The reorganization of global value chains: implications for European strategic autonomy

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LEAP current lines of research within the Jean Monnet centre of excellence on European Inclusive Open Strategic Autonomy

1. **Reconfiguration of GVCs, employment, and propagation of shocks** (with F. Bontadini, M. Savona, A. Wirkierman) :
   - How does nearshoring affect employment creation in Europe?
   - How does the structure of GVCs mediate the propagation of supply-side shocks?

2. **Industrial policy for the twin-transition and EU dependencies** (with F. Bontadini, M. Savona, A. Wirkierman)
   - How have EU dependences in twin-transition products evolved over time?
   - Where should EU industrial policy concentrate its focus?

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The resilience of EU GVCs: Nearshoring and employment

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Security and global value chains

GVCs role in the global economy has come under intense scrutiny in the past few years, in light of:

- *The US China trade war*

- *The issues of "**economic security**" ("**fiendshoring**").*

- *The mixed results in terms of **growing inequality**.*

- *Propagation of shocks along international production networks.*

The notions of near-/, re-/, back-/ or even friend-/ shoring have gained significant traction in the policy debate around the future of globalisation – e.g. **EU's Open Strategic Autonomy**.

The EU OSA: content and phases (Szyszczak, 2023)

- **2013 to 2016**: it focused on security and defence and was referred to as strategic autonomy.

- **2017 to 2019**: it was a response to defend EU interests in a hostile geopolitical environment: Brexit, the Trump Presidency and China's growing assertiveness.

- **From 2020**: the Covid 19 pandemic shifted the focus to mitigating economic dependence on foreign supply chains.

- **From 2022**: it broadened its scope to almost all EU policy areas, with the Russian invasion of Ukraine highlighting the need for OSA in defence and energy matters.

The EU OSA: content and phases (Szyszczak, 2023)

- EU OSA as an economic statecraft, defined as *"the ability to shape the new system of global economic governance and develop mutually beneficial bilateral relations, while protecting the EU from unfair and abusive practices, including to diversify and solidify global supply chains to enhance resilience to future crises" (European Commission 2021)."*

- The EU has limited legal capacity to develop foreign policy but has greater capacity to develop economic and trade policy

- The narrative of the EU OSA is around "security" (economic, intertwined with defence)

- The EU continues to *argue for multilateralism and a rules-based international order* yet the effect of many of these measures (such as FDI screening, Carbon Border Adjustment Mechanism, CRM Act) are indicative of the ambiguity of the term *Open* Strategic Autonomy

Strategic autonomy, technological sovereignty and the use of trade and industrial policies

- New industrial policy tools used for "national security", "supply chains resilience, responsiveness and control"

- This is not new (Fontana and Vannuccini, 2024):
  - Information technology race in the 1980s (Jowett and Rothwell, 1986)
  - The American Japanese trade conflict over semi-conductors (Irwin, 1996)
  - New wave of security-led industrial policies (i.e. Chips Act, IRA)

- We examine **nearshoring** as a trend that has pre-dated the EU OSA turn, within the global context of GVCs reconfiguration

Nearshoring – the context

- Technically, nearshoring refers to the restructuring of production phases of a GVC, that implies an increase in the share of **imported value added** coming from geographically closer macro areas

- However, the term often refers to the broader idea of shortening and restructuring GVCs towards **'safer', 'friendly' or less volatile locations**, associated to the post-crises slow down of globalisation – *The Great Trade Collapse.*

- Open Strategic Autonomy and Technological Sovereignty occur - and should be assessed - in this historical and global context, from the perspective of **GVC reconfiguration and the changing geo-political equilibria**.

Nearshoring – content and dimension

- Regional-to-Global foreign value added (NFVA) → **near-shoring of the sourcing of FVA**

- Regional-to-Global contribution to foreign GVCs (NFSUB) → its homologue on the destination side, **near-sharing**

That is:

- Regional (RFVAS) and global (GFVAS) foreign value added (FVA) share of final output → **near or far-shoring**

- Share of domestic value added contributed to regional (RFSUBS) and global (GFSUBS) value chains → **near or far-sharing**
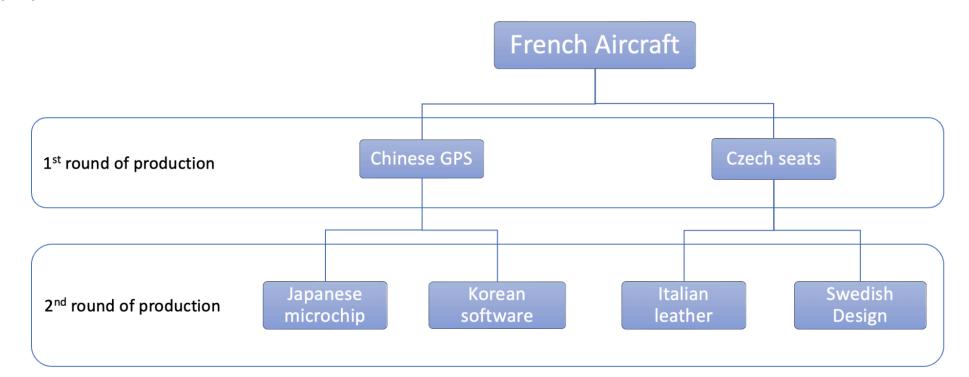
Nearshoring and employment

- The idea that restructuring GVCs closer towards final EU demand could not only increase GVC resilience but also 'bring jobs back' is particularly appealing to policy makers.

