



ABSTRACT

Title: Granularity in regional exports: Evidence for Spain, 1997-2017

Authors and e-mails: Juan de Lucio (U. of Alcalá Henares) , Raul Mínguez (Nebrija U.) , Asier Minondo (Deusto U.) , Francisco Requena (U. of Valencia)

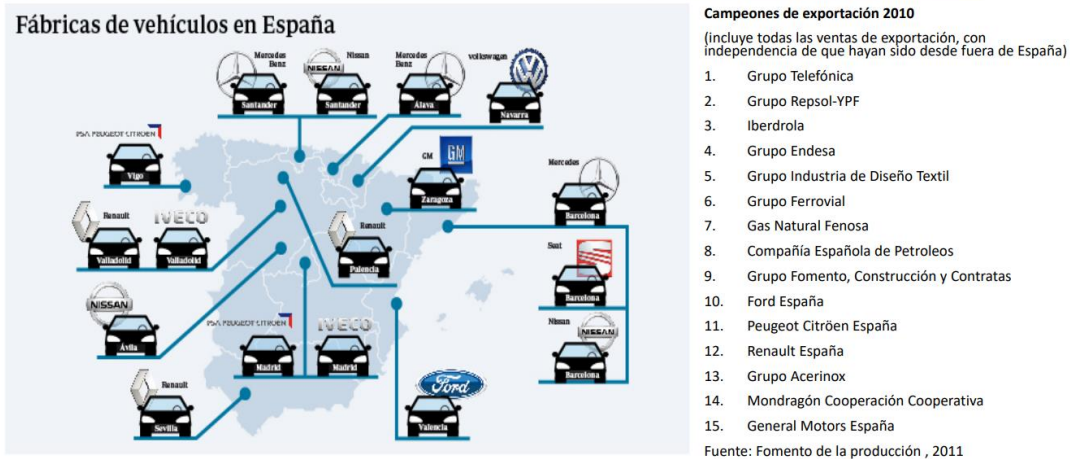
University: Juan de Lucio (U. of Alcalá Henares) , Raul Mínguez (Nebrija U.) , Asier Minondo (Deusto U.) , Francisco Requena (U. of Valencia)

Subject area: S20 - Regiones e internacionalización



Columbretes Islands | Fotografia © Francisco J. J. J.

Motivation: some of our superstars ...



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Motivation

DE VALENCIA A EE.UU.

Ford trasladará la producción de motores de Almussafes a Norteamérica

Si no llega una alternativa a partir de 2024 que supla la falta de esta dos mecánicas, la planta "no será viable"



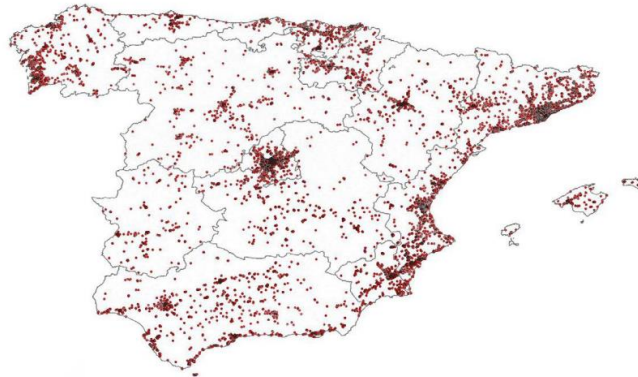
Ford inicia la fabricación del Mondeo Hybrid en la planta de Almussafes (Ford)

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Motivation: Where are the “superstars”?

Universe of exporters (>50.000 eur) in 1997



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Outline

- Introduction
 - Macro-granularity and micro-granularity
- Empirical part. Using Spanish firm-province data over the period 1997-2017
 - Part 1. How concentrated are exports at firm level?
 - Part 2. Does granularity affect aggregate exports over time?
 - Part 3. Does granularity affect comparative advantage?
 - Part 4. Does granularity affect persistence of comparative advantage?

