THE UNIVERSITY OF ALABAMA IN HUNTSVILLE

The Monetary Value of Adding False Investigators

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Introduction

- False Investigator
  - An individual added to grant proposal even thought they are not expected to contribute to the research effort (Fong & Wilhite, 2017)
- Fong and Wilhite (2017) show that assistant professors, associate professors, lecturers, and research faculty are all more likely than Professors to add false investigators to their grant proposals
- Reasons for adding the false investigator (FI)
  - 60.8% because the FI's reputation increased the chance of getting funding
  - 13.5% because the FI was the director of the lab
  - 13% because the FI held a position of authority
  - Other reasons were reciprocity (I expect to be put on their grants), mentor, reviewer suggestion, they had needed data, and this was a colleague I wanted to help

Research Questions

- Does adding false investigators impact grant outcomes (i.e., does this impact funding)?
- If so, what is the mechanism for this impact?
  - $E(G_j) = \sum_{i=1}^{k} p_i g_i$
    - $E(G_j)$ - expected level of grant funding
    - k - number of grant applications
    - p_i - probability of getting a specific grant
    - g_i - amount of funding received by a specific grant

Data

- Collected contact information from the top 200 U.S. universities based on U.S. News and World Report rankings
  - Data collected for medicine, nursing, accounting, economics, finance, information systems, management, marketing, political science, psychology, sociology, biology, chemistry, computer science, engineering, mathematics, and physics
- Emails with a link to a survey relating to the topic of study was sent to 113,130 potential respondents between the years 2012-2014
  - 10,722 total responses (9.5% response rate) focus on false investigators
  - Excluded 3,273 responses with 0 grant proposals in last five years or missing data
  - Of remaining 7,449 respondents, 2,099 felt obligated to add a scholar's name to a grant proposal even though they knew that individual would not make a significant contribution to the research effort

Variables of Interest

- Dependent variables
  - Grant funding in $US over previous five-year period (from $0 to $20 Billion)
  - Number of grant applications submitted over previous five-year period (1 to 220)
  - Average size of grant funding per grant application over previous five-year period (Grant funding/Number of grant applications submitted)
- Independent variables
  - Rank (assistant prof., associate prof., lecturer, research fac., clinical fac.; omitted reference group is Professor)
  - Discipline (medicine, nursing, accounting, finance, information systems, management, marketing, political science, psychology, sociology, biology, chemistry, computer science, ecology, engineering, math, and physics; omitted reference group is economics)
  - Gender (1=male)

Analytical Method

- We have a simultaneous relationship bias issue here, many of the factors expected to increase grant funding may also impact the decision to add false investigators
  - For example, untenured faculty have less prestige and need grant funding more, so the fact that they are more likely to use false investigators and to seek more grant funding doesn't mean false investigators causes an increase in grant funding received
- We deal with this using 2 stage least squares regression
  - Our instrumental variables are awareness of honorary authorship and number times an honorary author was included in their publications (these variables are highly correlated with including false investigators, but not correlated at all with grant funding, number of grant applications, or average funding per application)

1st-stage Regression Results (DV – False Investigators)

	Grant funding <= $ 1 million	Grant funding < = $10 million	Grant funding <= $30 million	Grant funding <= $20 billion
Assistant Professor	0.066**	0.081**	0.081**	0.081**
	(0.014)	(0.013)	(0.013)	(0.013)
Associate Professor	0.055**	0.062**	0.065**	0.065**
	(0.013)	(0.012)	(0.012)	(0.012)
Lecturer	0.124**	0.131**	0.132**	0.131**
	(0.037)	(0.037)	(0.037)	(0.037)
Research Faculty	0.150**	0.159**	0.159**	0.158**
	(0.031)	(0.028)	(0.028)	(0.028)
Clinical Faculty	-0.019	-0.035	-0.035	-0.028
	(0.047)	(0.046)	(0.046)	(0.046)
Aware honorary Authorship	0.092**	0.119**	0.119**	0.120**
	(0.018)	(0.017)	(0.017)	(0.017)
Times obligated Add author	0.048**	0.020**	0.020**	0.020**
	(0.003)	(0.001)	(0.001)	(0.001)
	N = 5575	N = 7337	N = 7424	N = 7449
	F = 30.51	F = 28.29	F = 29.04	F = 29.26

* $p < .05$, ** $p < .01$; gender and discipline results not shown

2nd-stage Regression Results (Grant Funding in $)

