Value added chains in exports of Italian regions
From gross flows to labor activation by skill level

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Motivations

The rise of ICT technologies and the ensuing spreading of GVCs have coincided with a change in the nature of globalization.

i. Fall in income inequality between developed and (a group of) developing countries and a rise in inequality (especially) within developed countries (e.g., Milanovic, 2016).

ii. Weakening of advantages stemming from the co-location of firms within the same supply chain, so as it is envisioned by theories of industrial districts and New Economic Geography (e.g., Baldwin, 2016).

Whereas participating and advancing in GVCs is thought to be a crucial step in the road to regional development, little is known about its impact in terms of within- and between regional income inequality.

Motivations (*con't*)
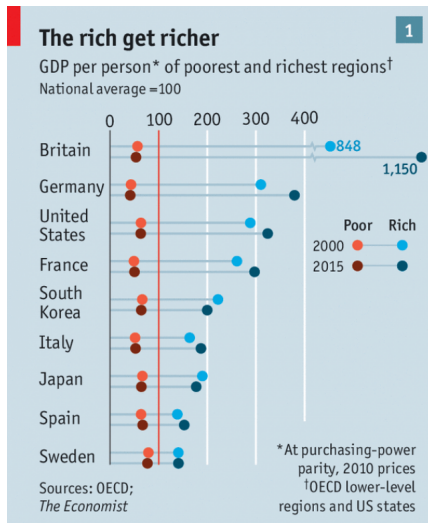
Our contribution

i. We exploit our previous work on GVCs in a I-O framework (Bentivogli et al., *forth.*, 2017a,b) which provided i) an interregional-intercountry I-O structure; ii) a decomposition of regional bilateral exports and outflows starting from bilateral intersector flows; iii) characterization of Italian regions in terms of their degree of embeddedness of GVCs

ii. We provide first evidence about how the structure of regions' international as well as interregional trade is related to labor activation by skill level

Summary of the main results

    i. The degree of embeddedness of Italian regions in GVCs varies much, especially when comparing Northern to Southern areas, and greatly affects the geography of interregional trade

    ii. The differences in terms of participation to GVCs are also reflected in a heterogeneous labor activation by skill level

    iii. In particular, labor activation in the South is 'biased' towards managers and white collars

Related studies

Although born in the fields of sociology and international business, GVCs have been more recently studied thoughtout Input-Output (I-O) analysis.

   i. Approaches via I-O tables at the country level: e.g., Hummels et al. (2001), Johnson & Noguera (2012), Dietzenbacher et al. (2013a), Timmer et al. (2013), and Koopman et al. (KWW, 2014), Borin and Mancini (2015) → development of World I-O databases (e.g., WIOD, GTAP, ICIO etc.)

   ii. Approaches via I-O tables at the regional-country level: Dietzenbacher et al. (2013a), Meng et al. (2013), Meng et al. (2017), Bentivogli et al. (*forth*, 2017a,b)

In Bentivogli et al. (*forth*, 2017a,b) we provide an analytical framework to study interregional and international value chains starting from bilateral intersector trade.

The data

i. Starting point: availability of Italian multi-regional and country specific *SUT* for EU, US, Canada and Japan (Data from national statistical offices; Eurostat for EU; 2012)

ii. Estimates of *country-by-country* intermediate and final product flows (OECD Trade by commodities, Eurostat Comext, OECD Trade in services by partner country)

iii. Balancing multi-country and multi-regional trade flows

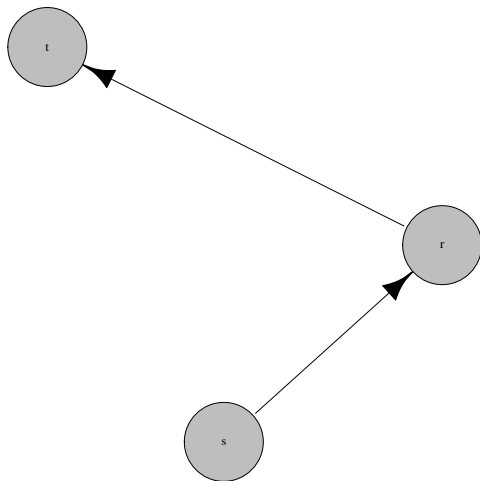iv. Symmetrization via *product-by-product* industry technology

