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## **From trade in goods to trade in value-added: supply-chain integration in Italy, Austria and Germany**

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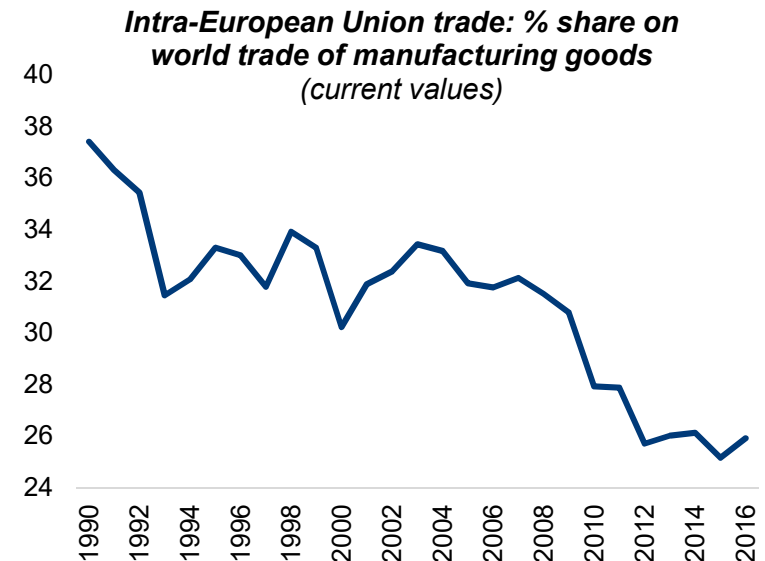
Andrea Dossena (*Prometeia*)

LEIGIA Conference, Parma 15<sup>th</sup> December 2017

# The crisis of the European Union: reality or not?

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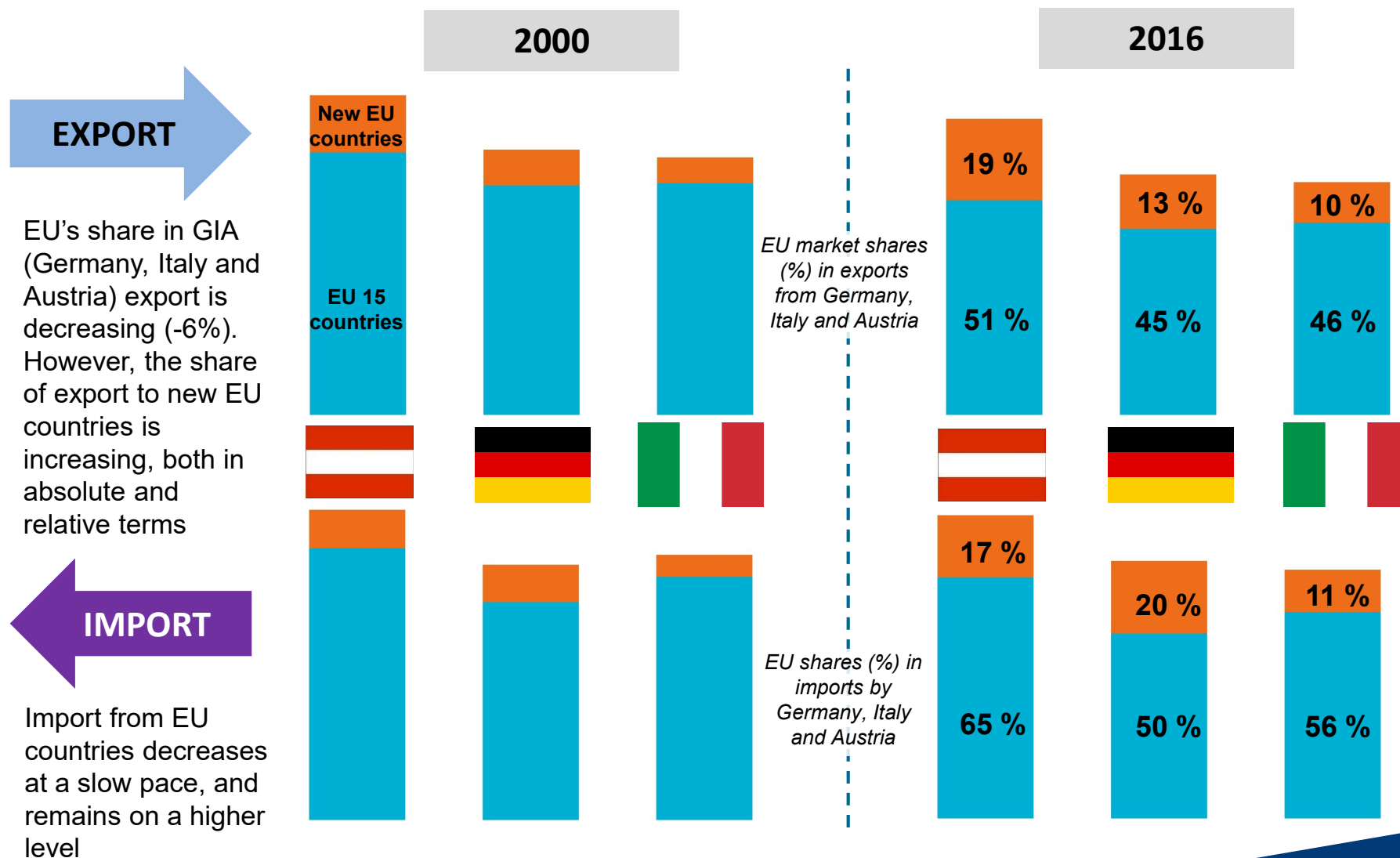
- The survival of the **European economical and political Union** is a frequently debated topic...
- ...along with the secondary role played nowadays by the **European free-trade zone**: intra-EU trade accounts for less than  $\frac{1}{4}$  of the international trade of manufacturing goods. In 2007, the European Area was responsible for generating more than  $\frac{1}{3}$  of the world trade.
- Do trade statistics reflect the real integration of European countries?
- **Industrial integration can be stronger than trade integration.** We should explore Global Value Chain (GVC) statistics in order to conduct an in-depth analysis on this topic.



