Firm level insights

The survey sample

- It reflects the **structure of Greek manufacturing**, with firms concentrated in **traditional industries** (food products, fabricated metal products, chemicals, rubber and plastics, and non-metallic minerals).
- 75% of firms are **SMEs**, while 25% are **large enterprises**

GVC participation overview

- Greek manufacturing shows **a clear imbalance** between **deep backward** and **weak forward integration** in GVCs.
  - Firms are **strongly connected to international suppliers**, relying on foreign raw materials, components, and equipment. This reflects **deep backward integration** but also a **dependence on imported technologies and inputs** for competitiveness.
  - They mainly participate in the **end stages of GVCs**, exporting final goods but contributing little to **knowledge-intensive or intermediate production stages**. This reflects **limited forward linkages** in global production networks.
  - Overall, firms are **consumers** of global knowledge and technology rather than **creators or transmitters** of it.

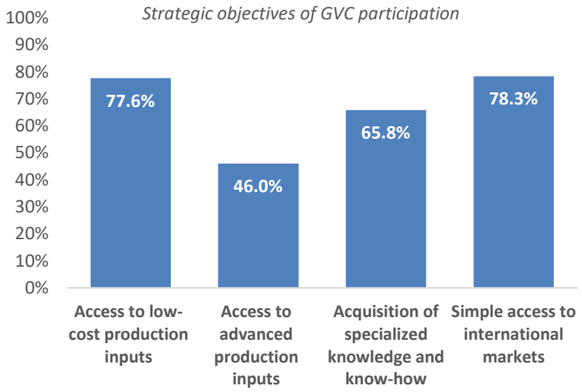
Asymmetric integration of Greek Manufacturing in GVCs

Category of goods/services	Imported goods/services (% of firms)	Exported goods/services (% of firms)
Intermediate industrial goods (primary inputs, raw materials/parts and components	100%	48.4%
Equipment (standard and advanced)	92.5%	17.4%
Final consumer goods		72.0%
Services (supporting and advanced/specialized)	47.8%	13.7%
IPRs	22.4%	2.5%

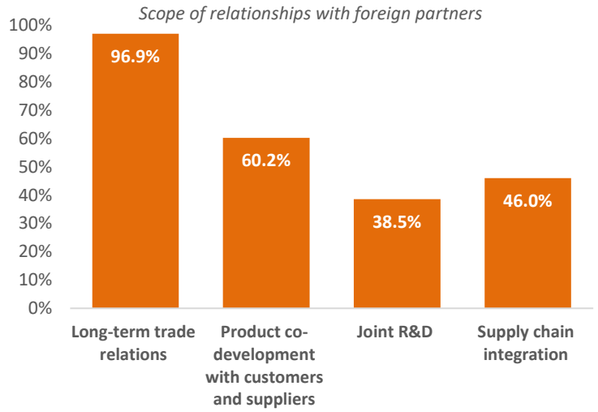
Strategic objectives and cooperation in GVCs

- Greek manufacturing firms primarily join GVCs for **market access and cost reduction**, rather than for technological innovation or knowledge acquisition.
- As a result, firms are integrated into GVCs in a **dependent and passive** manner, without significantly advancing their technological capabilities or domestic value-added exports.
- The **primary form of international collaboration** is through long-term trade-relations. However, there is also considerable involvement in **co-development** with foreign partners. The lower levels of **joint R&D** and **supply chain integration** suggest limited technology transfer and coordination are not as widespread, pointing to opportunities for deeper, more **strategic engagement** with foreign partners.

Strategic objectives of GVC participation



Scope of relationships with foreign partners



GVC participation strategies, innovation and export performance

- There is **a dual structure of GVC participation strategies among Greek manufacturing firms.**
  - **Knowledge-oriented strategies**, centered on acquiring specialized inputs and know-how, primarily foster ***process innovation and technological capability building***, laying the groundwork for longer-term upgrading but with limited immediate export effects.
  - **Market-oriented strategies,** by contrast, play a broader role: they not only ***enhance export performance*** but also ***stimulate both product and process innovation***, as firms adapt to foreign market requirements and competitive pressures.