The interregional-intercountry map
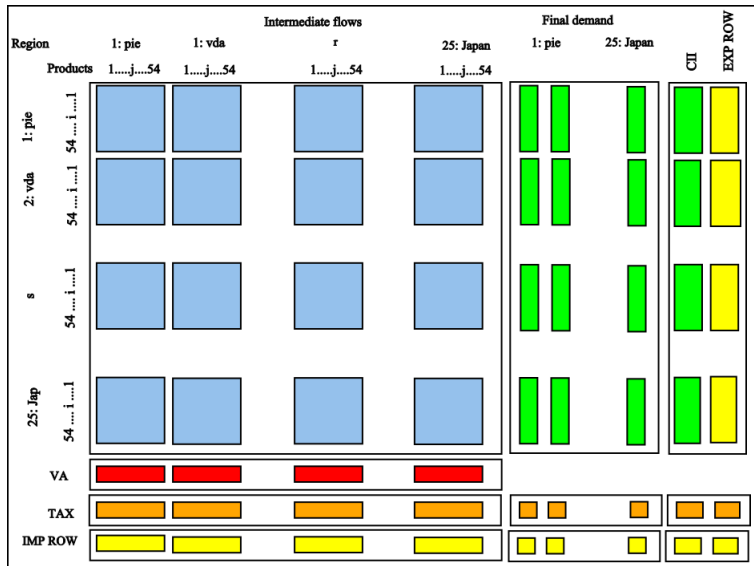
Interregional and international trade patterns: example 1
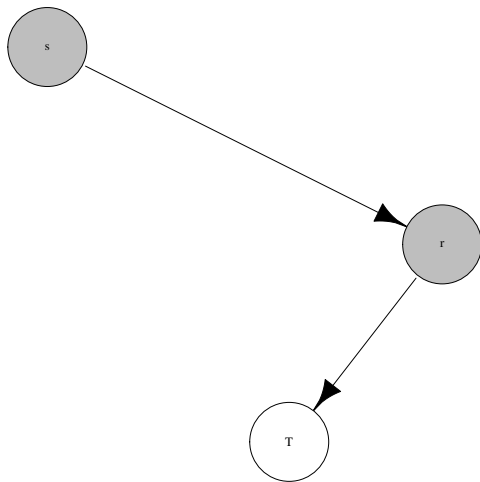
# Interregional and international trade patterns: example 2

Decomposing intersectoral/bilateral flows: A receipt

    i. We start from bilateral trade (Borin and Mancini, 2015; BM), and further disaggregate it at the sectoral level

   ii. We disentangle *outflows* (interregional trade) from *exports* (international trade)

  iii. We distinguish, *domestic*, *'foreign' national* and *'foreign' international* value added exports and outflows

  iv. We pin down *domestic* vis-à-vis *international* segments of GVCs

   v. We recover domestic value added, reimported VA, double counted term, other countries' and other regions' VA and dc term for both exports and outflows

Decomposing intersectoral/bilateral flows: In summary

| Domestic value added (DVA_bw) 1 | Returned value added (RDVA_bw) 2 | Foreign value added (FVA) | | Double counting (DC_bw) 5 |
		National value added (NVA_bw) 3	International value added (IVA_bw) 4	
DVAO_bw: serving national demand d) via domestic segments of GVCs i) via international segments of GVCs DVAX_bw: serving foreign final demand d) via domestic segments of GVCs i) via international segments of GVC	d) via domestic segments of GVCs i) via international segments of GVCs	NVAO_bw: serving national demand d) via domestic segments of GVCs i) via international segments of GVCs NVAX_bw: serving foreign final demand d) via domestic segments of GVCs i) via international segments of GVCs	IVAO_bw: serving national demand IVAX_bw: serving foreign final demand	a) goods initially produced at home b) goods initially produced abroad

