

Italian sociologists: A community of disconnected groups

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Zoominar:

The Mitchell Centre for Social Network Analysis



German Centre for Higher Education Research
and Science Studies ■

- Together with:
 - Vincent A. Traag ([CWTS](#)),
 - Alberto Caimo ([TU Dublin](#)),
 - Flaminio Squazzoni ([UNIMI](#))
- Please read the full text in Scientometrics:
<https://doi.org/10.1007/s11192-020-03555-w>
- Thanks for turning your seminars into **Zoominars**

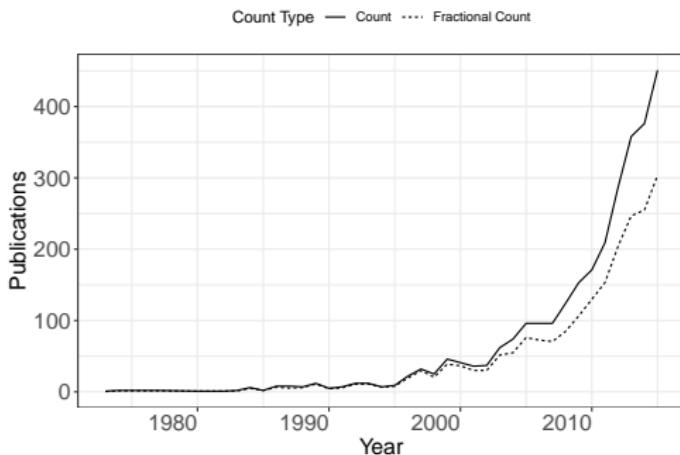
- Quantity vs. quality and the hegemony of quantitative research evaluation
- Funding, promotion and reputation circulation in 21st century
- Responsible [use of] metrics
 - Peer review vs. bibliometrics, informed peer review and contextualized scientometrics
- Goal displacement?!

- **Matteo effect** (*Italic intentional*)
 - Highly prolific scientists attract higher collaborations from other scientists (Merton, 1968)
 - Winner takes all? (Frank & Cook, 2010), rich gets richer?
 - Attaching preferably to a few **star scientists/leaders?** (Barabási & Albert, 1999)
- **Fragmentation** of ideas, sociology as an *interstitial science* (Abbott, 2001)
 - Methodologists bridging the islands? (Moody, 2004)
- [Sociological] **small world** of disconnected islands? (Moody, 2004)
- Embeddedness and **organizational ambiguity** at work? (Boffo & Moscati, 1998)
- **Core** of leaders and **periphery** of followers? (Wallerstein & Wallerstein, 2004)

Data on all Italian sociologists

DZHW

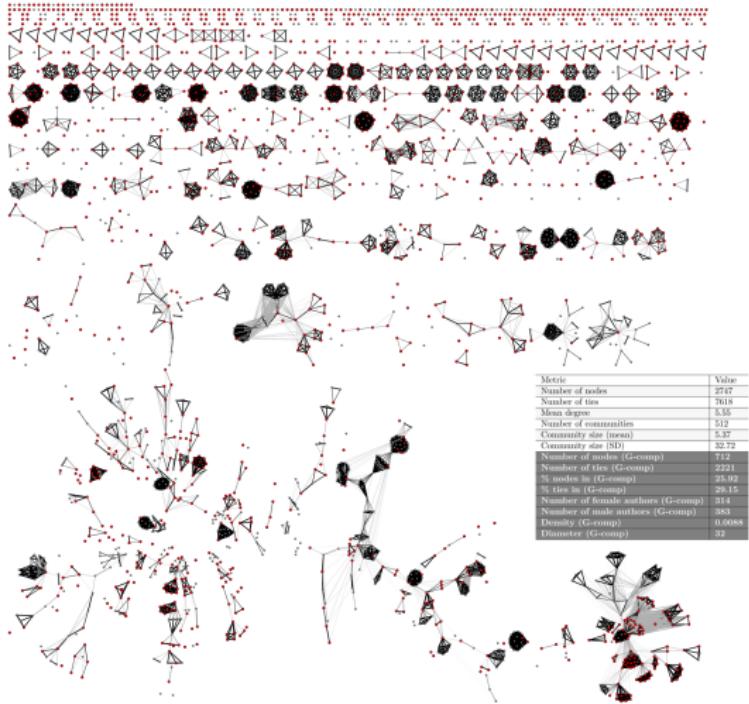
- 1,029 professors & 198 postdocs
- 3,168 papers, 1973-2016
- 55% Male, 45% Female
- Only 64% of 1,227 had at least 1 article. 52% single author
- It seems multiple author articles are rather recent