Source: authors' calculations based on the FIPICE Database

# The (LEI)GIA countries point of view

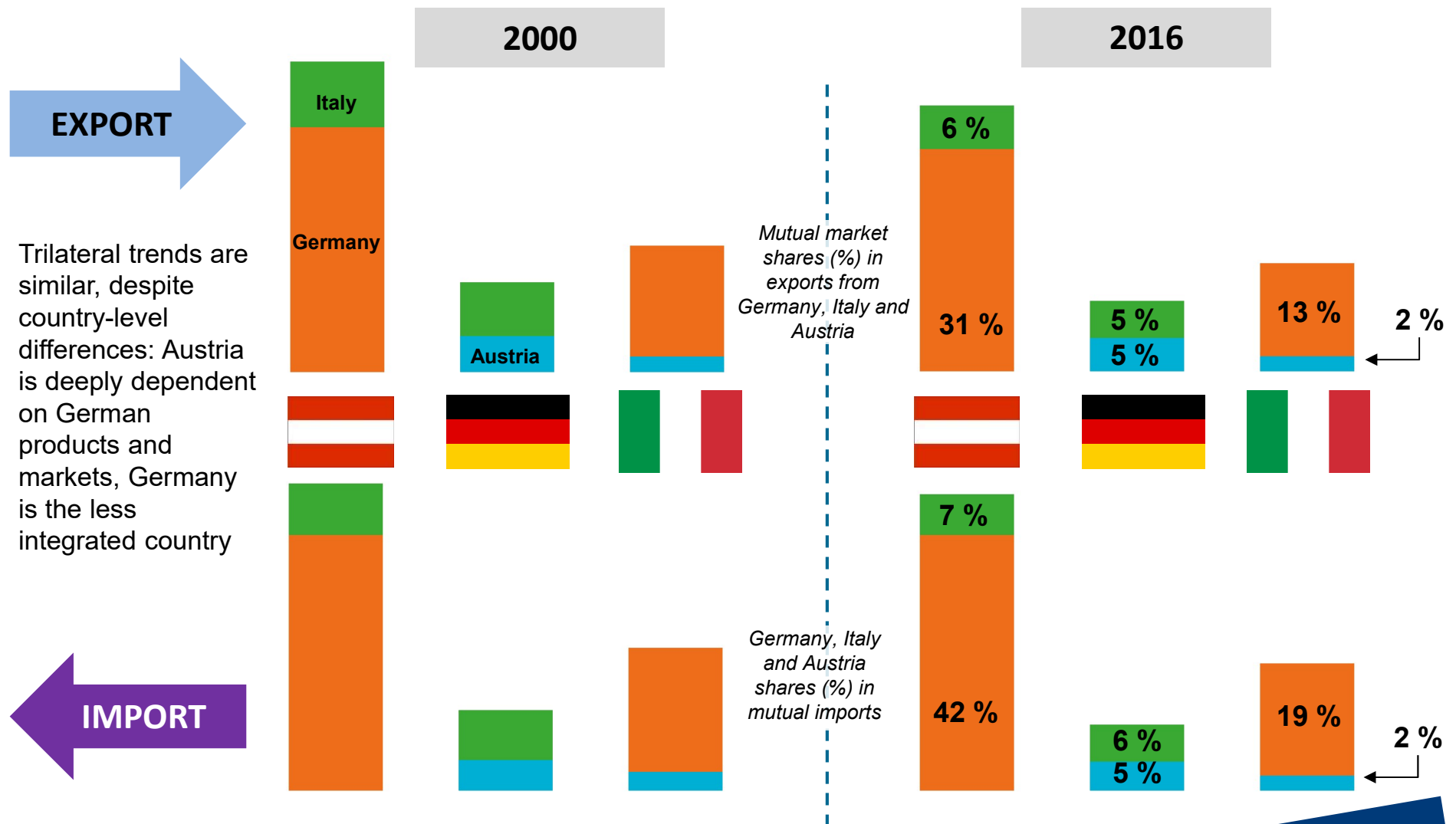
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Source: FIPICE Database