Domestic VAX and VAO as a % of regional value added
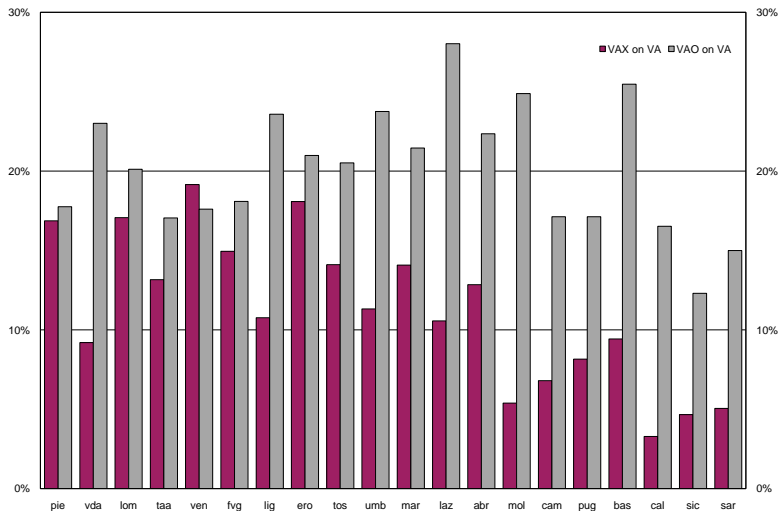
# VA footprint: *absorbed* VA over *produced* VA
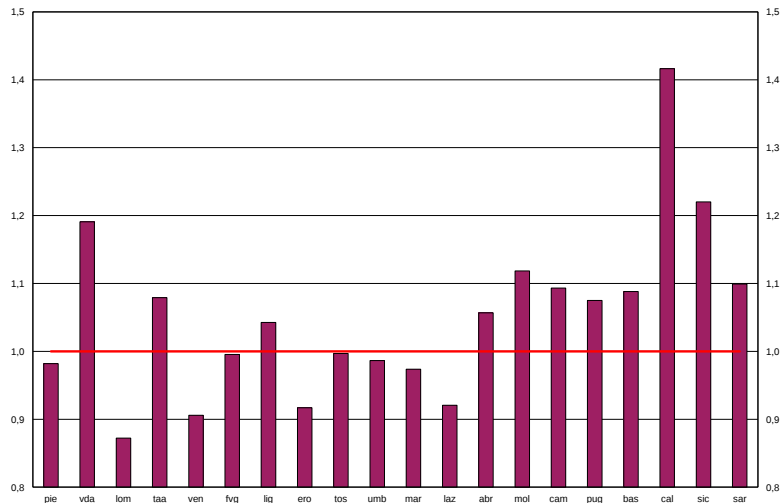
# International VAX and VAO as % of 'foreign' component
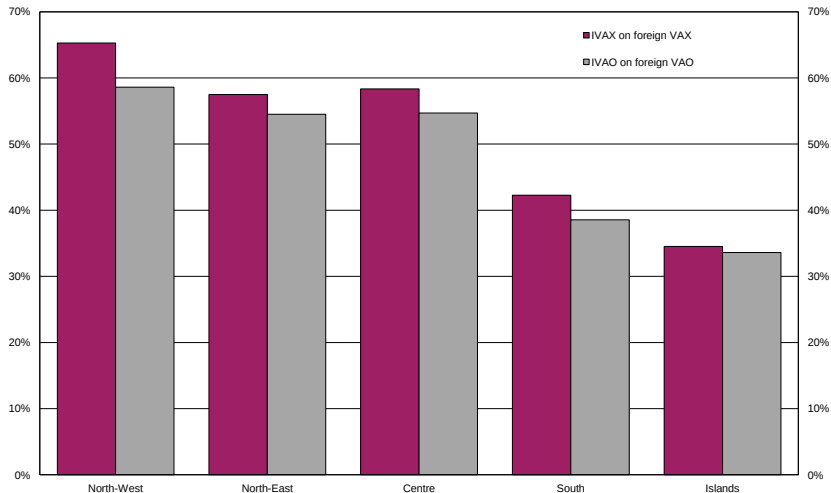
NUTS 1: Geographical composition of NVAX and NVAO

|	North-West	North-East	Centre	South	Islands
		NVAX			
North-West	0,0%	45,8%	28,8%	16,6%	8,8%
North-East	56,5%	0,0%	26,0%	12,3%	5,2%
Centre	43,5%	27,3%	0,0%	23,0%	6,2%
South	38,7%	19,4%	36,2%	0,0%	5,7%
Islands	38,3%	17,5%	23,7%	20,6%	0,0%
		NVAO			
North-West	0,0%	44,3%	29,5%	16,7%	9,5%
North-East	54,4%	0,0%	27,1%	12,7%	5,8%
Centre	41,3%	25,4%	0,0%	26,6%	6,7%
South	35,5%	17,7%	39,6%	0,0%	7,2%
Islands	35,8%	18,0%	25,8%	20,4%	0,0%