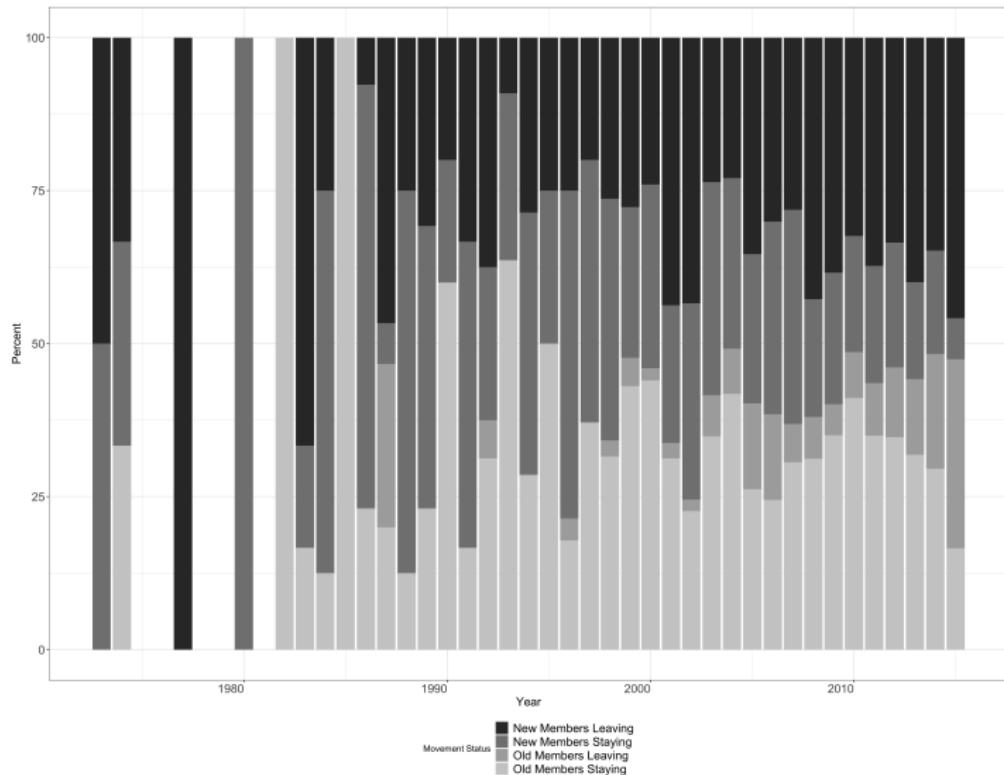
- ① A community that is between **humanities** scholars, who are predominantly qualitative, anti-bibliometric and “**hard**” scientists, who are quantitative with tendencies close to *big science*
- ② The **co-existence** of different epistemic communities makes sociologists an interesting case to examine contrasting forces towards internationalization
- ③ Research on scientists' productivity in Italy have looked mainly at the case of *hard sciences* stating that research in humanities and social sciences cannot be examined quantitatively

- Cross-fertilization between **computational sociology & science studies**
- API calls & web scrapping for data gathering
- Text analysis, topic maps, VOS algorithm
- Network analysis, [temporal & Leiden, CPM: $\gamma = 2 \times 10^{-4}$] community detection and ERGM
- Code, data, analysis and report are all reproducible (hosted on Gitlab)

