

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.

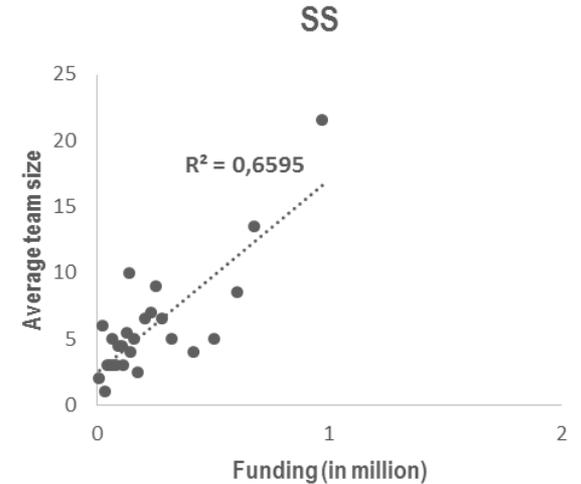
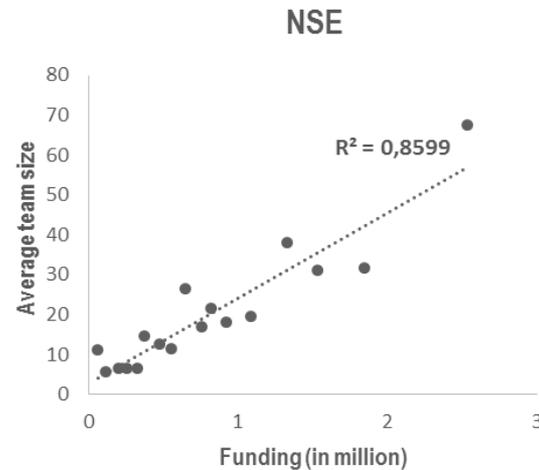
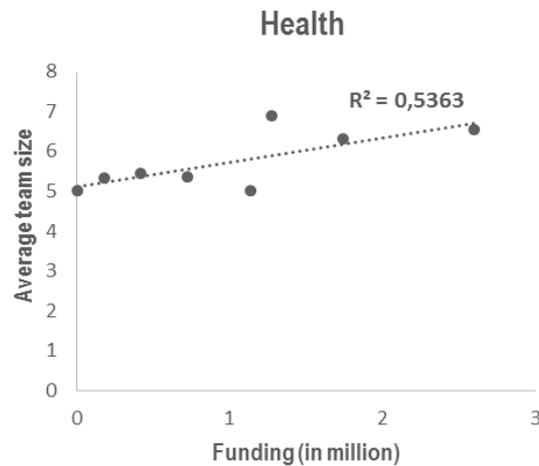
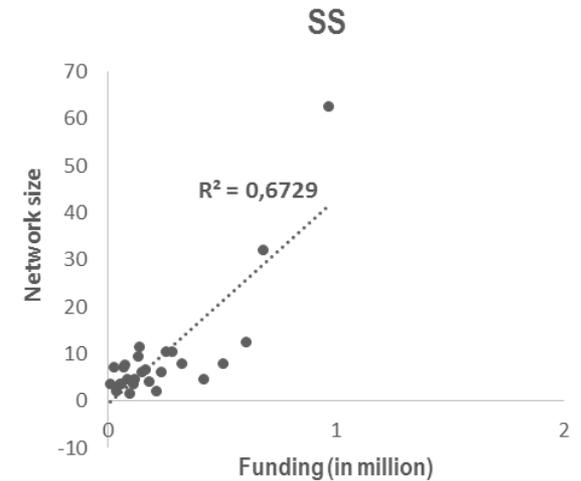
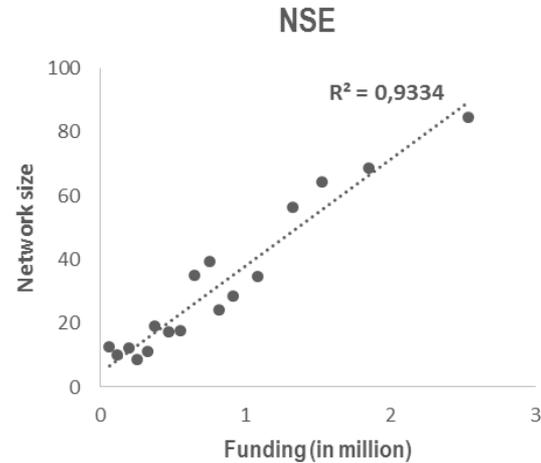
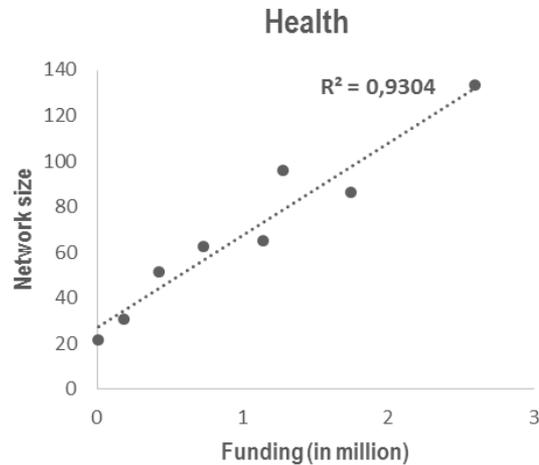
Methods

- 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.

