Value chain, regional institutions, and firm growth in Europe

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The paper in a nutshell

- We analyse whether and to what extent regional institutional quality has a differential effect on firms' growth driven by heterogeneity in firm value chain positioning.

- We analyse short-run turnover growth for manufacturing firms in France, Germany, Italy, and Spain.

- We distinguish final firms serving end markets from suppliers serving other firms, and account for heterogeneity in the type of destination market.

- We find that high-quality regional institutions enhance the growth performance of only local-embedded suppliers with operations confined to their own regional market – i.e., the 'weakest' node of the value chain.

Outline of the presentation

1. Motivation and contribution
2. Related literature
3. Conceptual framework
4. Dataset
5. Empirical framework
6. Results
7. Concluding remarks

Motivation and contribution

- Emphasis by international policymakers (EU) and organisations (OECD, WBG) on improvements of the quality of (local) institutions and governments to promote competitiveness, development, and growth.

  (e.g., Farole et al., 2011; Rodríguez-Pose, 2013; Charron et al., 2014; Barbero et al., 2021)

- Overall, positive economic effects of high-quality institutions:

  - ✓ broad evidence on national/regional institutions and country/region performance

    (e.g., Knack and Keefer, 1995; Akçomak and ter Weel, 2009; Rodríguez-Pose and Ganau, 2022)

  - ✓ broad evidence on national institutions and firm performance

    (e.g., Dollar et al., 2005; Bowen and De Clercq, 2008; LiPuma et al., 2013)

  - ✓ little (but growing) evidence on regional institutions and firm performance

    (e.g., Powell and Weber, 2013; Choi et al., 2015; Lasagni et al., 2015)

Motivation and contribution

- Aggregate effects of institutions depend on the way they impact on the behaviour, organisation, and performance of individual firms:

  - ✓ limited cross-country (region-level) evidence under firm heterogeneity hypothesis – focus on size, capital, productivity heterogeneity sources

    (e.g., Ganau and Rodríguez-Pose, 2019; Rodríguez-Pose et al., 2021)

  - ✓ no evidence on heterogeneity related to the relative position a firm occupies along the value chain

    (Eckardt-Poletti, 2018)

Motivation and contribution

- We contribute by investigating the effect of regional institutional quality on firms' performance distinguishing companies according to:
  - ✓ firm value chain position – final firms vs. suppliers
  - ✓ type of destination market – local vs. national vs. international

Related literature

- Our analysis is related to three different literature streams:

1. economic returns of regional institutional quality on heterogeneous firms
   (e.g., Ganau and Rodríguez-Pose, 2019; Rodríguez-Pose et al., 2021)

2. international production fragmentation and the impact of (regional) institutions on firms' probability to participate in global value chains
   (Dollar et al., 2016; Accetturo et al., 2017; Gee et al., 2020; Hong et al., 2020)

3. role of contextual factors in influencing the performance of firms occupying different positions along the value chain
   (Cainelli et al., 2018)

Conceptual framework

- The division of labour allows firms to gain a performance premium through channels such as specialisation economies, cost saving, and high-quality inputs:
  (e.g., Kimura, 2002; Giunta et al., 2012; Veugelers et al., 2013; Agostino et al., 2020)
  - ✓ this premium tends to be larger for final firms (serving end markets) operating at the most valued stages of the chain, than for suppliers (serving other firms);
  - ✓ this premium is likely to be larger for firms in global rather than local/national value chains – scale economies, new technologies, sunk cost complementarities.

- At the same time, globalisation has contributed to reduce the contractual strength of suppliers (lower trade barriers/transport costs, spread of communication technologies):
  (Porter, 1980)
  - ✓ globalisation provides final firms with a much larger pool of potential suppliers to choose among based on cost- and location-seeking criteria;
  - ✓ suppliers are increasingly facing a reduction of bargaining power due to growing international competition.

Conceptual framework

- Good governance as a key factor for suppliers operating in such a competitive setting of intense inter-firm market relationships, asymmetric information, incomplete contract, and potential opportunistic behaviour:
  - ✓ formal channel – bureaucratic efficiency and transparency, provision of support/targeted services, protection against unfair competition;
  - ✓ informal channel – certainty and stability of the local business environment reducing transaction costs and favouring repeated inter-firm transactions.

- High-quality institutions allow suppliers to leverage on competitive advantages (e.g., acquired know-how, specificities of demanded goods) against new (international) competitors for maintaining long-lasting production relationships with (local) buyers:
  - ✓ good governance may help suppliers to maximise trade gains from inter-firm production relationships:
    - this is key for local-embedded suppliers compared to suppliers operating at national and (even more) global level – larger, higher value-added, and more diversified operational scale.