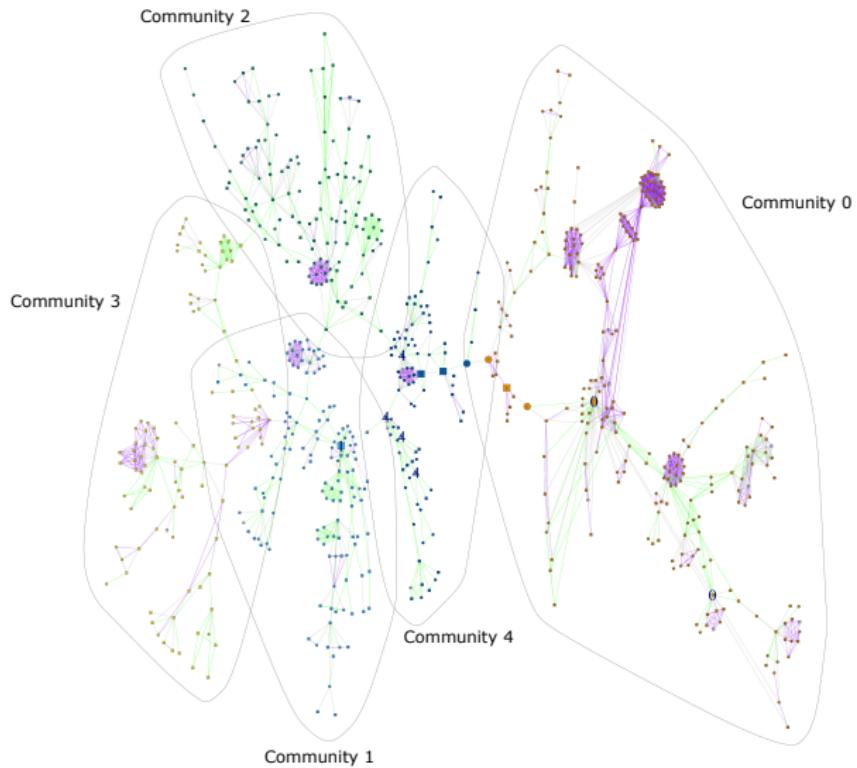
A community of disconnected groups



Turnover rate of authors



Giant (!) connected (!) component



Largest & most cohesive communities

Table 2 Gender and sectors composition and internationality of members of the communities detected from the giant component (Percentages are calculated by rows for each community separately for gender, country and sectors)

ID	# member	Gender			Country				Scientific disciplinary sectors (SPS)						
		F (%)	M (%)	Missing G (%)	EU (%)	IT (%)	Other (%)	Missing C (%)	07 (%)	08 (%)	09 (%)	10 (%)	11 (%)	Postdoc (%)	Missing S (%)
0	254	43	54	3	54	29	11	5	1	5	0	0	0	2	91
1	142	50	49	1	36	55	6	3	6	3	8	1	1	2	78
2	122	38	61	1	37	56	3	4	10	1	7	0	1	5	76
3	103	45	54	1	41	44	5	11	4	2	12	1	0	2	80
4	91	47	49	3	32	57	9	2	7	7	0	1	2	1	82

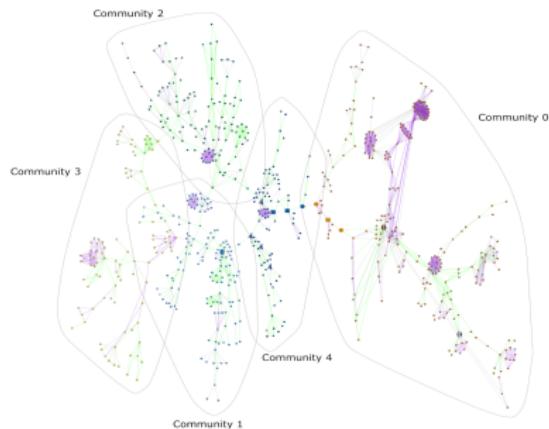
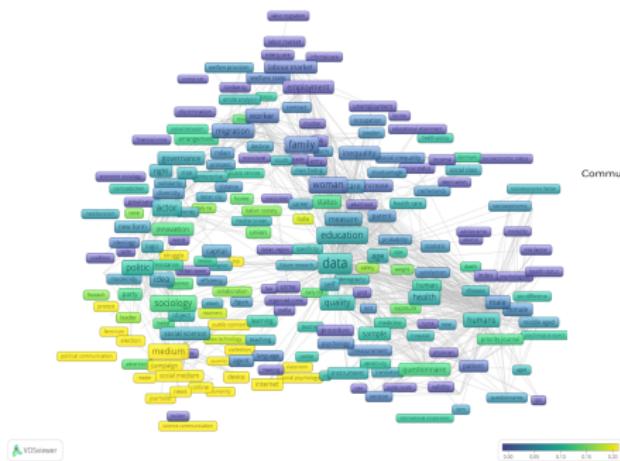
Gender in network metrics