ΕΘΝΙΚΟ ΜΕΤΣΟΒΙΟ ΠΟΛΥΤΕΧΝΕΙΟ
ΕΡΓΑΣΤΗΡΙΟ ΒΙΟΜΗΧΑΝΙΚΗΣ ΚΑΙ ΕΝΕΡΓΕΙΑΚΗΣ ΟΙΚΟΝΟΜΙΑΣ

Leveraging Global Value Chains for Innovation and Competitiveness: The Case of Greece (GRinGVCs)

Επιστημονικά Υπεύθυνη
Αιμιλία Πρωτόγερου, *Επίκουρη Καθηγήτρια ΕΜΠ*

Validation Workshop

Τρίτη, 11 Νοεμβρίου 2025

Αίθουσα «Κουμούτσου»,
Σχολή Χημικών Μηχανικών ΕΜΠ

This project is carried out within the framework of the National Recovery and Resilience Plan Greece 2.0, funded by the European Union – NextGenerationEU (Implementation body: HFRI - Project Number: HFRI-016667).

Research objectives

- Map Greece's GVC participation at the sector and national levels
- Analyze firm-level GVC integration patterns and strategies
- Investigate the interlinkages between GVC participation, innovation performance, and competitiveness at the sector and firm levels
- Formulate evidence-based policy recommendations

Methods and research activities

Macro analysis

GRinGVCs database

- **GVC participation, positioning, specialization and network analytics** indicators for **77 economies** (including all EU27 members), **45 sectors** and groupings (NACE Rev.2) during **1995-2020**
- Developed through a production-based decomposition framework on OECD's Inter-Country Input-Output tables

ESPAT database

- **Sector-level** (NACE Rev.2 2-digit) database of **patents and patent stock** (applications and grants) to the European Patent Office
- Covers **24 European economies** and **99 sectors** during **1985-2020**
- **Methodology**: Algorithmic links with probabilities (ALP) approach on OECD patent data

Empirical investigation

- Determinants of Greece's GVC participation at the sector level (industry/services)
- The role of GVCs and innovation for Greece's specialization in international markets at the sector level (industry and services)

Micro analysis

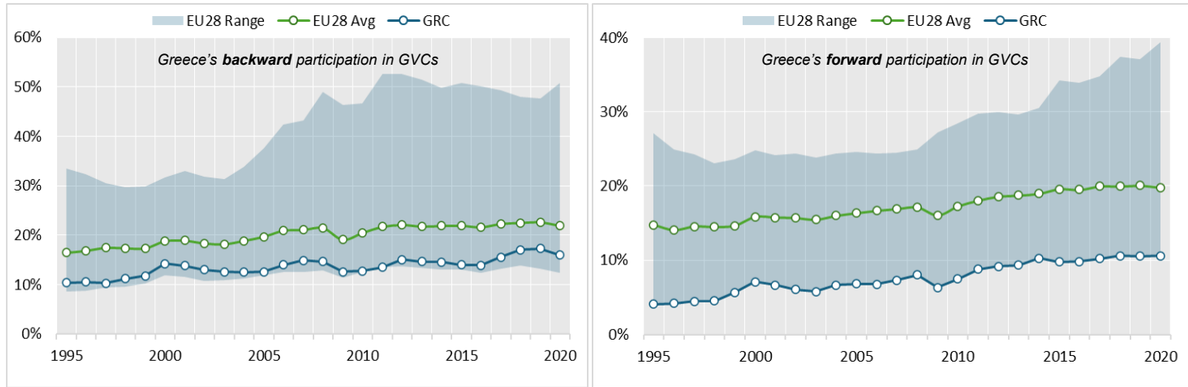
Large-scale survey on Greek manufacturing firms (161) across sectors (>50 employees)