Dataset

- Firm-level data drawn from the EFIGE (Bruegel) dataset:
  (Altomonte and Aquilante, 2012)
  - ✓ survey data collected in 2010, referring to the period 2007-2009
  - ✓ balance sheet data from Amadeus (Bureau Van Dijk) database for 2010-2013
  - ✓ focus on firms operating in France, Germany, Italy, Spain:
    - active manufacturing firms with more than 10 employees
    - estimation sample of 6,599 firms

- Region-level data on institutional quality drawn from the European Quality of Government Index dataset (University of Gothenburg):
  (Charron et al., 2013; Charron et al., 2014)
  - ✓ survey conducted in 2010, and referring to year 2009
  - ✓ focus on individuals' perception and experience with corruption, quality, and impartiality of governance in their own region with respect to education, health care, and law enforcement

Empirical framework – baseline equation

- Gibrat (1931)-type short-run growth equation:

$$\Delta Turnover_{isrc} = \alpha + \beta Institutions_{rc} + \gamma Supplier_{isrc} + \delta(Institutions_{rc} \times Supplier_{isrc}) + \\ + \sum_{k=1}^{K} \theta_k X_{isrc}^{k} + \sum_{p=1}^{P} \vartheta_p X_{rc}^{p} + \boldsymbol{\mu}_s + \boldsymbol{\nu}_c + \varepsilon_{isrc}$$

- ✓ $\Delta Turnover_{isrc}$ is yearly average (deflated) turnover growth in 2010-2013 of firm *i* in sector *s*, region *r*, country *c*
- ✓ $Institutions_{rc}$ is a proxy for 2009 institutional quality normalised in [0, 1]
- ✓ $Supplier_{isrc}$ is a dummy for suppliers vs. final firms (2007-2009)
- ✓ X^{k}_{isrc} is a vector of firm-level controls (2007-2010 period)
- ✓ X^{p}_{rc} is a vector of region-level controls (2010 GDP pc/human capital/population density, 2010-2013 GDP pc growth, 1900 GDP pc)
- ✓ $\boldsymbol{\mu}_s$ ($\boldsymbol{\nu}_c$) is a vector of sector (country) dummies

Empirical framework – value chain position

- Position along the value chain based on sales of produced-to-order goods:

  - ✓ best proxy available in EFIGE to capture high-targeted, vertical market relationships between clients and suppliers

    (e.g., Veugelers et al., 2013; Accetturo and Giunta, 2016; Agostino et al., 2016; Cainelli et al., 2018)

  1. average percentage of sales accounted for by produced-to-order goods, and main customer of these goods:
     - final firm – if serving exclusively end markets (19.44%)
     - supplier – if selling produced-to-order goods to other firms (80.56%)
       - 65.48% of suppliers has turnover entirely made up by sales of produced-to-order goods

Empirical framework – type of destination market

2. type of destination market – whether firms are involved in local, national, or international value chains:
    - domestic final firm – if does not serve foreign markets at all (9.61%)
    - international final firm – if exports at least a part of its production to serve foreign end markets (9.83%)
    - domestic supplier – if selling produced-to-order goods only to firms operating in the own country (40.20%)
        - to firms located in the own region (11.64%)
        - to firms located only in other regions of the own country (12.05%)
        - to both types of firms (16.52%)
    - international supplier – if selling produced-to-order goods also to foreign firms (40.35%)

Empirical framework – identification strategy

- IV approach to deal with endogeneity of regional institutional quality:
  1. regional shocks affecting local government quality and local firms' performance
  2. spatial sorting
  3. measurement errors

- Identification of a causal effect of regional institutional quality:
  - ✓ regional variations in 1870s literacy rate
  - ✓ validity – historical educational levels are highly correlated with subsequent changes in institutional and political setting
    (e.g., Glaeser et al., 2004; Akçomak and ter Weel, 2009; Tabellini, 2010)
  - ✓ exogeneity – literacy rate in the 1870s represents a historical phenomenon which hardly could affect the current performance of individual firms
    - once we control for current development level and growth (GDP per capita in 2010, and 2010-2013 growth), past development level (GDP per capita in 1900), and current human capital endowment

Results – value chain position (baseline)

Estimation Method	OLS				TSLS			
	Whole Sample		Final Firms	Suppliers	Whole Sample		Final Firms	Suppliers
$Institutions_{rc}$	0.082*	0.023	0.038	0.091*	0.168**	0.011	0.051	0.208**
	(0.042)	(0.067)	(0.065)	(0.049)	(0.073)	(0.096)	(0.149)	(0.087)
$Supplier_{isrc}$	0.000	-0.073**	…	…	-0.000	-0.123**	…	…
	(0.013)	(0.035)			(0.012)	(0.049)		
$Institutions_{rc} \times Supplier_{isrc}$	…	0.114*	…	…	…	0.191**	…	…
		(0.059)				(0.081)		
Firm-Level Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Region-Level Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sector Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of Firms	6,599	6,599	1,283	5,316	6,599	6,599	1,283	5,316
R^2	0.31	0.31	0.42	0.28	0.31	0.31	0.42	0.28
First-Stage *F* Statistic								
$Institutions_{rc}$	…	…	…	…	16.44	11.87	11.05	17.57
$Institutions_{rc} \times Supplier_{isrc}$	…	…	…	…	…	17.24	…	…

Notes: * $p < 0.1$; ** $p < 0.5$; *** $p < 0.01$. Standard errors (in parentheses) clustered at the regional level.