Table 3 Comparing ranking of top 10 authors last name, gender and community membership in some of the main network characteristics (gender, community membership and network characteristic in parentheses, respectively)

Betweenness	Most prolific	Triangles	Degree
Bosi (Male 4 0.473)	Fortunati (Female 0 69)	D'Ambrosi (Female 0 391)	Fortunati (Female 0 53)
Mattoni (Female 0 0.468)	Pavolini (Male 1 35)	Splendore (Male 0 360)	Neresini (Male 0 39)
Della Porta (Female 4 0.465)	Diani (Male 4 35)	Harro-Loit (Female 0 355)	D'Ambrosi (Female 0 38)
Treré (Male 0 0.371)	Boccagni (Male 4 28)	Eberwein (Male 0 332)	Splendore (Male 0 37)
Farinosi (Female 0 0.362)	Bucchi (Male 0 28)	Groenhart (Male 0 332)	Harro-Loit (Female 0 35)
Pavolini (Male 1 0.36)	Brighten (Male 4 27)	Porlezza (Male 0 332)	Diani (Male 4 30)
Giugni (Male 4 0.358)	Ambrosini (Male 4 26)	Fengler (Female 0 325)	Eberwein (Male 0 28)
Fortunati (Female 0 0.342)	Ballarino (Male 2 24)	Alsius (Male 0 325)	Groenhart (Male 0 28)
Boccagni (Male 4 0.327)	Ruzza (Male 1 23)	Bainsée (Male 0 325)	Porlezza (Male 0 28)
Pilati (Female 4 0.299)	Mazzoleni (Male 0 21)	Bichler (Male 0 325)	Pavolini (Male 1 26)

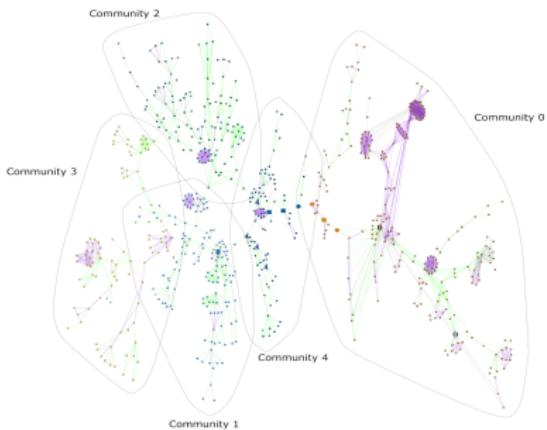
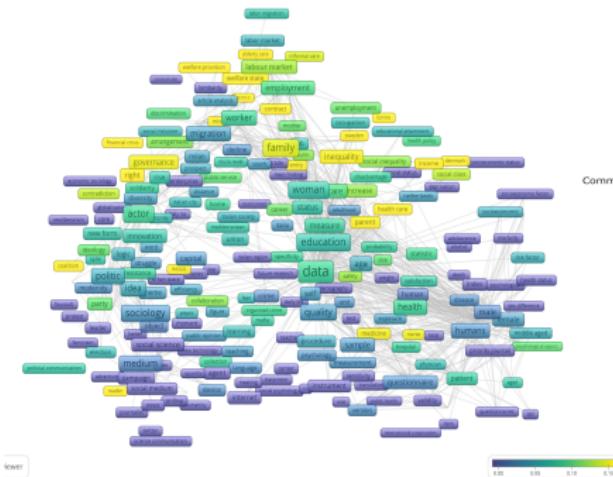
Community 0 (SPS/08)

- 65% foreigners, only one tie with community 4
- Medium, science communication, social medium, internet, political communication & public opinion



Community 1 (SPS/09, SPS/07)