# The (LEI)GIA countries trilateral trade

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Source: FIPICE Database

# Microeconomic integration: the Italian case

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## Italian owned and controlled companies

	Enterprises (#)	Revenues (mln.)
in Austria	503 (+ 62 since 2010)	5.811
in Germany	2.228 (+ 124 since 2010)	49.909
<i>% Italian foreign enterprises</i>	<i>8% (2010=8%)</i>	<i>11%</i>

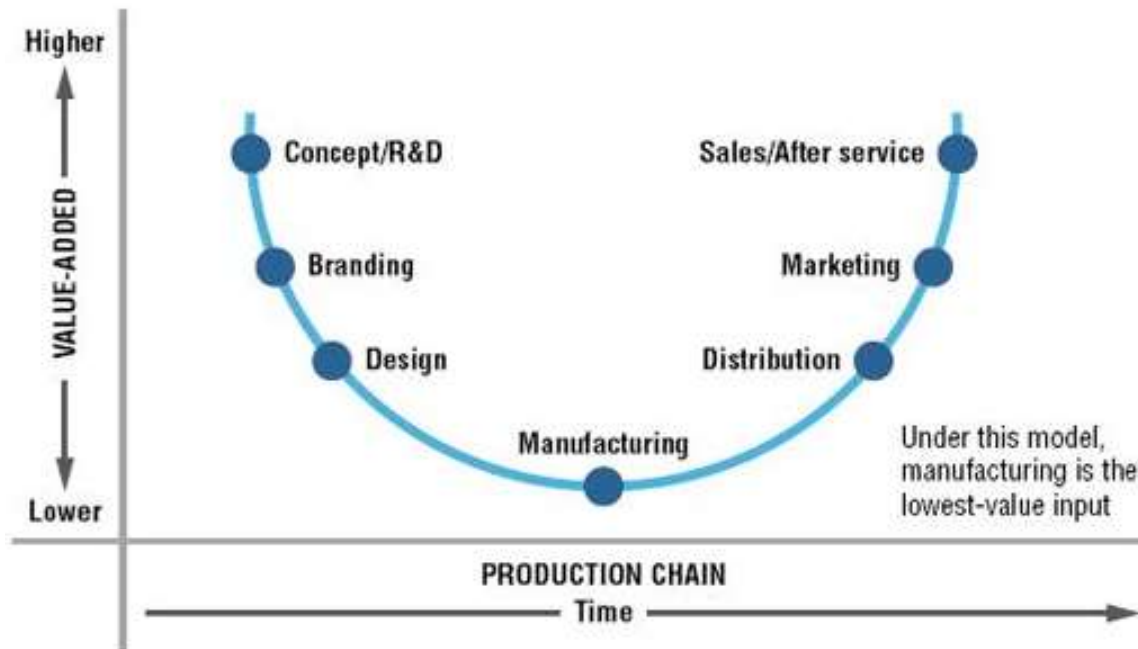
## Foreign owned and controlled companies in Italy

Austrian owned companies	445 (+ 77 since 2010)	7.061
German owned companies	2.284 (- 9 since 2010)	74.454
<i>% foreign enterprises in Italy</i>	<i>21% (2010=22%)</i>	<i>14%</i>

Source: ICE-Reprint Database

- No signal of “dis-integration” emerges from firm-level data;
- Trade statistics do not reflect these stronger links of industrial integration between countries. New measures are needed.