Workers in GVCs: exports
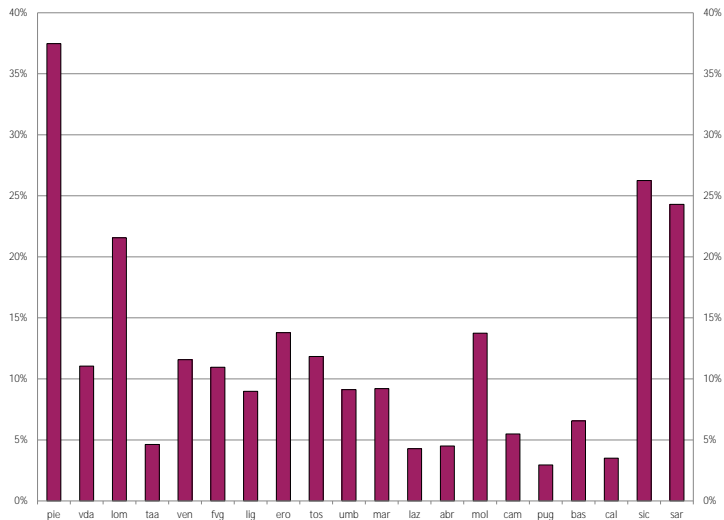
Labor activation by skill level: exports
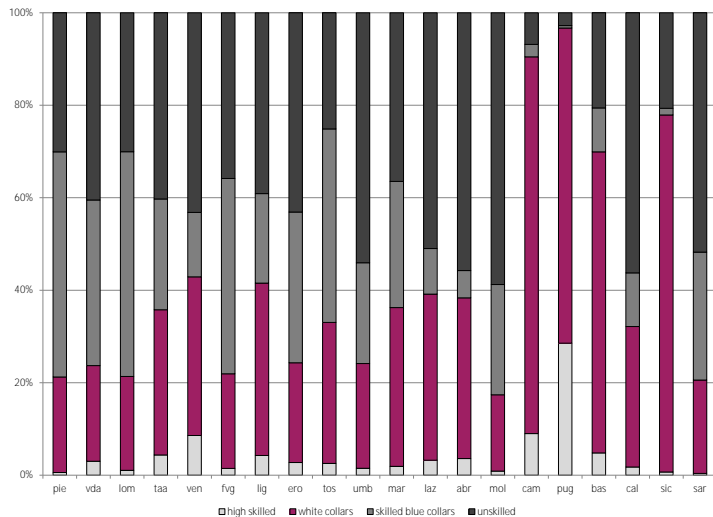
High-skilled labor activation in exports
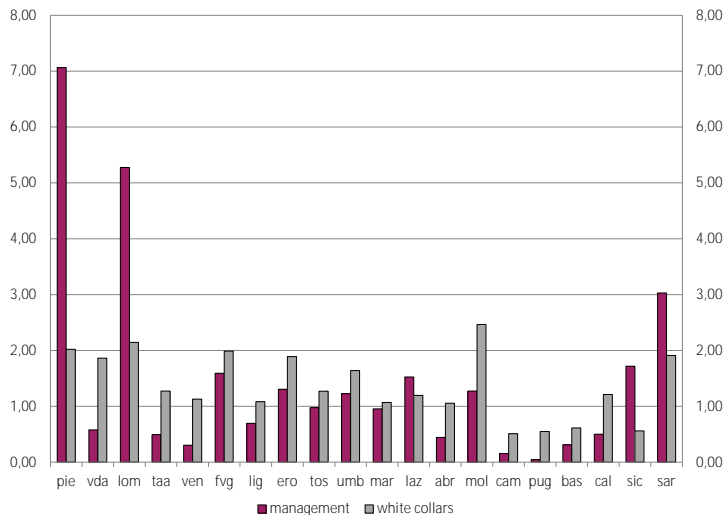
Preliminary conclusions

i. Starting from an "augmented" version of IRPET MRIO model, we built up a framework to study the structure of gross exports and ouflows of Italian regions

ii. We exploited the existing literature on exports decompositions via I-O tables and moved further so as to measure the degree of embeddedness of Italian regions in national and international value chains

iii. We documented the heterogenous participation of Italian regions in GVCs, stressing the differences between Northern vis-à-vis Southern areas

iv. We extended the analysis to labor activation by skill level and found relevant regional differences; in particular, again between Northern vs. Southern economies

Future research

  i. WIOD integration (full world coverage) and more years

 ii. Dynamic empirical exercise: did integration in GVCs lead to higher labor market polarization?

iii. Beyond sectors: need to embed firms (exporters, in every sector, are bigger, more productive, more innovative, pay higher wages, employ a higher share of high-skilled workers)