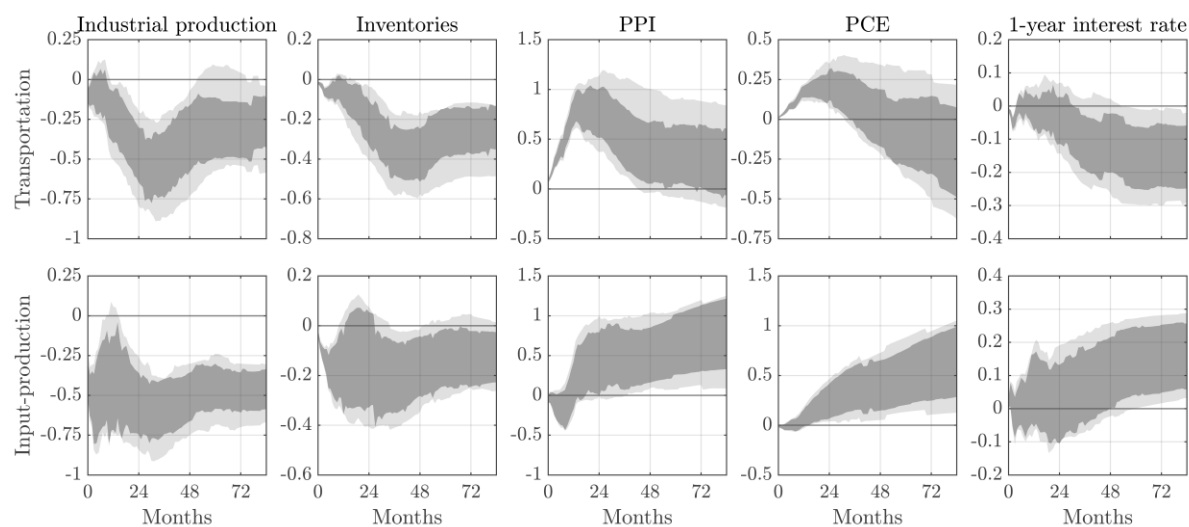
What can we learn from the ongoing episode in the Strait of Hormuz?

So far, the conflict in the Middle East has had relatively modest effects on global supply chains, and these effects were initially concentrated in the energy sector. It nevertheless combines the two types of disruption captured by the GSTIX. The closure of the Strait of Hormuz constitutes a transportation shock, as it restricts shipping and the movement of goods. Shortages of critical inputs, from inputs used in fertiliser production to helium used in semiconductor manufacturing, cascade through production chains, making other intermediate inputs scarcer. This dual nature is reflected in the current rise of both GSTIX components.

The GSTIX approach nevertheless suggests that the Middle East conflict unfolded at a time when overall tensions in global supply chains were below the long-term average. March marked a clear turning point, with modest signals of input-production and transportation tensions beginning to materialise in April and strengthening through May and June.

How these tensions evolve will determine how widely the effects of the closure will spread through global supply chains. By analogy with the energy price shocks of the 1970s, this shock is likely to lead to shortages in the petrochemical sector. The resulting inflationary effects are likely to emerge with a delay and be long-lasting. Such *indirect effects* on inflation have recently gained prominence in the policy debate and may well influence central banks' policy responses around the world. The regularly updated GSTIX provides policymakers and the general public with an additional tool to monitor the situation as the conflict evolves [\[link to the data\]](#).

Chart 2: Dynamic effects of transportation and input-production shocks



Source: Authors' calculations.

Note: US responses over 84 months. Top row: transportation shock; bottom row: input-production shock. Dark: 68% ranges; light: 90% ranges.