Results – robustness tests on baseline

- Baseline results are fully confirmed:
  - ✓ removing firm-level controls to increase sample size
  - ✓ considering only regions with at least 30 firms in the sample
  - ✓ excluding countries one by one
  - ✓ clustering standard errors at region-country level (rather than at region level)
  - ✓ relying on a Two-Step GMM estimator (rather than on TSLS)
  - ✓ considering variation in regional institutional quality (2009-2013)
  - ✓ alternative IVs
    - executive constraint in 1600-1800 × terrain ruggedness
    - rainfall variability in 1500-1750 (economic risk in pre-industrial period)

- In addition, we capture a ‘supplier effect’ rather than a ‘small size effect’.

Results – type of destination market

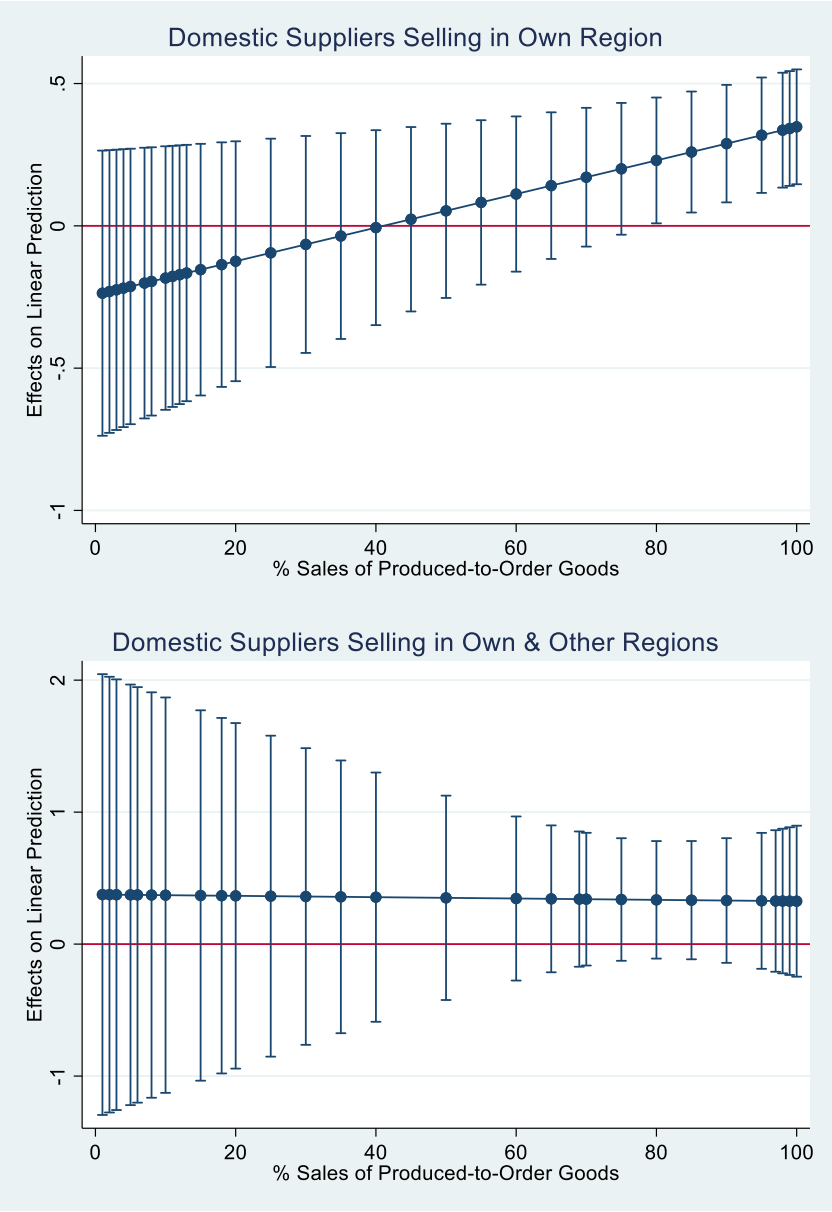
Marginal Effect of Regional Institutional Quality	
Estimation Method	TSLS
Domestic Final Firms	-0.086
	(0.248)
International Final Firms	0.198
	(0.297)
Domestic Suppliers	0.356**
	(0.146)
International Suppliers	0.004
	(0.161)
Number of Firms	6,599