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Granularity

- Granularity is the extent to which a material or system is composed of distinguishable pieces or *grains* (Wikipedia)
- Use of the term leads to confusion
 - *In investing*, more granular means more positions of smaller size
 - In other areas (photography), more granular means fewer and larger grains
- In Economics, Gabaix (Econometrica 1997) popularized the term by analyzing **the importance of large firms** (the *fewer and larger incompressible grains* of economic activity) in the US economic growth

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(Macro-)granularity, aggregate fluctuations and international business cycle comovements

- Gabaix (2011) "The Granular Origin of Aggregate Fluctuations", *Econometrica*
 - **Shocks to the biggest firms have an impact on macroeconomic fluctuations**
- di Giovanni and Levchenko (2012) "Country Size, International Trade, and Aggregate Fluctuations in Granular Economies", *Journal of Political Economy*
 - **Granularity can account for the stylized fact that smaller and more open countries are more volatile**
- Acemoglu et al (2012) "The network origins of aggregate fluctuations". *Econometrica*.
 - **Firms' networks magnify the aggregate impact of the shock of a big firm**
- di Giovanni, Levchenko and Mejean (2014) "Firms, Destinations, and Aggregate Fluctuations", *Econometrica*, **France**
- Stella (2015) "Firm dynamics and the origins of aggregate fluctuations". *Journal of Economic Dynamics and Control*, **US**
- Friberg R. and Sanctuary, M. (2016) "The contribution of firm-level shocks to aggregate fluctuations: The case of **Sweden**," *Economics Letters*
- Magerman, De Bruyne, Dhyne, van Hove (2016), "Heterogeneous firms and the micro origins of aggregate fluctuations,". National Bank of Belgium WP. **Belgium**
- di Giovanni, Levchenko and Mejean (2018) "The Micro Origins of International Business Cycle Comovements", *American Economic Review*, **France**

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(Micro)-granularity and exports

- Freund and Pierola (2015) "Export superstars" Rev Econ Stat
 - Revealed comparative advantage in a sector can be created by a single firm.
- Gaubert and Itskhoki (2018) "Granular Comparative Advantage", mimeo
 - France: Granularity accounts for about 20% of the variation in realized export intensity across sectors, and is more pronounced in the most export-intensive sectors
- De Lucio et al (2019) "The contribution of granular and fundamental comparative advantage to European Union countries' export specialization", The World Economy
 - Granular comparative advantage may explain export specialization in 29% of industries, affecting to 45% of EU exports.
- Del Rosal (2013) "The granular hypothesis in EU country exports", Economic Letters
 - idiosyncratic shocks to the main product may have significant effects on total exports for the smaller EU countries
- De Lucio et al (2017) "The granularity of Spanish exports", SERIES
 - If top exporters disappeared, Spain would lose its revealed comparative advantage in 60% of industries, which accounts for 45% of all Spanish exports

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The granularity of (regional) exports

- Three empirical questions
 1. Concentration of exports by firm
 2. The link between the variation of aggregate exports and the variation of large exporters' exports
 3. The link between comparative advantage and granularity
- Data: Spanish firm-level merchandise exports, 1997-2017.
- Source: AEAT-Customs and COMTRADE

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Part 1

Concentration of exports by firm

Share of top exporters in Spanish exports (%)

	1997	2017
Top 1	3	3
Top 5	13	10
Top 200	45	48
Top 1000	65	67

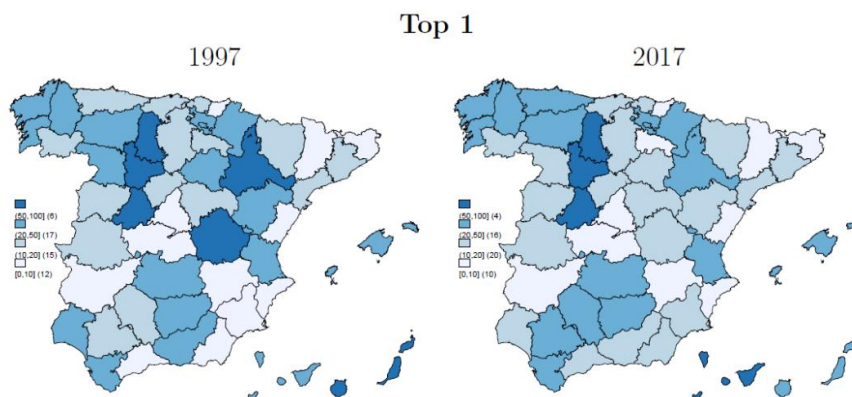
Importance of top exporters by product (consistent CN 8 digits) (%) (N = 7133)

	1997	2017
Products with at least two exporting firms	6659	7037
... whose top firm has at least 50 % of total exports	3562	3251