# The Global Value Chain (GVC) concept



Source: UNCTAD Report 2015 «Tracing the value-added in global value chains: product-level case studies in China»

- Certain goods are the result of long productive chains, where firms belonging to different countries can add their own contribution, measured in terms of value added;
- Following the logic that is represented graphically in the **smiling curve**, each stage of the chain is inclusive of an intrinsic percentage of value added.

# World Input-Output Database (WIOD)

- The ***World Input-Output Database (WIOD)*** is the outcome of a project that was funded by the European Commission from 2009 to 2012, and was carried out by a consortium of research institutes. Scope of the project was to analyse the effects of industrial globalization (parallel project OECD-WTO, TiVA Tables);
- The **2016 Release** consists of a series of databases and covers:
  - **43 countries** (28 EU countries and 15 other major countries), plus a model for the Rest of the World;
  - **56 sectors**, ISIC Rev.4 classification;
  - the **period from 2000 to 2014**.
- The database is inclusive of information on *consumption of intermediate inputs*, *final demand* (consumption, investment, inventories) and the *value added* generated by each sector and country that exploits the inputs.

# Mapping GVCs using WIOD Tables

	<i>Global value chains (GVC), identified by country-industry of completion</i>						Value added	
	Country 1 Industry 1    ...    Industry N			...	Country M Industry 1    ...    Industry N			
Country 1 Industry 1 ... Industry N	<i>Value added from country-industries participating in global value chains</i>			...	<i>Value added from country-industries participating in global value chains</i>			Sum of rows, value added
...								
Country M Industry 1 ... Industry N								
	Total final output value						World GDP	

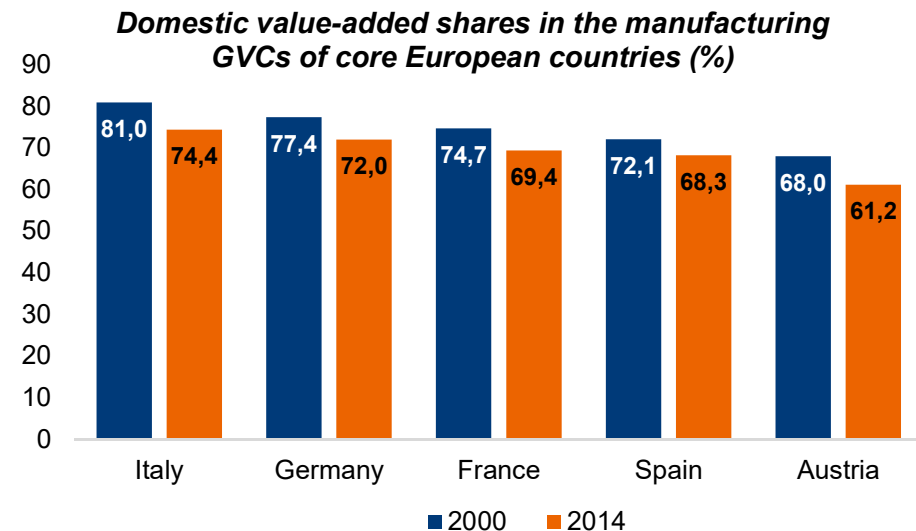
It is possible to decompose the final output of a GVC (column) into the different contributions of the countries that participate to the chain. Shares are calculated in terms of the value added that is generated by the country-industries that belong to the chain.

Source: Timmer, M. P., Dietzenbacher, E., Los, B., Stehrer, R. and de Vries, G. J. (2015), "An Illustrated User Guide to the World Input–Output Database: the Case of Global Automotive Production", *Review of International Economics*, 23: 575–605

# We observe a general decline in domestic value-added shares...

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- The **lengthening of production chains** can explain the progressive reduction of domestic value-added shares;
- The **Italian manufacturing GVC is still the most closed** one (74.4% of domestic share) in the group of GVCs of core European countries, because of the clustered nature of the production base (a key role is played by industrial districts).

