

## 1. Main Messages

**Agri-food Global Value Chains (GVCs) are evolving.** Over the past decades, GVCs have become more complex, yet recent global crises have led to shifts towards regionalisation.

**Trade flows in agri-food products remain highly interconnected.** Network analysis highlights key trade hubs and dependencies, showing that agri-food GVCs are increasingly driven by regional clusters.

**Participation in GVCs is highly uneven.** Developed countries benefit from strong backward and forward linkages, while developing nations face structural barriers to full integration.

**Resilience and sustainability require diversification.** Global shocks such as the COVID-19 pandemic and geopolitical tensions have exposed vulnerabilities in concentrated trade networks.

**Policy coherence is necessary for sustainable trade integration.** The EU must align its trade agreements with sustainability commitments while supporting more inclusive agri-food trade structures.

# PROJECT BRIEF 2:

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## NETWORK ANALYSIS OF GLOBAL AGRI-FOOD TRADE FLOWS



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101000551

## 2. Research Scope & Methodology

**This deliverable employs network analysis to examine agri-food trade flows**, using inter-country input-output (ICIO) tables from global trade databases, including EXIOBASE, OECD TiVA, and WIOD. The analysis focuses on:

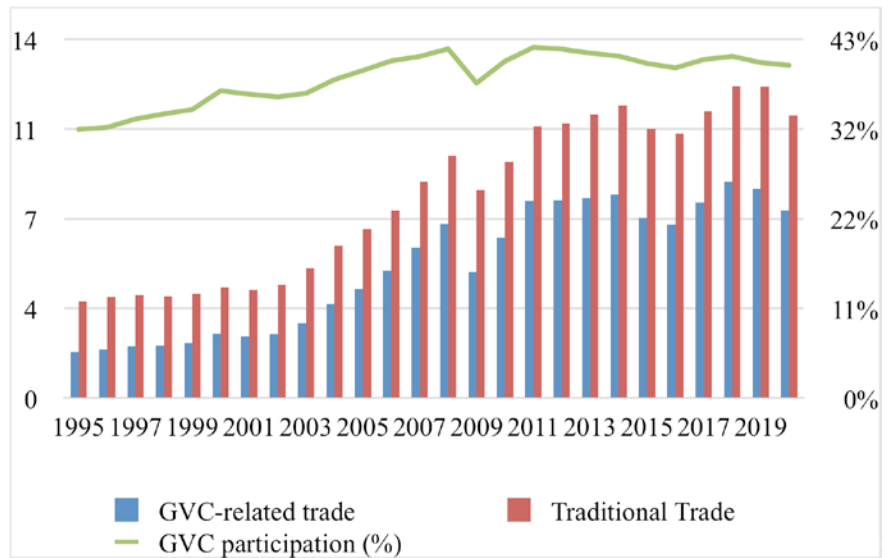
- GVC participation trends across different regions and product groups.
- Structural changes in trade networks, particularly shifts towards regionalisation.
- The role of key trade hubs and intermediaries in global food systems.

## 3. Key Findings: Evidence Supporting Policy Discussions

### 3.1. Changing Trends in Agri-Food GVCs

As evident from Figure 2.1, GVC participation has stagnated since 2008, reflecting a shift from hyperglobalisation to slowbalisation. The length of GVC production stages has shortened, suggesting a move towards regional supply chains. Trade conflicts, COVID-19 disruptions, and supply chain vulnerabilities have reinforced the trend of regionalisation and nearshoring.

**Figure 2.1: GVC trade and participation, 1995-2020, trillion USD and %**



Source: Own composition from WITS (2023) data (based on TIVA).

**Implication:** Policies should encourage balanced trade networks to enhance resilience against global disruptions.

### 3.2. Trade Network Interdependencies

Europe and Asia remain dominant in GVCs, with strong intra-regional trade ties. North America exhibits a high degree of backward participation, indicating reliance on imported inputs. Africa and Latin America maintain high forward participation, exporting raw materials with limited value-added processing.