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Part 1

Concentration of exports by province



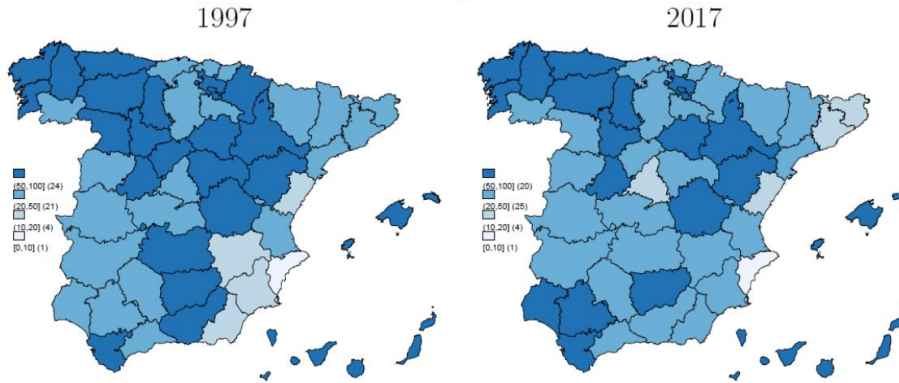
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Part 1

Concentration of exports by province

Top 5

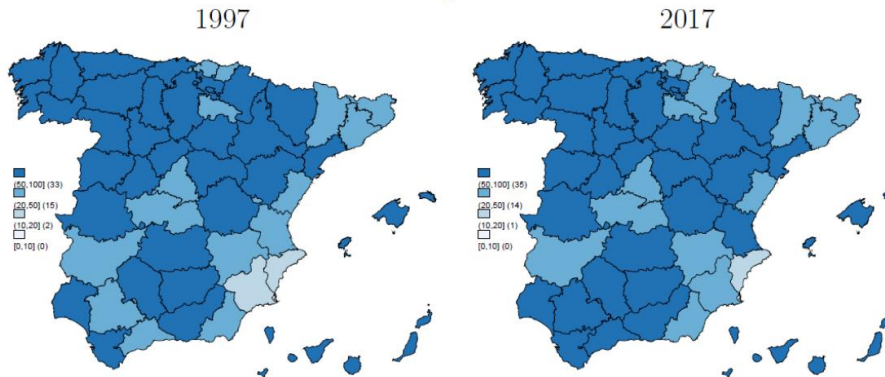


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Part 1

Concentration of exports by province

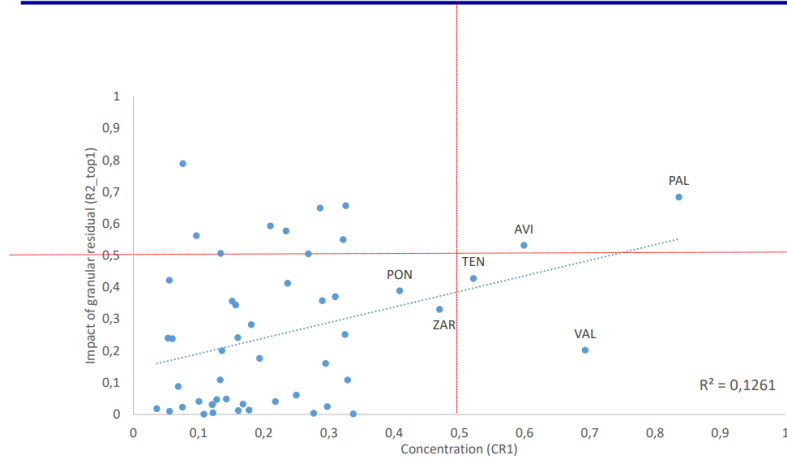
Top 10



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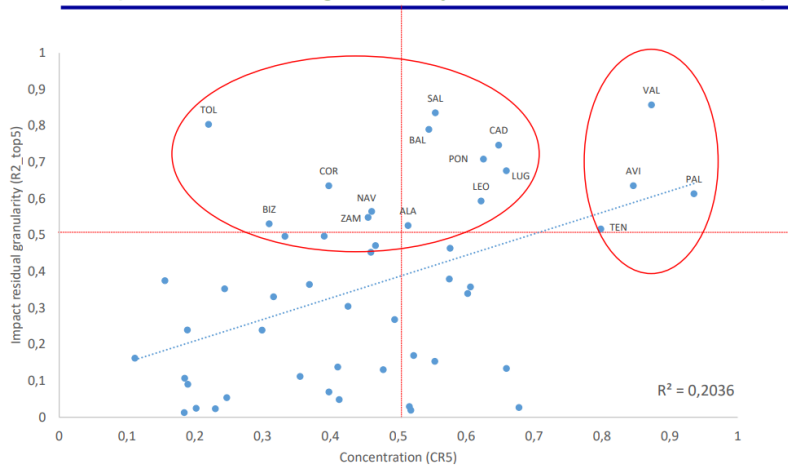


Part 2 Correlation between impact of residual granularity and concentration in exports



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Part 2 Correlation between impact of residual granularity and concentration in exports



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Part 3

Does granularity affect comparative advantage?