	Grant funding <= $1 million	Grant funding <= $10 million	Grant funding <= $30 million	Grant funding <= $20 billion
Added false Investigators	**152.19** **(38.14)**	**833.13** **(230.85)**	**1,662.10** **(386.99)**	**-6.08E+04** **(3.96E+04)**
Assistant Professor	-101.59** (11.15)	-816.07** (51.47)	-1,136.3** (87.10)	2,775.68 (8,975.37)
Associate Professor	-32.25** (10.43)	-422.54** (45.17)	-596.56** (76.67)	-3,707.98 (7,888.68)
Lecturer	-212.23** (28.52)	-922.07** (136.37)	-1,274.02** (231.97)	-1,277.93 (2.39E+04)
Research Faculty	-105.47** (24.70)	-470.42** (107.92)	-921.72** (183.14)	1,614.26 (1.89E+04)
	N = 5575 χ^2 = 788.9	N = 7337 χ^2 = 790.3	N = 7424 χ^2 = 460.6	N = 7449 χ^2 = 15.62

Note that these results measure the impact of false investigators on grant funding accounting for simultaneity bias

* $p < .05$, ** $p < .01$; gender and discipline results not shown

Where is the increase funding coming from?

- $G_j/k = \sum_{i=1}^{k} p_i g_i/\mathrm{k}$
  - G_j - total grant $ received
  - k - number of grant applications
  - p_i - probability of getting a specific grant
  - g_i - amount of funding received by a specific grant

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2nd-stage Regression Results (k - Number of Grant Applications)

	Grant funding <= $1 million	Grant funding <= $10 million	Grant funding <= $30 million	Grant funding <= $20 billion
Added false Investigators	**5.038** **(0.710)**	**4.978** **(1.015)**	**5.589** **(1.016)**	**5.408** **(1.044)**
Assistant Professor	1.204** (0.199)	0.713** (0.225)	0.628** (0.228)	0.597* (0.236)
Associate Professor	0.971** (0.185)	0.961** (0.197)	0.908** (0.200)	0.869** (0.207)
Lecturer	-1.912** (0.508)	-2.44** (0.596)	-2.566** (0.605)	-2.590** (0.626)
Research Faculty	-0.409 (0.434)	-0.676 (0.472)	-0.839 (0.478)	-0.908 (0.495)
Clinical Faculty	-0.897 (0.629)	-1.562* (0.721)	-1.634* (0.733)	-1.743* (0.754)
	N = 5642 χ^2 = 596.5	N = 7394 χ^2 = 983.6	N = 7479 χ^2 = 975.2	N = 7504 χ^2 = 29.5

Note that these results measure the impact of false investigators on number of grants accounting for simultaneity bias; * $p < .05$, ** $p < .01$; gender and discipline results not shown

2nd-stage Regression Results ($p_i g_i$ - Average grant $ per grant application)

	Grant funding <= $1 million	Grant funding <= $10 million	Grant funding <= $30 million	Grant funding <= $20 billion
Added false Investigators	**-9.55**	**45.65**	**99.64**	**-980.03**
	(13.80)	**(62.66)**	**(87.90)**	**(1543.44)**
Assistant Professor	-46.12**	-193.30**	-244.22**	-362.21
	(3.96)	(13.95)	(19.81)	(349.51)
Associate Professor	-28.87**	-122.48**	-154.02**	-552.34
	(3.70)	(12.24)	(17.40)	(307.26)
Lecturer	-49.96**	-191.83**	-242.36**	-554.59
	(10.28)	(37.52)	(53.41)	(944.70)
Research Faculty	-28.69**	-83.96**	-142.92**	-411.97
	(8.77)	(29.24)	(41.53)	(733.88)
Clinical Faculty	-54.51**	-180.74**	-233.84**	-713.84
	(12.59)	(44.86)	(63.88)	(1123.79)
	N = 5537	N = 7289	N = 7374	N = 7396
	χ^2 = 372.7	χ^2 = 441.4	χ^2 = 334.0	χ^2 = 15.58

Note that these results measure the impact of false investigators on average grant $ per grant application accounting for simultaneity bias; * $p < .05$, ** $p < .01$; gender and discipline results not shown

False Investigator = More Grant Submissions

- Our results show that false investigators leads to more grant applications (test of k is significant), but does not lead to larger funding per grant application (test of $p_i g_i$ is not significant)
- This suggests the increased grant $ from false investigators is coming through more grant applications

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Conclusions

- Our Results suggest:
  - Adding false investigators to grant proposals significantly increases cumulative total grant dollars over a five-year period
  - The mechanism for this increase in grant dollars is through the increased number of grant applications that occur when utilizing the practice of false investigators
  - Logic concludes that grant dollars are being misdirected because of the use of false investigators
- Implications for Research Integrity:
  - Office of Research Integrity states that the “fabrication, falsification, or plagiarism in proposing, performing, or review research” that is committed “intentionally, knowingly, or recklessly” is research misconduct
    - Including a false investigator is *falsification in proposing research* and, given many respondents are doing because they believe reputation increases their chance of funding, it is *intentional*
  - According to Vasgird (2007), Responsible Conduct of Research (RCR) is the best means of communicating policy and thus more RCR training needs to address this behavior