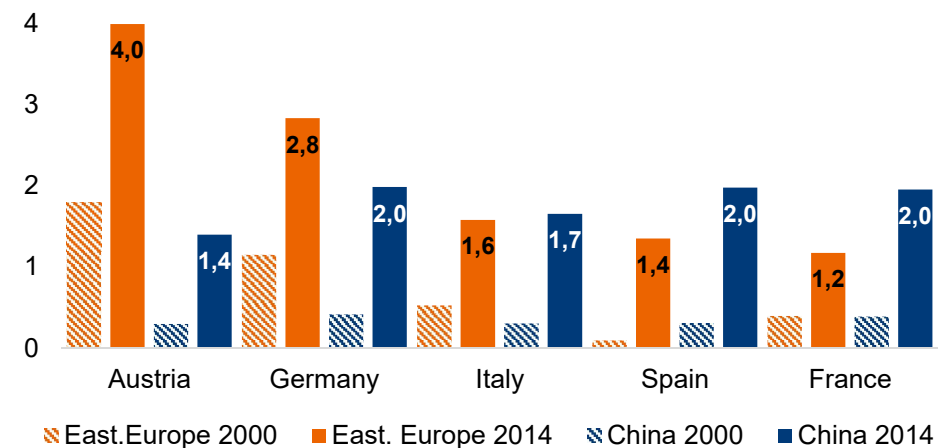


Source: authors' calculations based on the WIOD Database

## ...as a result of an increased participation of emerging economies in GVCs...

- Emerging countries play nowadays a key role in European productive chains;
- In particular, we observe an increased participation of **Eastern Europe countries** in the GVCs of Austria and Germany. The former countries were involved in several delocalization projects during the past, well documented in case studies: “with the new availability of cheap and relatively skilled labor, firms from Germany relocated parts of the production process to Eastern Europe” (Marin, 2011);
- **China** has climbed important steps in the ranking of countries that contribute to the manufacturing output of EU countries. In the GVCs of Italy, Spain and France, the value-added share generated by China is higher than the one generated by Eastern Europe countries.

*Value-added shares (%) in the manufacturing final output from core European countries*

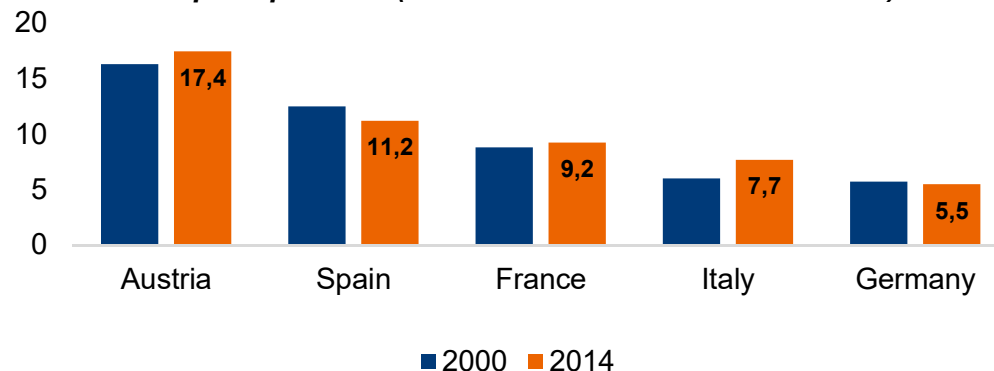


Source: authors' calculations based on the WIOD Database

# ...and integration of core European countries, that is leaded by Germany

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*European manufacturing GVCs: value-added shares of European partners (net of domestic value-added share)*



*European manufacturing GVCs: value-added shares of European partners (2014 % shares)*

Value-added shares:	GVC Italy	GVC Germany	GVC France	GVC Spain	GVC Austria
Italy	74,4	1,8	2,5	2,3	2,5
Germany	4,1	72,0	4,9	4,4	12,8
France	2,2	2,0	69,4	4,2	1,5
Spain	0,8	0,7	1,4	68,3	0,5
Austria	0,6	1,2	0,4	0,3	61,2