Structured questionnaire to uncover patterns, determinants, outcomes and strategies related to GVC participation

Empirical investigation of the link between GVC participation, innovation, and international competitiveness through strategic lens

Country and sector level insights

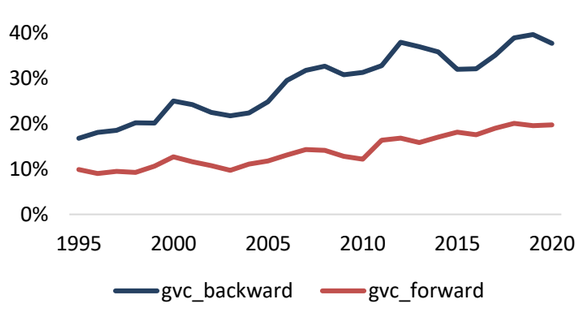
GVC participation patterns at the country level



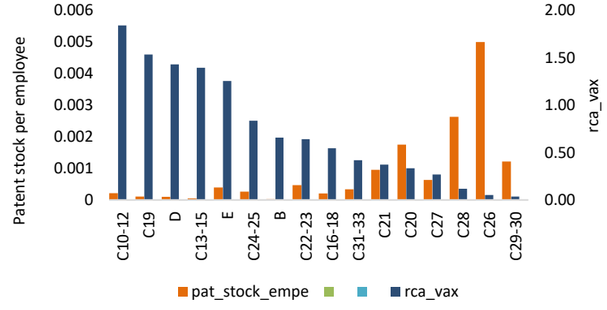
- **Greece's participation in GVCs expanded markedly between 1995 and 2020** → gradual deepening of the country's integration into international production networks. However, it remains the **lowest in the EU**!
- The country's participation is **backward-oriented** (imports of inputs, semi-finished goods, parts and components for production)
- **Forward participation** (exports of semi-finished goods, parts/components for production), typically associated to competitive export capacity, is **quite limited.**

GVC participation, export specialization and technological capabilities in the Greek industry

GVC participation in the Greek industry



Technological capabilities and export specialization in the Greek industry



- The **Greek industry** is predominantly **backward-oriented in GVCs**, reflecting its limited export dynamics and persistent trade deficit
- Industrial sectors with **high export specialization** (comparative advantage in value-added terms – rca_vax) are **mostly low-tech**
- The **patent analysis** reveals a **highly uneven distribution** of sectoral **technological capabilities**
- There is a clear **structural misalignment** between **innovation and technological capabilities** and **comparative advantage**

Empirical insights on the determinants of GVC participation and its link with technological capabilities and export specialization

- **GVC participation** is driven by **investments in knowledge assets** (R&D, design, software-databases, branding, organizational capital, etc.), which demonstrate a higher impact compared to traditional factor endowments
- **GVC participation** is **strongly** linked to **export specialization,** hinting at the importance of formulating GVC participation strategies to secure comparative advantage
- **Technological capabilities** are <u>not</u> associated with **export specialization** nor moderate the effects of GVC participation

➢ Evidence of a **cost-based competitiveness strategy** (based on unit labour costs) leading to an unsustainable comparative advantage in a GVC environment

Sector memo

Code	Activity description
B	Mining and quarrying
C10-12	Food, beverages and tobacco
C13-15	Textiles, wearing apparel, leather
C16-18	Wood, paper, printing and reproduction
C19	Coke and petroleum products
C20	Chemicals
C21	Pharmaceuticals
C22-23	Rubber, plastics, and other non-metallic minerals
C24-25	Basic metals and fabricated metal products
C26	Computers, electronics and opticals
C27	Electrical equipment
C28	Machinery and equipment n.e.c.
C29-30	Motor vehicles and other transport equipment
C31-33	Furniture, other manufacturing, repair and installation
D	Energy supply
E	Water, sewerage, waste management