

POLICY BRIEF

Building resilient EU value chains: lessons from the COVID-19 pandemic



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CONTEXT

In recent decades, international trade has been increasingly made up of intermediate goods, exchanged across several borders. Firms have found it more convenient and efficient to disentangle their production into tasks and allocate each to a specific geographical area that can produce more efficiently and at lower costs. These global value chains (GVCs), or networks, have become a dominant feature of international trade. Their emergence is also linked to a long-term reduction in transport costs and the advent of digital networks. Such digitalization has spread widely in modern economies, yet its role in forging the resilience of firms faced with shocks that disrupt these intricately linked global production structures is little understood.

During the pandemic, these structures were revealed to be fragile, putting the supply of key products under severe stress and raising questions about the efficiency of the whole 'trade-in-tasks' system. In reaction, we have seen increased policy rhetoric on the risks of relying on GVCs and the need for 'autonomy', 'self-reliance' and 'resilience', including in the US and Europe. Much has been said about the need for firms to re-shore their activities, yet it is unclear how widespread this phenomenon has been.

A key question in this context is whether the digital transition which facilitated international production sharing can also play a role in making GVCs more resilient to external shocks and thus help to reduce the risks associated with global production. This policy brief highlights some key insights emerging from research on these issues. The full research report of the TWIN SEEDS project, from which these reflections emerge, is available [here](#).

RESHORING: A SELECTIVE PHENOMENON

1. **Reshoring is still a selective phenomenon**, even in the case of the exceptional shock of the pandemic.

As the EU seeks to develop its 'strategic autonomy' it is important to note that, even as the pandemic highlighted vulnerabilities in value chains, **reshoring was still not widespread** amongst EU firms. Covid-19 certainly forced many firms to reassess their international dependencies, however where **restructuring of supply chains occurred, it was largely motivated by other factors**. Reshoring production was more often related to the rise of new technologies (especially so-called Industry 4.0 technologies, like 3D printing and robotics) and changes in relative competitiveness due to rising costs and quality problems overseas.

In addition, the capacity and motivation to reshore varies within the EU and across industries, such that **the reaction to any policy interventions to encourage reshoring will also vary**. Firm location had an impact on the reaction to the pandemic. Firms from 'old' member states were more likely to

reshore production, while those from new member states, actually **increased off-shoring** during COVID-19, especially in low value-added sectors.

2. **Adopting industry 4.0 technologies can encourage reshoring**, but it depends on where production currently takes place.

Public policies to encourage uptake of Industry 4.0 can support the reshoring of production, but the effect varies depending on the task and the offshoring country. Advanced digital technologies have a limited impact on reshoring and are **mainly important in the case of relocations from low-wage countries**. The adoption of such technologies seems to be particularly relevant to 'bringing back' labour intensive production from overseas, rather than reshoring higher value tasks. For example, for firms in Austria, technology and automation were vital to the decision to bring back production from India and Russia. Thus, labour-saving technologies can encourage reshoring from low- to high-cost countries.

RESILIENT GVCs STRUCTURES

3. Long term **support for the EU's research and development (R&D) base** is vital to building capacity for resilience in crises.

The EU needs to increase its **support for a diverse range of technologies** to support future resilience. During the pandemic, the EU's strengths in basic research, embodied in leading edge firms like BioNTech, enabled it to rapidly catch up with the other world powers in the vaccine race. As a result of the pandemic and government responses to it, research capabilities and manufacturing facilities in key medical goods like vaccines and Personal Protective Equipment (PPE) have expanded and a governance structure has been created to handle health crises. **Thus, the EU will be in a better position when the next pandemic hits.**

However, vulnerabilities persist, especially in relation to the **high dependence on China for vaccine ingredients**. There are also risks associated with focusing on one technology – mRNA. Future crises which the EU will face may differ significantly from Covid-19. For example, the crisis caused by the invasion of Ukraine requires completely different R&D capabilities, underlying the importance of **diversity in the EU's fundamental research capacities**.

4. **Supporting digitalization will increase resilience to crises and shocks.**

There is a clear link between digitalization and the resilience of value chains. Digitalization enabled firms to continue to operate and trade during the pandemic, although there were large differences across the different types of firms. Some services sectors were highly affected by the pandemic – travel/tourism and transport – while others could easily switch towards on-line provision. It was these **digital-intensive service industries that best weathered the Covid-19 crisis**. Overall, the organizations that coped with the challenges of the crisis most effectively were those that were more innovative and had adopted novel technologies. Human resources were vital here – having transparent decision making and building the necessary skills amongst personnel enabled organizations to effectively roll out these technologies.

Building up digital technologies and human capacities to integrate them into organizations fosters resilience. Such resilience **could also be useful to managing other sudden shifts in GVCs**, like those required by the dramatic redirection of energy supplies caused by the war in Ukraine. However digital technologies are energy-intensive, creating its own vulnerabilities.

5. **Trade restrictions force adaptation of production structures**, with intended and unintended effects.

Trade bans and restrictions during Covid-19 did not stop trade, but seem to have encouraged a **diversification of sourcing to unrestricted sources** and a medium-term **increase in EU production capacity in certain goods, like PPE and vaccines**. Although bans and restrictions on trade in medical goods **were extensive across many different countries** during the pandemic and often persisted over time, trade in these goods still increased substantially. These regulatory policies seem to have helped **to foster the diversification of production** within the EU and elsewhere, potentially reducing EU dependence on overseas production.

Again, **some parallels can be seen with the situation following the invasion of Ukraine**, where extensive and rapidly shifting trade restrictions have meant that both the EU and Ukraine had to massively reorient their suppliers and markets, especially, but not only, in energy. However, logistical challenges meant that alternative sources and markets were often more limited than during the pandemic and diversification has proved difficult.

THE TWINSEEDS PROJECT

TWIN SEEDS (Towards a World Integrated and Socio-economically Balanced European Economic Development Scenario) is a research project funded by the Horizon Europe program led by Politecnico di Milano. The objective of the project is to study the recent evolution of Global Value Chains (GVC), focusing on the role played by technological transformations and geopolitical and policy shifts (the 'Twin Seeds'). It is a joint effort of eleven universities and research institutions from eight EU countries. A key objective of the project is to enrich European debates and inform the development of public policies related to GVC reconfiguration which support economic prosperity, social cohesion and environmental quality.

FUTURE POLICY BRIEFS

Future WPs are currently building on this work to explore how GVC reorganisation will affect employment, the environment and economic growth. As these findings emerge, the project will develop policy briefs which will be published later this year.

PROJECT IDENTITY

PROJECT NAME

Towards a World Integrated and Socio-economically Balanced European Economic Development Scenario (TWIN SEEDS).

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WEBSITE

<https://twinseeds.eu/>

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