- We explore this conjecture using ICIO and employment data and define nearshoring building on the definition of Los et al. 2015:
  - The ratio of regional (e.g. coming from within the EU) over extra-regional foreign value added as above
- We explore whether nearshoring leads to more employment in the country of completion of GVCs.
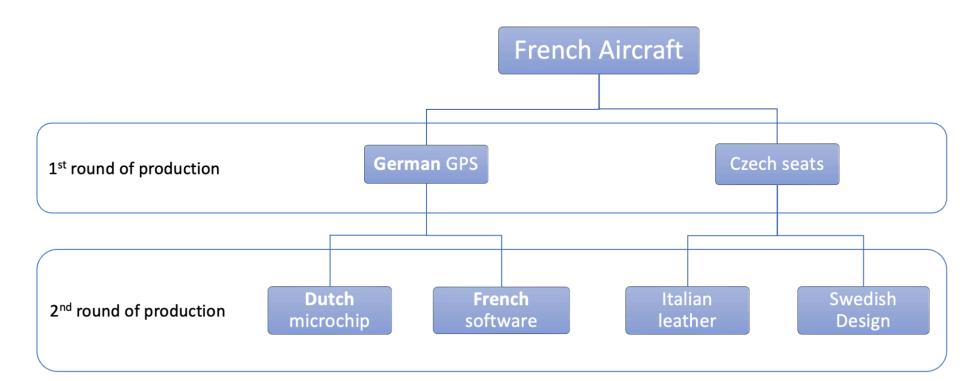
Nearshoring and employment – the intuition

In principle nearshoring only involves a compositional change of foreign value added, why should this have any effect on domestic employment?

Let's take the example of Airbus aircrafts produced in Toulouse, with the supply chain below

Nearshoring and employment – the intuition

As Chinese GPS suppliers are replaced with German ones, this changes the value chain upstream, generating employment in the French software industry.

Nearshoring generates inter-sectoral employment through indirect inter-sectoral linkages.

Nearshoring in a simplified example

Combining the standard Leontieff inverse and final output vector, with a diagonalised vector of value added per unit of output we obtain a global income matrix.

$$V'BF' = \begin{pmatrix} v_a & 0 & 0 \\ 0 & v_b & 0 \\ 0 & 0 & v_c \end{pmatrix} * \begin{pmatrix} b_{aa} & b_{ab} & b_{ac} \\ b_{ba} & b_{bb} & b_{bc} \\ b_{ca} & b_{cb} & b_{cc} \end{pmatrix} * \begin{pmatrix} f_a & 0 & 0 \\ 0 & f_b & 0 \\ 0 & 0 & f_c \end{pmatrix} =$$

$$= \begin{pmatrix} v_a b_{aa} f_a & v_a b_{ab} f_b & v_a b_{ac} f_c \\ \boldsymbol{v_b b_{ba} f_a} & v_b b_{bb} f_b & v_b b_{bc} f_c \\ \boldsymbol{v_c b_{ca} f_a} & v_c b_{cb} f_b & v_c b_{cc} f_c \end{pmatrix}$$

Nearshoring in a simplified example

Looking at country a and assuming that it is located in the same region as country b we can look at our income matrix, identify the foreign value added (in blue):

$$= \begin{pmatrix} v_a b_{aa} f_a & v_a b_{ab} f_b & v_a b_{ac} f_c \\ \color{blue}{v_b b_{ba} f_a} & v_b b_{bb} f_b & v_b b_{bc} f_c \\ \color{blue}{v_c b_{ca} f_a} & v_c b_{cb} f_b & v_c b_{cc} f_c \end{pmatrix}$$

and obtain a measure of nearshoring:

$$\color{blue}{v_b b_{ba} f_a / v_c b_{ca} f_a}$$

In general: nearshoring= an increase in regional/global foreign value added

Nearshoring trends in the global economy

- The EU is by far the most regionally integrated region.

- It has been engaging in farshoring until 2012, after which nearshoring has picked up again.

- Asia is less regional but has been experiencing nearshoring consistently over the past two decades.

- Americas are by far the least regionally integrated areas.

Figure 1: *Upper panel*: Regional-to-Global foreign value added; *Lower panel*: Regional and global FVAS of final output.
Note: All value added corresponding to **primary industries** has been **excluded** from the computations.

Farshoring trends in the global economy

- The EU remains the most regionally integrated, but has a experienced a steep decrease.

- This is driven largely by an increase of the extra-regional share of GVA absorption.

- Asian country-industries have experienced the opposite trend, with the extra-regional share collapsing after the financial crisis.

- NLA country-industries have experienced a growing trend of the regional share of valued added, after NAFTA, which has swiftly reverted after China's joining the WTO.