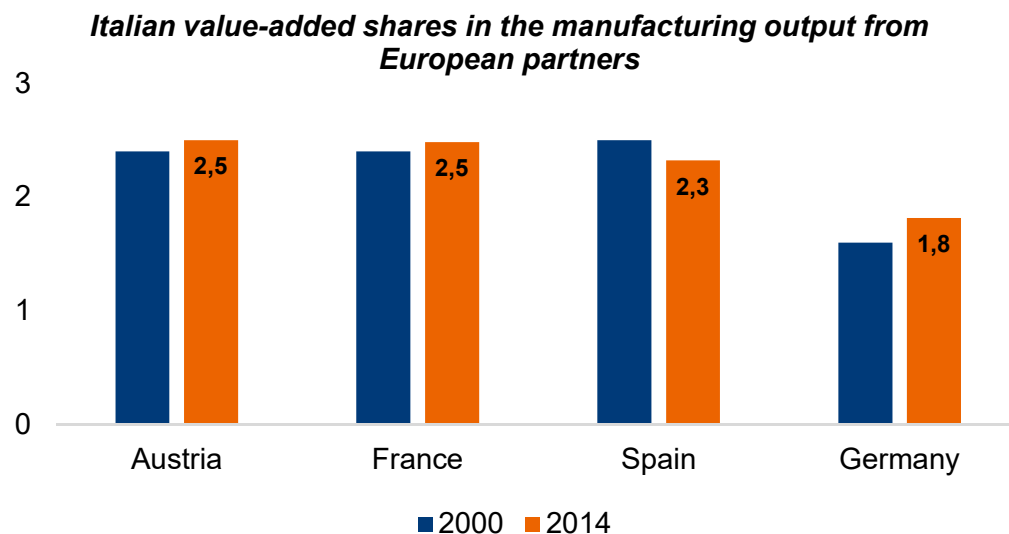
German value-added shares in manufacturing output from European partners steadily increased since 2000: we observe the highest share (12.8%) in the Austrian GVC and the lowest one (4.1%) in the Italian GVC. At the same time, value-added shares of European partners in the German manufacturing production chain are still low (no higher than 2%).

Austrian and Spanish GVCs benefit of the highest value-added shares of European partners.

Source: authors' calculations based on the WIOD Database

# Increasing Italian value-added shares

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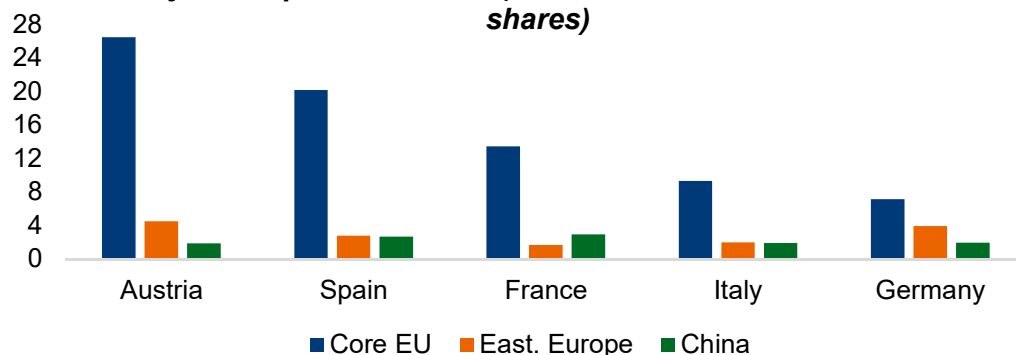
From 2000 to 2014, Italian value-added shares in the manufacturing output of European partners increased steadily, especially in the German GVC

Source: authors' calculations based on the WIOD Database

# European integration emerges in the automotive sector...

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*Value-added shares in final output of automotives from major European countries (2014 % shares, net of domestic shares)*



■ ...with a strong leadership of **Germany** (19.2% share in the Austrian final output of automotives);

■ **China** plays a secondary role in the European production chains of automotives. Value-added shares of **Eastern Europe countries** are relevant for both Austrian and German GVCs;

*Automotive GVCs: value-added shares of European partners (2014 % shares)*

<i>Value-added shares:</i>	<i>GVC Italy</i>	<i>GVC Germany</i>	<i>GVC France</i>	<i>GVC Spain</i>	<i>GVC Austria</i>	<i>GVC World</i>	
<i>Italy</i>	<b>72,0</b>	2,4	3,6	3,8	4,1	...	2,1
<i>Germany</i>	5,4	<b>69,2</b>	7,5	8,8	19,2	...	9,4
<i>France</i>	2,3	2,4	<b>57,0</b>	6,9	2,4	...	2,7
<i>Spain</i>	0,9	0,9	1,9	<b>53,0</b>	0,8	...	1,4
<i>Austria</i>	0,7	1,5	0,5	0,7	<b>48,2</b>	...	0,5