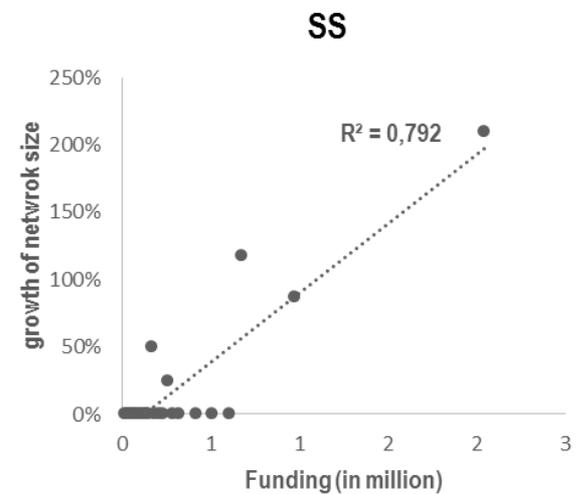
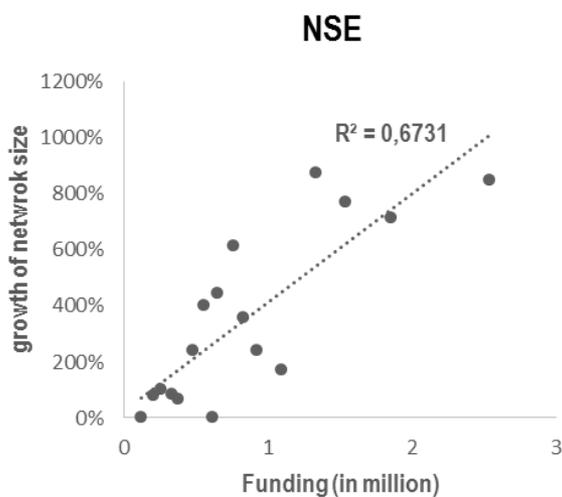
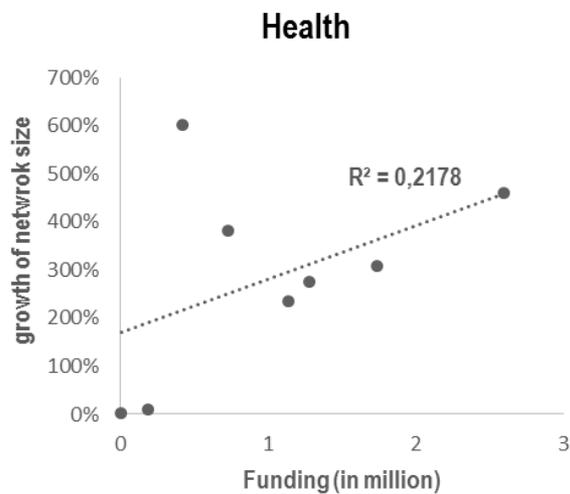
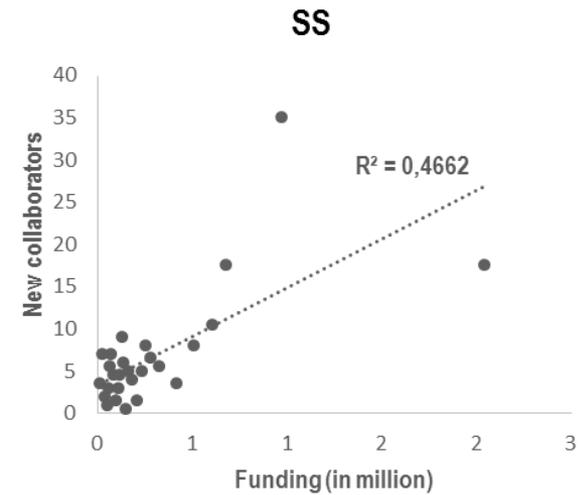
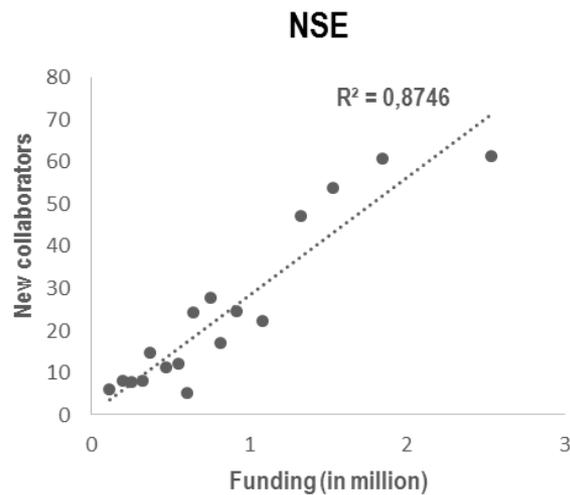
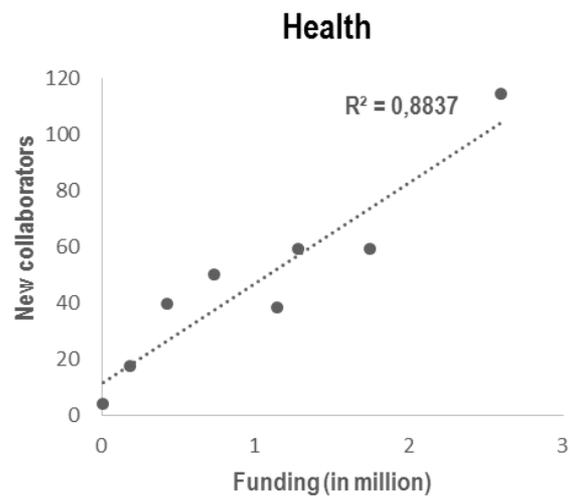
Metrics