Figure 3: *Upper panel*: Regional-to-Global contribution to foreign GVCs; *Lower panel*: Share of DVA contributed to regional and global GVCs.

Nearshoring and employment - main results

We estimate the relationship between nearshoring and employment:

$$y_{jct} = \alpha + \beta * nearshoring + \sum_{jct} \gamma * \boldsymbol{x}_{jct} + \vartheta_{jc} + \tau_t + \varepsilon_{jct}$$

y_{jct} is either **total employment in the country of completion** or its **share over total GVC employment**.

$\boldsymbol{x}_{jct}$ is a vector of controls including total GVC final output, domestic share of value added, capital intensity, and average wage.

We control for country-industry and year FE and use a system GMM to account for possible reverse causality.

Nearshoring and employment - main results

Nearshoring leads to higher domestic employment both in absolute terms (DEM) and as a share of total GVC employment (DEMS).

This corroborates the idea that nearshoring can generate employment in the country of completion.

	(1) DEMS (ln)	(2) DEM (ln)
DEMS (ln t-1)	0.167*** (0.058)	
DEM (ln t-1)		0.290*** (0.058)
Nearshoring Regional-to-Global (ln) (NFVA)	0.516*** (0.045)	0.139*** (0.048)
Domestic value added share (ln) (DVAS)	0.302** (0.125)	0.574*** (0.118)
Final GVC output (ln) (FINO)	0.175*** (0.055)	0.712*** (0.037)
Capital/Labour ratio (ln)	−0.178** (0.083)	−0.083 (0.073)
Average wage rate (ln)	−0.184** (0.082)	−0.709*** (0.121)
Observations	3809	3809
Country-industry FE	Yes	Yes
Year FE	Yes	Yes
Arellano-Bond test AR(1) in FD	0.000	0.000
Arellano-Bond test AR(2) in FD	0.771	0.056
Hansen overid. restr. test p-value	0.176	0.116

Output variable DEMS is the GVC domestic employment share; output variable DEM is the GVC domestic employment; Nearshoring is the ratio of regional-to-global foreign value added shares of final GVC output. GMM dynamic panel model. Robust standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

However: Potential implications for macro regional inequalities

Europe seems to be on a very specific pattern of GVC integration:
1. **Nearshoring of sourcing**, with European GVCs increasingly relying on value added coming from within the continent.
2. **Far-sharing on the demand side**, with non-EU GVCs absorbing larger shares of the value added produced in Europe.

- Hence, European GVCs do not depend very much on foreign suppliers (or at least less so than other GVCs), however **they do depend on foreign demand**.
- Should other regions also embark on a process of nearshoring this may lead to a shrinking demand for European industries.

Potential implications for regional inequalities

We observe a growing share of non-EU GVCs and a stagnating share of EU GVCs

There are at least two explanations of the far-sharing we observe:

1. Despite slow-balisation, European industries have retained their market shares and remain competitive in foreign markets. OR/AND:
2. European industries are turning towards non-EU GVCs due to **faltering European demand**.

Warning signs on the sustainability of the nearshoring model in EU

- **Warning sign 1**: Underestimation of the shrinking demand from domestic VC. Following the global financial crisis (2008/09) and sovereign debt crisis in some European countries (2011) fiscal consolidation policy in Europe has contributed to this. In response, European country-industries have re-directed output towards extra-European value chains.

- **Warning sign 2**: The consolidation of a European export-led growth model - involving an increase in intra-regional backward linkages and a diversification towards extra-regional markets - **might not be sustainable in the current context, and even less with OSA policies**.

- **Warning sign 3**: The OSA current debate, pursuing a further shortening of (strategic) European value chains, should take into account the increasing dependence of the area on foreign demand, which might be shrinking too.

What to do?

- Beware of nearshoring, friend-shoring and other forms of OSA on trade competitiveness and the European export-led growth model

- Need to increase **public and private investment to maintain strategic competitiveness** in specific high-tech segments of VC (i.e. estimated investment gap of 520 billion per year for green transition)

- Any strategic autonomy and sovereignty policies should rely on a **proper (EU) fiscal capacity** and on support of **final demand**

- This applies even more to **the digital infrastructures and i-cloud providers**, which are all but EU sovereign

Summary of policy-relevant evidence

- GVC integration in Europe **has not led to convergence in innovation capabilities nor in functional specialization** (Bontadini et al. 2024)

- Some evidence of restructuring of European VCs and nearshoring

- **Nearshoring increases employment in Europe**

- Digital and green value chains are very complex and fragmented

- EU OSA: Achieving strategic autonomy in these chains is costly

- Industrial policies should be selective and accompanied by **inclusive trade policies favouring upgrading in developing economies**

Global value chains and volatility (ongoing)

The policy discussion around the restructuring of GVC has also focused on the idea that GVCs are a conduit for volatility.

The question of how shocks propagate along GVCs has become central.

A trade-off emerges between *efficiency* and *security* - within a broader discussion around the relationship between GVCs and economic growth.

1. Does GVC integration increase exposure to shocks and hamper final output growth?

2. Do GVC structural features (farshoring, length, concentration) mediate supply shocks and their relationship with GVC output growth?