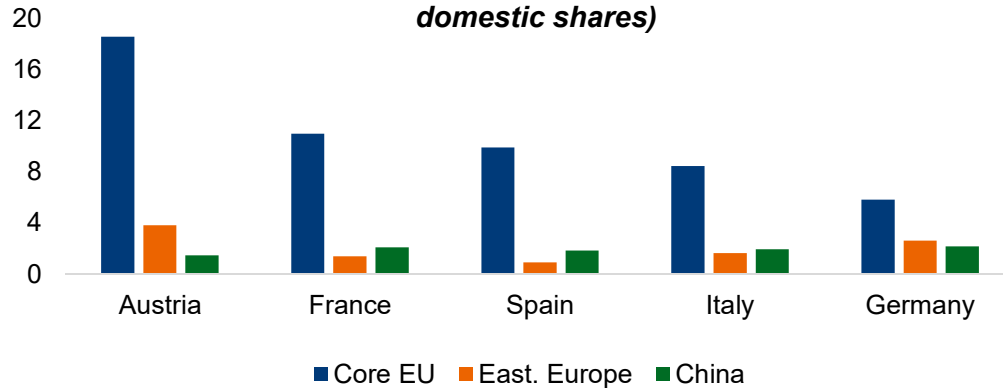
■ **Italian shares** are relevant for the German automotive value-chain (Italy is ranked first in the list of participating countries, together with France, with a 2.4% share), and for the GVCs of the other European partners (second position in the Austrian value-chain, with a 4.1% share).

Source: authors' calculations based on the WIOD Database

## ...in the mechanical sector...

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*Value-added shares in final output of mechanical products from major European countries (2014 % shares, net of domestic shares)*



■ Also in the case of mechanical value-chains, integration between European countries plays a key role;

■ **Germany** is the biggest contributor to the mechanical GVCs of the European partners;

■ **Italian shares** are relevant for the GVCs of Germany, France and Austria (Italy is ranked second in the list of participating countries, with a share that increased since 2000), and also for the Spanish GVC (third position).

*Mechanical GVCs: value-added shares of European partners (2014 % shares)*

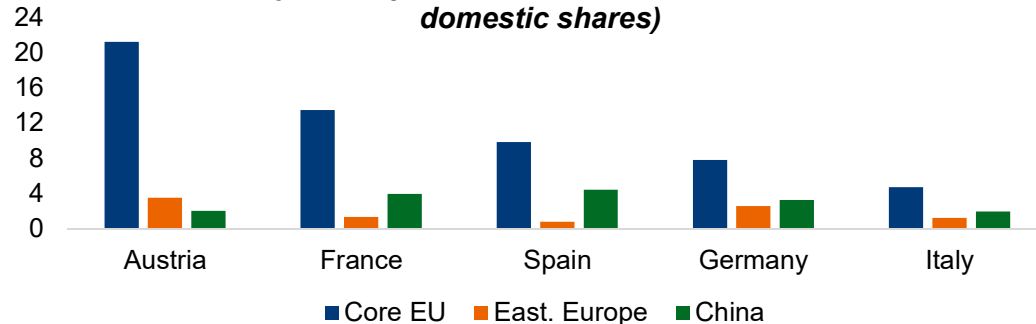
<i>Value-added shares:</i>	<i>GVC Italy</i>	<i>GVC Germany</i>	<i>GVC France</i>	<i>GVC Spain</i>	<i>GVC Austria</i>	<i>GVC World</i>
<i>Italy</i>	<b>74,4</b>	2,1	3,2	2,4	2,8	... 4,1
<i>Germany</i>	5,1	<b>73,3</b>	5,9	4,0	13,9	... 9,7
<i>France</i>	1,9	1,8	<b>69,3</b>	3,2	1,4	... 2,0
<i>Spain</i>	0,8	0,6	1,5	<b>72,0</b>	0,5	... 1,2
<i>Austria</i>	0,6	1,3	0,4	0,3	<b>62,0</b>	... 0,9

Source: authors' calculations based on the WIOD Database

# ...and in the apparel industry, where the Italian leadership is predominant

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*Value-added shares in the final output of apparel products from major European countries (2014 % shares, net of domestic shares)*