50% of HS2 industries in which Spain has CA are affected by granularity

Contribution of top firms to comparative advantage.
 Based on Balassa index. **96** HS2 "industries"

Chapters with RCA-Balassa > 1.1	With all firms	Eliminate Top 1	Eliminate Top 5
Year 2017	40	29	17
Year 1997	38	28	17

Industries (HS2) whose CA is affected by granularity (with export share > 0,5%)

Top 1: Apparel and clothing knitted (1.7%), Miscellaneous chemical products (1,2%), Railway (0,5%)

Top 5: Plastic products (4.5%), Pharmaceutical products (4.2%), Iron and Steel (2.6%),
 Apparel and clothing not knitted (2.5%), Miscellaneous chemical products (1.2%),

Top 10: Vehicles other than railways (18.4%), Paper (1.4%), Footwear (1.3%), Aluminium (1.3%),
 Preparations of cereal (0.6%), Soap (0.5%)

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Part 3

Does granularity affect comparative advantage?

• Year 2017	Name	# HS Chapter	RCA with all firms		RCA without top1	
			B>1.1	% exp	B*>1.1	% exports
	NUTSIII	Total				
	Almeria		79	11	91.4	8
	Cordoba		82	16	80.7	11
	Alicante		95	38	83.7	21
	Castellon		91	16	84.8	11
	Lleida		85	23	78.5	16
	Barcelona		96	40	70.7	23
	Madrid		96	21	52.8	18
	Valencia		96	26	73.2	17
	Valladolid		82	8	90.8	7
	Avila		58	14	90.5	14
	Palencia		65	4	95.2	4
	Soria		53	17	89.0	17
	Zaragoza		92	19	66.4	19

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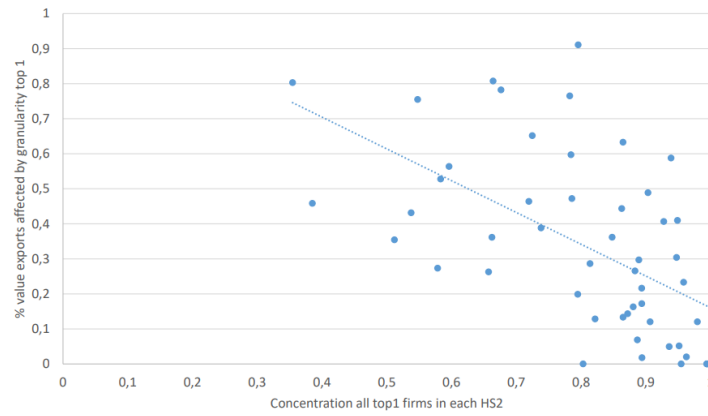
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Part 3

Does granularity affect comparative advantage?

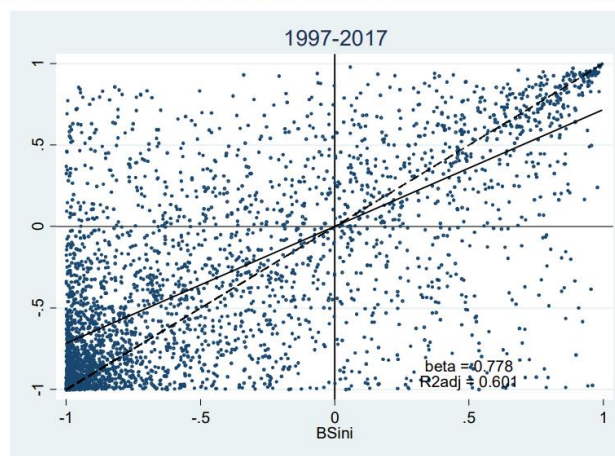
Year 2017



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Part 4

Does granularity affect persistence of comparative advantage?



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