

Social Network Capital and Academic Careers

Umberto Medicamento
Paul Wilson
Tauhidur Rahman
Gary Thompson
Department of Agricultural and Resource Economics
P.O. Box 210023
University of Arizona
Tucson, Arizona 85721-0023
Tel. 520-621-6258
Email: pwilson@ag.arizona.edu

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Social Network Capital and Academic Success

Umberto Medicamento, Paul Wilson, Tauhidur Rahman, and Gary Thompson
Department of Agricultural and Resource Economics, University of Arizona, Tucson



Introduction

The relationship between economic performance and various forms of capital anchors a significant portion of mainstream economic theory and applied economics. Human, physical, and financial capital represent important factors in the production of goods and services. The label "capital" implies characteristics such as investment, a return on investment, accumulation, maintenance, depreciation, and transfer.

Recently, social capital or social network capital (SNC) has received increased scholarly attention in the literature in economics, sociology, and business. Limited analysis, however, has been directed at the role of SNC in the academy.

We hypothesize that academic success at the professional level is determined by the stock of human capital (HC) and SNC, and the value flows emerging from these stocks. We view SNC as a complement to HC, increasing the productivity of HC while holding all other factors constant. An analysis of SNC's importance to academic career success should interest the academy as well as other large organizations (i.e., research laboratories, government agencies) with similar organizational structures and incentive systems.

There have been few attempts to analyze the role of SNC in universities. Most research experience has focused on (1) support networks within a department or college, (2) networks within a single discipline across multiple universities, (3) relationships with administrators, or (4) gender differences. A significant portion of these studies have been conducted at relatively smaller, non-research I universities. We find little emphasis in the literature on comparing and contrasting SNC across academic rank. Comparisons across academic disciplines are limited as well.

Research Design

We designed a mixed-method analysis to capture the importance of SNC in academic careers of faculty at the College of Agriculture and Life Sciences (CALs) at the University of Arizona. The population of on-campus faculty (198) across twelve departments was stratified by rank, gender and discipline area (i.e., physical, biological, and social sciences). A stratified random sample of 100 faculty was generated, with 51 faculty completing both the questionnaire and the interview. This final sample reflected the general population of CALs faculty for every strata. After receiving confirmation that the faculty member would participate in the survey, a questionnaire was email to the faculty member at least one week before the scheduled interview. At the interview, the researcher and the faculty member reviewed together the responses to the questionnaire, exploring the importance of HC and SNC in their careers. All interviews were audio taped to supplement the notes taken during the interview period. The duration of the interviews ranged from 45 minutes to 2 hours.

Respondents were asked to weight the importance of HC and SNC factors that have contributed to their academic careers. A select number of these factors are:

Human Capital	Social Network Capital
• Academic training	• Ph.D.-granting department
• Creativity	• Post-doc department
• Work ethic	• Home department
• Research area (timely topics)	• Other departments in other universities
• Ability to obtain external grants	• Government agencies
• Teaching/advising abilities	• The non-academic community

Faculty also were asked to weight the importance of their investment activities in developing and maintaining their HC and SNC. Representative investment factors were:

Human Capital	Social Network Capital
• Protecting time for research	• Collaborating with others on grant projects and publications
• Keeping current on literature	• Regular communication with colleagues
• Developing and teaching new undergrad and/or grad classes	• Regular attendance at a professional meeting
• Improving technical skills and techniques	• Regular attendance at specialized research meetings
• Learning new technical skills and techniques	• Taking leadership roles in professional groups
• Availability of funds from employer	• Regular communication with governmental agencies

The information from the interviews was organized by common themes to identify convergent and divergent trends in the faculty responses. This information also was tabulated to show weights across rank, scientific area and gender. Other questionnaire data was utilized in the following multiple regression model:

$$SNC_{HC} = f(\text{Academic experience, Rank, Scientific area, External job experience, Gender})$$

where the dependent variable is the relative importance of SNC in the academic career. Based on the literature, we hypothesized the following signs on these explanatory variables:

Explanatory Variable	Expected Sign
Full Professor	+
Associate Professor	+
Assistant Professor	-
Biological Sciences	+
Physical Sciences	-
Social Sciences	+
Years of Experience	+
Previous external work experience	+
Gender (being a man)	-

Preliminary Results

Qualitative Analysis

- Work ethic, ability to obtain grants, and creativity were the most important HC factors.
- Research and grants are the principle determinants for junior faculty promotion. Assistant professors are more focused on training, associate professors on relationships, and full professors on teaching and creativity.
- Assistant professors place greater importance on relationships with their mentors, while associate professors emphasize their relationships with peers and colleagues.
- Work ethic is the most important HC factor for both genders.
- Men give relatively more weight to creativity, teaching and advising while women faculty place more weight on training and improving their skills.
- Women give relatively more weight to business relationships, while male faculty members place more importance to their colleagues.

- Among the CALs faculty, business relationships are more important for biological scientists; SNC with governmental agencies is more important for physical scientists.
- The ability to obtain grants and contracts contributes to both HC and SNC.

Quantitative Analysis

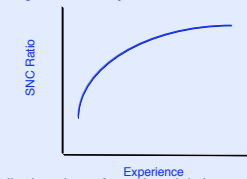
Our preliminary quantitative analysis explores the relationship between the relative importance of SNC (i.e., SNC/HC) to academic rank, discipline area, experience and previous non-academic employment. Our estimates are:

Explanatory Variable	Estimated Sign
Full Professor	+
Associate Professor	+
Biological Sciences	•*
Physical Sciences	-
Social Sciences	+
Years of Experience	••
Previous external work experience	•*
Gender (being a man)	-

*Statistically significant at least the 5% level.

We found that for all faculty, the relative importance of SNC increases at a decreasing rate over the number of years served in the academy (Figure 1).

Figure 1: Relationship between SNC ratio and Experience



Full and associate professors place relatively more weight on SNC than do assistant professors. Both the biological and physical sciences place less weight relative to the social sciences while men place less weight relative to women faculty members. Faculty with previous external work experience give relatively less weight to SNC.

- When explanatory variables were regrouped (e.g. full professors in the biological sciences) a number of interesting results emerged that will require further analysis.
- As both associate and full professors gain years of experience in their current rank, their weight to SNC declines.
- Associate and full professors recently hired from the private or public (i.e. government) sectors placed relatively greater weight on SNC than their colleagues without this experience.
- Women in the biological sciences with previous non-university work experience more heavily weighted SNC than their colleagues in the physical and social sciences.
- Full professors with previous external job experience (hired from industry or the government) place greater weight on SNC than full professors without that experience.

Conclusions

- SNC and HC are complementary inputs in the academic production process, but details of that relationship are highly individualistic and context specific.
- Faculty indicate that SNC behaves as "capital" and that it can be transferred from the private or governmental sectors to academia.
- SNC is important for success in academic careers.
- Both HC and SNC require an investment of time.
- HC is increased in an organizational environment that promotes the building of SNC, and vice versa.

Suggestions for Further Analysis

- Explore the ability to obtain external grants and contracts as SNC and not as HC.
- Explore the relationship between salary and possibly other measures of academic and the relative importance of SNC.
- Analyze a larger sample of faculty: across colleges, universities and regions of the country.
- Perform of network analysis of faculty; social circle analysis within the academy should be investigated.

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For further information

Please contact Paul Wilson at pwilson@ag.arizona.edu.