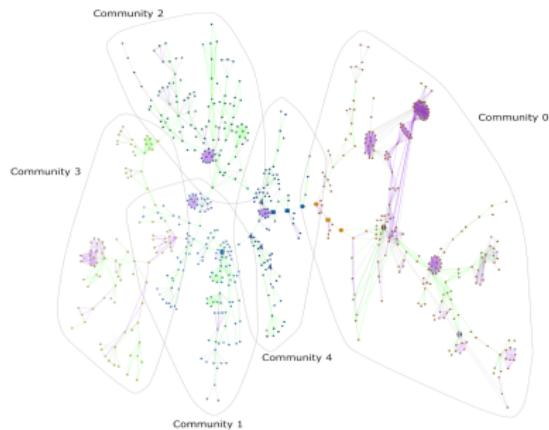
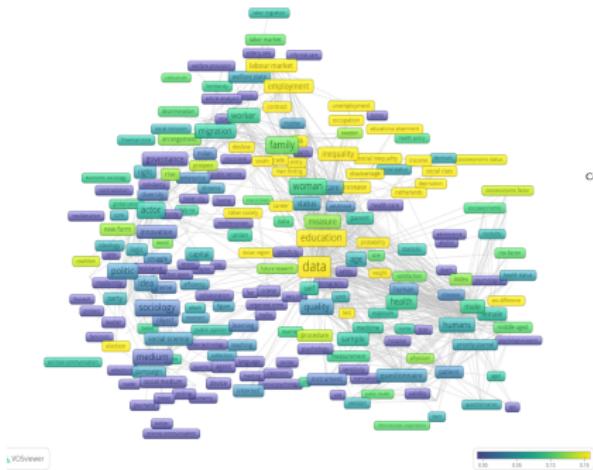
- 50% female, 49% male, 55% Italian
- Family, inequality, welfare provision, elderly care, health care, parent, medicine, financial crisis & governance



Community 2 (SPS/07, 09, methodologists?)

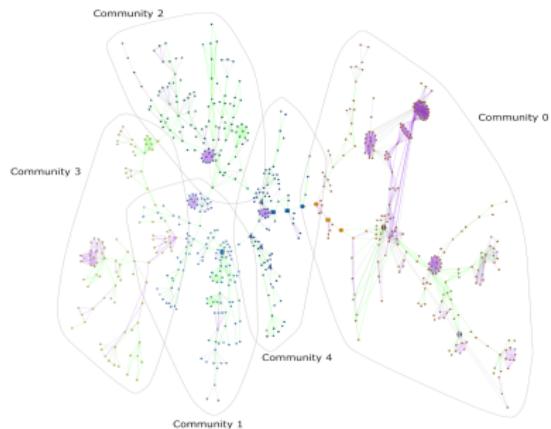
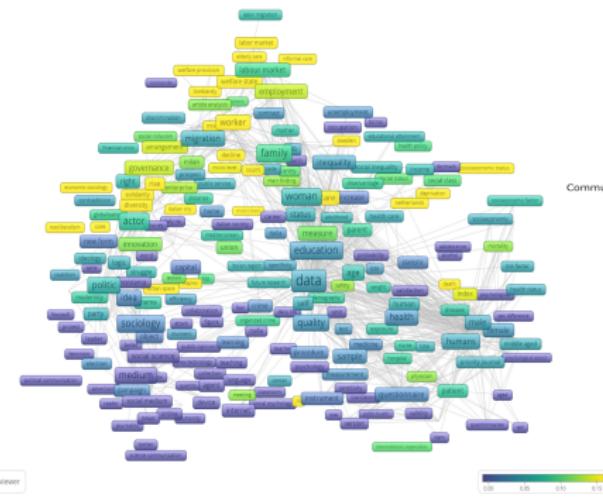
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- Highest gender difference (61% vs. 38%) & postdocs, 56% Italian; overlapping/bridging 1, 3 & 4
 - Data, probability, weight, test, education, labour market, employment, unemployment



Community 3 (SPS/09)