- 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
 - $\text{post-funding network size} / \text{pre-funding network size}$.
- Funded collaborators
 - Number of pre-funding collaborators who received funding
 - Amount of funding received by previous collaborators

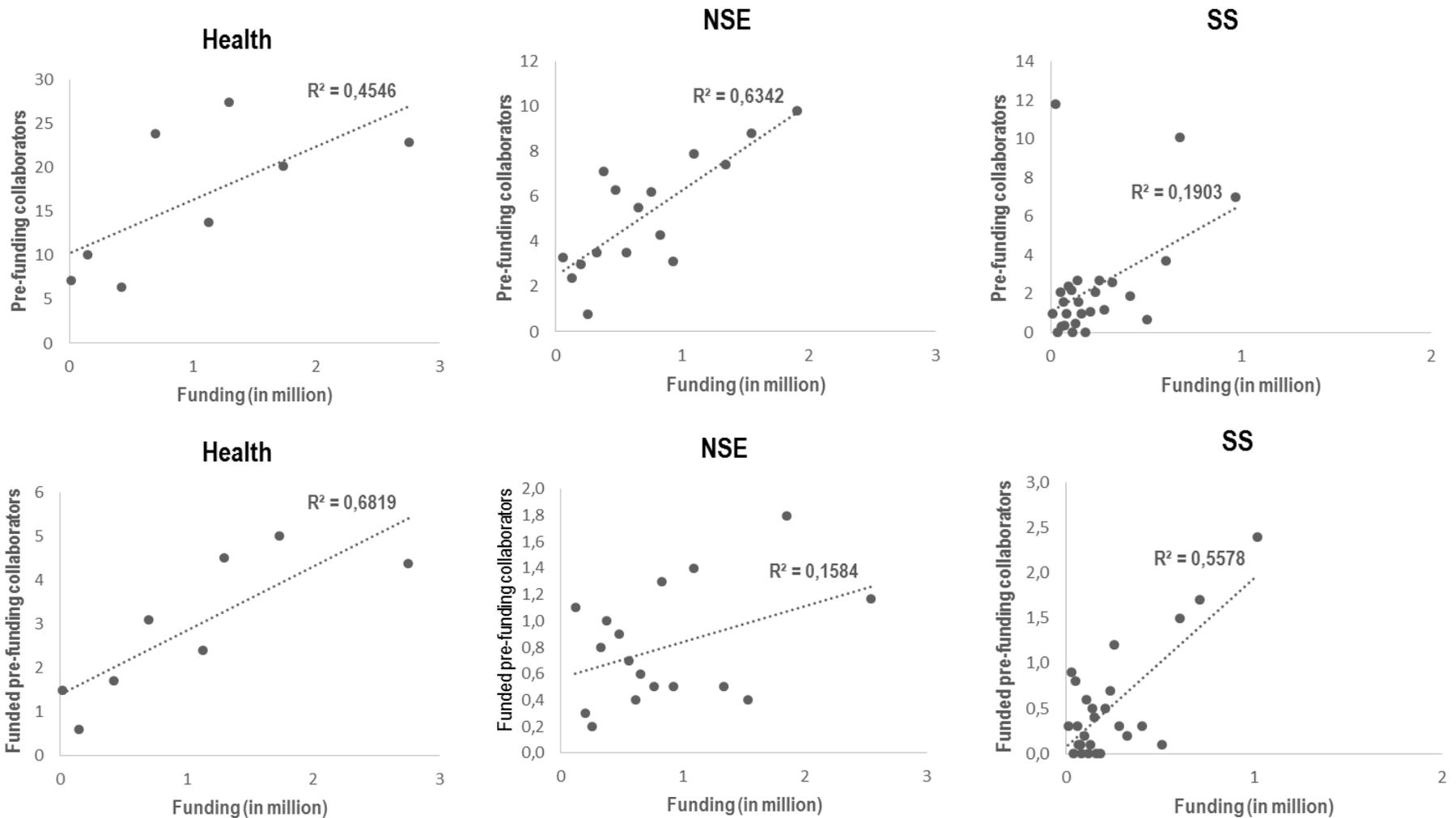
Correlation between funding and collaboration (median)



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!

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