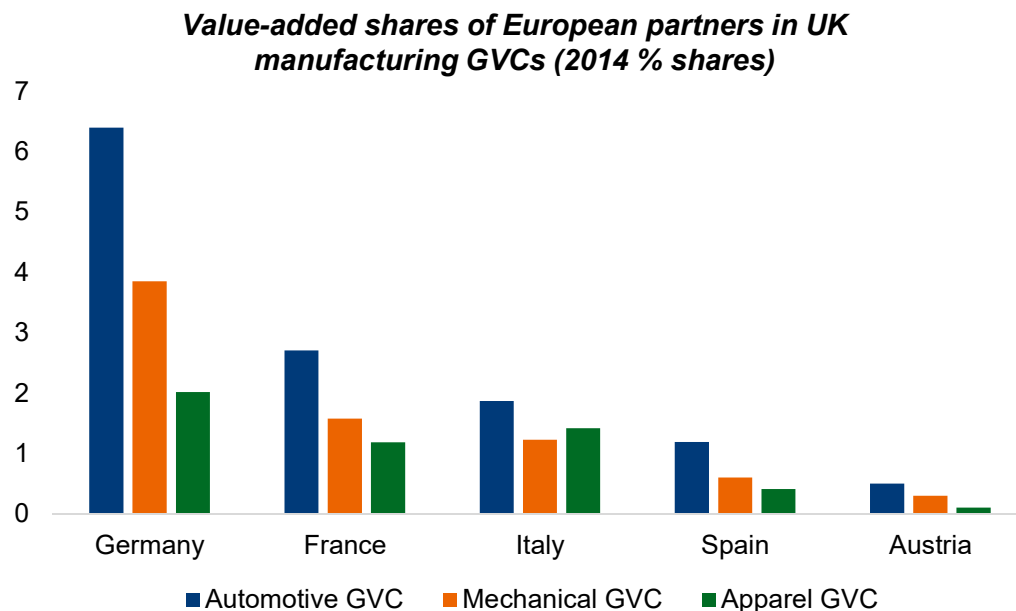
■ Value-added shares of **core EU countries** are stronger compared to emerging markets' shares (Eastern Europe countries and China);

*Apparel GVCs: value-added shares of European partners (2014 % shares)*

<i>Value-added shares:</i>	<i>GVC Italy</i>	<i>GVC Germany</i>	<i>GVC France</i>	<i>GVC Spain</i>	<i>GVC Austria</i>	<i>GVC World</i>	
<i>Italy</i>	<b>78,7</b>	3,8	6,2	4,4	5,6	...	3,7
<i>Germany</i>	2,3	<b>65,8</b>	4,4	2,5	13,1	...	2,0
<i>France</i>	1,4	2,0	<b>60,5</b>	2,8	1,8	...	1,4
<i>Spain</i>	0,8	0,9	2,5	<b>65,9</b>	<b>0,7</b>	...	1,2
<i>Austria</i>	0,3	1,1	0,4	0,2	<b>53,9</b>	...	0,2

■ **Italy** plays a primary role in the global apparel value chains of its European partners: Italian shares are particularly relevant for the French GVC (6.2%), the Austrian GVC (5.6%) and the Spanish one (4.4%).

Source: authors' calculations based on the WIOD Database



Source: authors' calculations based on the WIOD Database

■ UK is among the minor contributors of value-added to the manufacturing production chains of its European partners. UK shares are relevant (although no more than 2.5%) for the French apparel industry and the French automotive industry only;

■ UK manufacturing value-chains benefit of the contribution of core EU countries, with particular reference to German shares: we observe a 6.4% value-added share in the UK output of automotives and a 3.9% value-added share in the UK output of mechanical products.

# Summary

- Starting from the early Nineties, we observe a significant lengthening of manufacturing production chains in Europe, that goes hand in hand with a reduction in domestic value-added shares;
- The phenomenon is due to an increased participation of emerging countries (e.g. Eastern Europe countries and China) in GVCs and, above all, to a stronger industrial integration of core EU countries, that is well emphasized by WIOD estimates;
- A German leadership emerges: i.e. Germany is the major contributor to the manufacturing value-chains of its European partners and can, therefore, reap the most benefits from a growth in the output of its partners;
- Italian shares are relevant for the apparel value-chain, but also for the mechanical and the automotive GVCs;
- UK is a minor contributor of value-added to the manufacturing value-chains of European countries. At the same time, UK manufacturing value-chains benefit of the contribution of core EU countries, with particular reference to German shares.