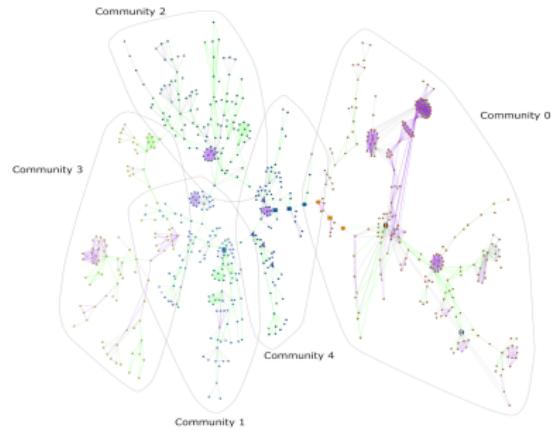
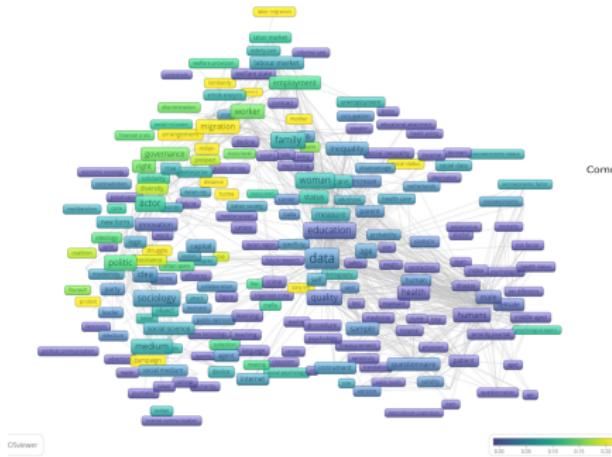
- 54% male
- Governance, employment, worker, welfare state, neoliberalism



Community 4 (SPS/07, SPS/08, smallest comp)

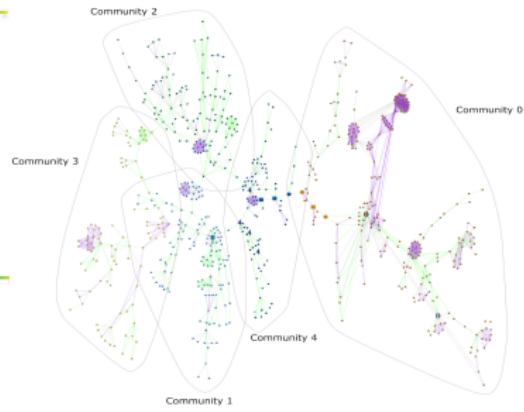
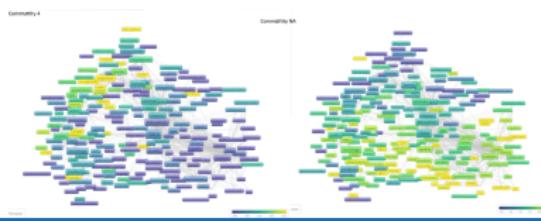
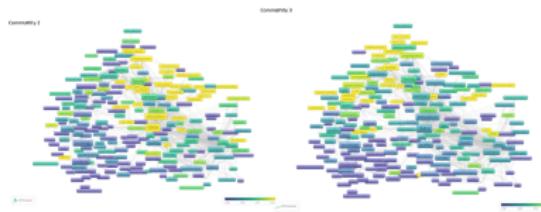
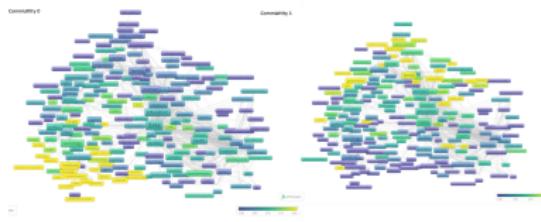
DZHW

- 57% Italian (highest), 4 of the 7 most prolific authors
 - Migration, home, labor migration, daily life & social status



All together

- **Non G-comp members:** No specific area of focus, overlap with multiple communities



ERGM (homophily, structural & community effects) DZHW

Table 4: ERGMs results explaining effect of author attributes and structural variables on coauthorship tie existence