**Implication:** There is a need to support value-added processing in developing regions to enhance trade benefits.

### 3.3. Vulnerabilities in Agri-Food Trade Networks

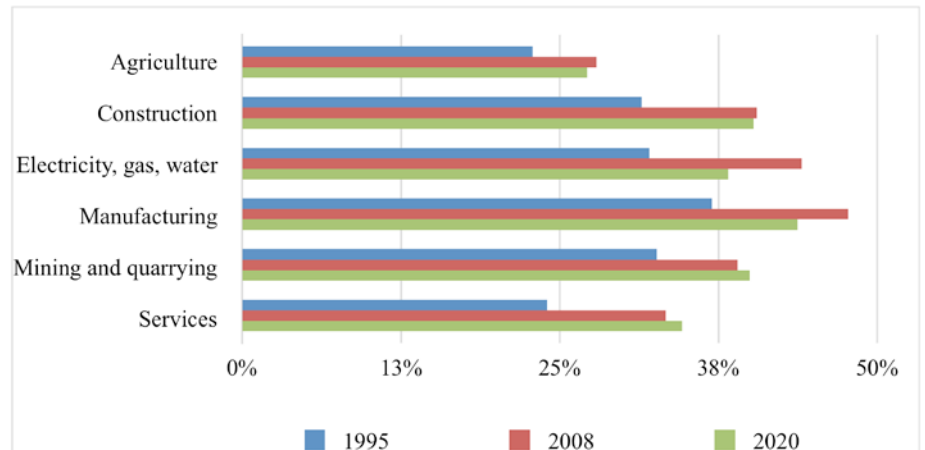
Supply chains have become more fragile (Figure 2.2), with key hubs highly dependent on a few major suppliers. Shocks such as COVID-19 and the war in Ukraine disrupted food trade, exposing the risks of over-concentrated supply chains. Climate-related disruptions pose further risks, particularly for developing countries reliant on agriculture.

**Implication:** Diversification and investment in climate-resilient trade policies are crucial.



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Figure 2.2: Global GVC participation rates, 1995 and 2020, percentage



Source: WITS (2023) data visualisation (based on TIVA).

## 4. Implications for EU Policy & Trade Governance

- **Strengthen regional trade agreements** to reduce dependency on a few major suppliers.
- **Encourage diversification** of sourcing strategies for essential food products.
- **Develop food security strategies** that integrate trade resilience mechanisms.
- Facilitate **greater involvement of smallholder farmers** in value chains through targeted trade policies.
- **Increase support for regional processing industries** to reduce reliance on raw commodity exports.
- Ensure trade agreements **align with environmental and social sustainability goals**
- Improve coordination between trade, climate, and food security policies.
- **Enhance monitoring of sustainability impacts** in trade agreements
- Encourage WTO modernisation to integrate sustainability into global trade rules.



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## 5. Conclusion

Network analysis reveals that agri-food GVCs are undergoing structural shifts in response to global economic, environmental, and geopolitical changes. While trade remains a powerful tool for development, it requires strategic governance to enhance resilience, sustainability, and inclusiveness.

### Key takeaways:

- Trade networks must be **more resilient** to withstand future global disruptions.
- Sustainability and equity **should be integrated into trade policies** to ensure broad-based benefits.
- **Regional trade cooperation is essential** for balancing economic efficiency with sustainability goals.

This Project Brief is based on **Deliverable 1.4.** of the TRADE4SD project.



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Trade4SD is a 4-year project devoted to research on a topic which is high on the domestic as well as multilateral, EU and bilateral trade policy agenda. The ambition of the project is to explore and foster the positive linkages between trade and sustainable development is to provide policy recommendations for the creation of new opportunities for agents involved in the global, regional and national agri-food value chains, and to define conditions for sustainable livelihoods of farm producers in the EU and developing partner countries. Trade is a central factor in shaping global, regional and local development. Increased trade, empowered by the growth of Global Value Chains (GVCs), has boosted productivity and incomes in many countries.