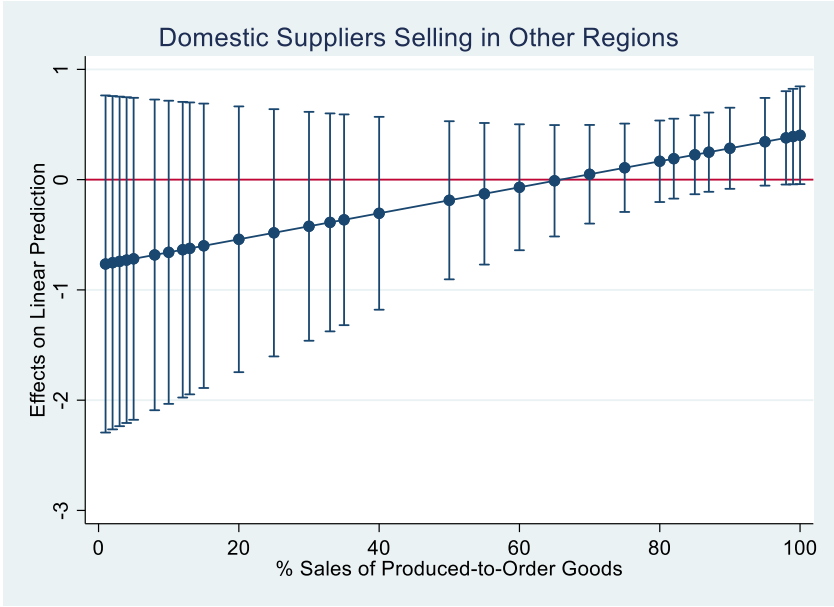
Notes: * $p < 0.1$; ** $p < 0.5$; *** $p < 0.01$. Standard errors (in parentheses) clustered at the regional level.

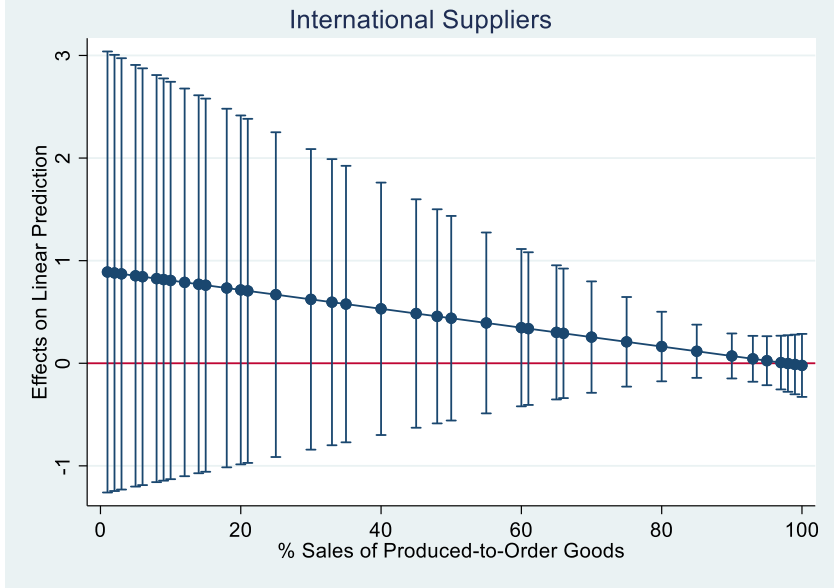
Marginal Effect of Regional Institutional Quality	
Estimation Method	TSLS
Domestic Suppliers Serving	
Own Region	0.350***
	(0.111)
Other Regions	0.094
	(0.114)
Own & Other Regions	0.182
	(0.121)
Number of Firms	2,653

Notes: * $p < 0.1$; ** $p < 0.5$; *** $p < 0.01$. Standard errors (in parentheses) clustered at the regional level.

Results – suppliers by % of produced-to-order good sales







Concluding remarks

- Novel contribution on the role of regional institutions as a growth-enhancing factor in the era of international production fragmentation.

- High-quality regional institutions have positive effects on the short-run growth of only local-embedded suppliers almost entirely specialised in providing highly targeted produced-to-order goods to other firms located in their own region:
  - ✓ local-embedded domestic suppliers represent a significant share of the productive units operating in many European manufacturing systems;
  - ✓ 'aggregate productivity issue' – relative low quality of local governments, combined with the small size and the high idiosyncratic risks of local-embedded domestic suppliers, could increase their probability of being crowded out and exiting the market.

- Improving local governance is key to foster:
  - ✓ firm-level performance;
  - ✓ aggregate-level performance.

Thanks!