	The Giant component of Italian sociologists and their coauthors			
	ERGM Models			
	(1)	(2)	(3)	(4)
Ties	-4.551*** (0.023)	-3.654*** (0.187)	-13.140*** (2.058)	-13.367*** (2.522)
Preferential attachment	15.224*** (4.697)			4.069*** (1.152)
Within Females ties		-0.250 (0.169)	-0.042 (0.176)	-0.097 (0.259)
Within Males ties		0.547*** (0.177)	0.357* (0.185)	0.385 (0.286)
Males main effect		-0.257 (0.164)	-0.086 (0.171)	-0.125 (0.267)
Within Community 0			10.472*** (2.049)	10.771*** (2.487)
Within Community 1			6.448*** (1.295)	6.513*** (1.470)
Within Community 2			6.413*** (1.296)	6.064*** (1.567)
Within Community 3			7.228*** (1.502)	7.484*** (1.747)
Within Community 4			6.001*** (1.297)	5.986*** (1.430)
Community 1 main effect			2.034 (1.255)	2.153 (1.488)
Community 2 main effect			2.126* (1.254)	2.451 (1.582)
Community 3 main effect			1.809 (1.304)	1.837 (1.611)
Community 4 main effect			2.509** (1.252)	2.675* (1.407)
Within Europe	0.770*** (0.102)	0.840*** (0.105)	0.849*** (0.148)	
Within Italy	1.054*** (0.125)	0.877*** (0.129)	0.872*** (0.178)	
Within Other countries	1.956*** (0.233)	1.842*** (0.241)	1.857*** (0.356)	
Italy main effect	-0.456*** (0.099)	-0.194* (0.103)	-0.186 (0.138)	
Other countries main effect	-0.438*** (0.102)	-0.465*** (0.105)	-0.482*** (0.151)	
Difference in total pubs	0.060*** (0.002)	0.064*** (0.002)	0.065*** (0.004)	
Difference in first pub	-0.090*** (0.006)	-0.095*** (0.007)	-0.096*** (0.009)	
Difference in last pub	-0.372*** (0.014)	-0.367*** (0.014)	-0.378*** (0.020)	
Akaike Inf. Crit.	25,238.680	22,710.210	16,466.530	16,344.340
Bayesian Inf. Crit.	25,270.010	22,835.510	16,685.800	16,584.500

Note:

*p<0.1; **p<0.05; ***p<0.01

- Membership in communities (similar substantive focus) \Rightarrow highest determinant
- Heterophily \Rightarrow total publications
- Homophily \Rightarrow academic cohort (seniority)
- Homophily \Rightarrow publishing until recently (repetitive co-authorship)
- Homophily \Rightarrow within community 4 after controlling other variables
- “Rich gets richer” \Rightarrow highly affected by the interplay of variables

- We found: High **disconnectedness** vs. mathematical simulations (512 Comp., 25.92% (29.15%) nodes (ties) in G-comp)
- A **small world** of distant communities with specific substantive focus with shortest paths between them (Moody, 2004)
- Relatively **high** rate of change in communities (even G-comp) members
- **Male newcomers** are more likely to stay, joined the core and continue in academia
- 5 *largest* and *most cohesive* research communities in Italian sociology
- *Sociology of culture and communication* (2 groups), *economic sociology* (3 groups) and *general sociology* (3 groups).
- Collaboration ties were mainly driven by the *research focus*
- Other factors, such as *preferential attachment*, *gender* and *affiliation homophily* were also important, but *gender fades away*

- Specific case of **methodologists** in community 2 who bridge between communities 1, 2 and 3 both in *structure* and *substance*
- Community 4 with a **niche area** of research which only has *one tie* to others
- Community 0, internally cohesive with a separate substantive area and geographical composition
- Communities 1, 2, 3 and 4 with higher share of **Italians** are closer to economic sociology (SPS/09) and general sociology (SPS/07)
- The Sociology of culture and communication (SPS/08) **inter-mediating** their own specific community (0) and the rest of G-comp and **overlapping presence** in community 4 with general sociology (SPS/07)
- **Few key authors** leading the coauthorship, their effect is **highly reduced** once substantive area, gender and geography is controlled, but still significant and important
- Homophilous ties within Males, but fades away in bigger picture

Limitations

- Success stories only!
- Positive collaboration only!
- Scopus indexed publications only!
- One mode projection of bipartite *paper-author* ties which causes artificially high cliquish behavior and could be better studied with bipartite modelling frameworks
 - Used in my Sunbelt 2020 talk, session 30 on **network analysis for the science of science**
- We couldn't account for motivations behind (dis)connection

Thanks for your attention

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