

# Enhancing the resilience of global value chains to climate change: lessons from Covid-19

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## Key messages

- Climate shocks often translate into trade shocks for countries. Building resilience – the capacity to cope with crises – within different types of global value chains (GVCs) is essential to sustain and support socioeconomic development and welfare gains.
- Resilience to trade shocks within GVCs comes from stock management and just-in-time strategies as well as investing in trading relations and supporting export diversification.
- While promotion of the shortening and reshoring of GVCs can score short-term political gains, it risks increasing economic and climate vulnerability, with mixed evidence on climate mitigation gains.

## CONTEXT

The increase in global trade over recent decades through the expansion of production networks and the integration of newly industrialised economies within global value chains (GVCs) has contributed to unprecedented socioeconomic gains and reductions in poverty. But socioeconomic development's reliance on fossil fuels has led to climate change and environmental damage, which ultimately leads to social and economic cost. The rise in global temperatures and associated impacts has and will continue to affect trade adversely. Trade within GVCs can be especially vulnerable as shocks can be transmitted instantaneously along supply chains, disproportionately affecting suppliers upstream in poorer countries.

Lockdown policies to limit the spread of Covid-19 may provide lessons for a global and simultaneous climate change impact: bringing to a standstill or drastically reducing supply through GVCs. While the global and sudden disruption the virus has caused is of a scale and immediacy that is greater than any currently experienced climate impact, there are nonetheless lessons to be learnt from the Covid-19-induced disruption for climate resilience, [given projected abrupt changes in our climate](#).

Given the vulnerabilities that Covid-19 has exposed – shortages, inability to source relevant equipment, imposition of export restrictions and so on – many policy-makers are seeking to adapt trade policy to emphasise 'resilience'. The trade and climate change communities are using different definitions of resilience. For example, the risk management literature emphasises robustness as the ability to withstand

shocks, as opposed to being able to bounce back from them, which is referred to as resilience ([Miroudot, 2020](#)). On the other hand, the climate change community defines resilience as 'the capacity of social, economic and environmental systems to cope with a hazardous event or trend or disturbance, responding or reorganising in ways that maintain their essential function, identity and structure while also maintaining the capacity for adaptation, learning and transformation' ([IPCC \(2018\)](#)).

Hereafter, we use the term 'resilience' to characterise this ability to both maintain activity through a shock and respond, reorganise and transform. This brief explores: How can resilience within GVCs be enhanced? What can we learn from the current disruption, to enhance the climate resilience of GVCs? The lessons learnt from Covid-19 suggest it is time to invest, not divest, in strengthening trading relations.

## USING TRADE TO BUILD TRADE RESILIENCE: VALUE CHAIN MANAGEMENT

Enhancing resilience along GVCs is complex, as not all stages of production are exposed to shocks or vulnerable to the same extent. Countries are affected by demand and supply shocks differently, and depending on their reliance on forward or backward linkages into GVCs ([World Bank, 2020](#)). Building the resilience of trade to shocks, including climatic shocks, will therefore take different forms; of course, developing trade and enhancing export and import diversification is also a form of resilience-building.

The ability to maintain operations in times of crisis requires investments in relationships between firms and suppliers. Investment in resilient trading relations can be good for both importers and exporters through developing more relational forms of value chain governance. This requires greater alignment of public and private interests in maintaining resilient supply chains, as well as better understandings of corporate strategies to adapt and mitigate climate change, and how to support these in development-friendly ways.

## SHORTENING AND RESHORING OF GVCs: DEVELOPMENT, TRADE AND CLIMATE GOALS

The shortening of GVCs – through reducing the stages of production located overseas or shares of foreign value added – within specific sectors has been advocated for climate gains: the consumption of locally produced food and efficiency of food processing and transportation results in the minimisation of food losses, enhanced food security and reduced greenhouse gas (GhG) emissions ([IPCC, 2020](#)). Developed countries have also advocated the shortening of GVCs to enhance resilience in response to Covid-19. Trade and climate policy therefore seem to be reinforcing similar policy – the shortening of GVCs as a means to both boost resilience to external shocks and mitigate climate change. However, the shortening of GVCs had been occurring for some time prior to Covid-19.

The arguments for supply chains becoming more domestic rather than more regional – with an [estimated 'erosion' in globalisation \(i.e. a reduction in the average length of supply chains standing at 1,900 km in 2012\) of 52 km per year since 2012](#) – may be either structural, related to the digital transformation or a result of production becoming closer to consumers. These trends [could – in some cases – contribute](#) to emissions reductions, for example through reduced transportation. Building domestic capabilities can be an appropriate response, but much more evidence is needed to assess the overall implications of movement towards shorter GVCs for climate change, which could harm development and trade trajectories.

As discussed in the [World Development Report \(2020\)](#), scale effects (which refer to the rapid growth of GVC economic activity) are detrimental to the environment, whereas composition effects (which refer to how tasks are distributed across the globe) have ambiguous effects; technique effects (which refer to the environmental cost per unit of production) are positive for the environment. On aggregate, the report finds that, while GVCs are associated with more shipping and waste, they are vectors of innovation and of the diffusion of less environmentally damaging goods and services. When it comes to the perishable food and agriculture sector specifically, as discussed by [Beattie \(2020\)](#), geographical proximity closer to end consumption markets [does not always mean less GhG-intensive production](#) (as the [air miles debate](#) has already

emphasised). Shortening GVCs as a means to increase resilience to external shocks could not only be counterproductive but, worse, also curtail export diversification effects, increase economic vulnerability in the poorest countries most adversely affected by the physical effects of climate change and reduce overall economic welfare.

In a world where the welfare effects of [border carbon adjustment measures](#) have the potential to shift the burden of climate adjustment to developing countries, it is imperative to keep avenues for export diversification open. The shortening of GVCs, as advocated for by policy-makers to [bring production back](#), could jeopardise trade, production efficiencies and development strategies, as well as not necessarily being the best option for climate change mitigation (and adaptation). Instead, investing in resilience could help secure climate-compatible trade and development. This requires more proactive supply chain management, including consideration of how GVCs are aligned with local and national innovation systems; how inventory management influences the resilience, flexibility and responsiveness of value chains (given the shortcomings of just-in-time models of delivery); and, finally, how business intends to respond to risks and the appropriate public policy frameworks to assist in reducing these in the most socially optimum ways.

## INVESTING IN BUILDING THE RESILIENCE OF TRADE: LESSONS LEARNT FROM COVID

For many developing countries, enhancing resilience means not only confronting the severe economic vulnerabilities that arise as a result of a lack of export diversification and of dependence on a few firms to access markets, but also adapting now to an increasing exposure to environmental shocks. Export and import diversification are indispensable tools within climate change adaptation strategies. Countries' policy manoeuvres to reduce dependence on external suppliers carry the risks that poor countries will lose access to markets that provide vital footholds out of poverty. The reshoring of stages within GVCs to enhance resilience may further accentuate existing power asymmetries, as well as having questionable effects on climate change mitigation. While some climate gains could be secured in some parts of the value chain, overall welfare losses may ensue. Careful scrutiny of post Covid-19 trade strategies is needed to support global climate change mitigation goals.

*ClimxTrade discussions are virtual roundtables by ODI over 2020/21. For more information and to be added to the participant list for closed roundtable events, please email [l.pettinotti@odi.org.uk](mailto:l.pettinotti@odi.org.uk)*