THE IMPACT OF FUNDING ON RESEARCH COLLABORATION

the case of Quebec researchers

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Background

• Teamwork has become the norm in contemporary science
  • Collaboration can also require resources (e.g. salaries, travel expenses, etc.)

• Positive correlation between funding and collaboration (Bozeman & Corley, 2004; Smith & Katz, 2000).
  • Funding policies often encourage collaboration (e.g., Katz & Martin, 1997; Lee & Bozeman, 2005).
  • Researchers seek to collaborate with funded colleagues in order to access resources (Melin, 2000).
  • Funding can be used to hire more staff (e.g., research assistants, post-docs) or invite researchers.
  • It also allows scholars to attend conferences.
Purpose of this study

• Investigate the causal relationship between Quebec researchers’ funding and their network size and teams’ size, for all research fields.
Data

• Funding
  • All funding for all Quebec’s university professors from 1998 to 2012
  • 1.2 billion dollars in total funding
  • 900 funding organizations
  • Data includes:
    • PI names and institutions
    • Funding amount
    • Year
    • Type of funding (eg. grant, contract)

• Professors
  • Database of Quebec professors including PhD year.

• Publications
  • All articles, notes and reviews from WoS between 2000 and 2013.
  • Collaboration measured in terms of co-authorship.
Methods

• Classification of researchers in 4 disciplines (AH, Health, NSE, SS)
  • Based on the discipline of the journal in which researchers published most of their papers.
  • This study is limited to researchers in Health, NSE and SS.

• Control for academic age and for previous funding
  • Only authors who received their PhD between 2000 and 2005

• Resulting sample
  • 81 researchers in Health
  • 264 researchers in SS
  • 166 researchers in NSE
  • Ranked by total funding received and grouped in bins of 10.
Metrics

• Total amount of funding received

• Average team size
  • Average number of co-authors on researchers’ publications.

• Network size (pre-funding, post-funding and total)
  • Number of distinct co-authors on researchers’ publications.

• Network growth
  • post-funding network size / pre-funding network size.

• Funded collaborators
  • Number of pre-funding collaborators who received funding
  • Amount of funding received by previous collaborators
Correlation between funding and collaboration (median)

**Health**
- \( R^2 = 0.9304 \)

**NSE**
- \( R^2 = 0.9334 \)

**SS**
- \( R^2 = 0.6729 \)

**Health**
- \( R^2 = 0.5363 \)

**NSE**
- \( R^2 = 0.8599 \)

**SS**
- \( R^2 = 0.6595 \)
Effect of funding on collaboration (median)
Effect of collaboration on funding (average)
Discussion

• Funding is positively correlated with network size and team size in all disciplines in Quebec (except AH).

• Mutual influence of funding and collaboration practices.
  • Researchers with more funding have more new collaborators.
  • Researchers with more collaborators receive more funding.
  • Researchers who worked with funded collaborators are more likely to receive funding, and to receive greater amounts of funds.

• Capital goes to capital.

Further developments

• Isolate papers with funding acknowledgements.

• Explore the diffusion of funding through collaborative networks.
Thank you!

References


