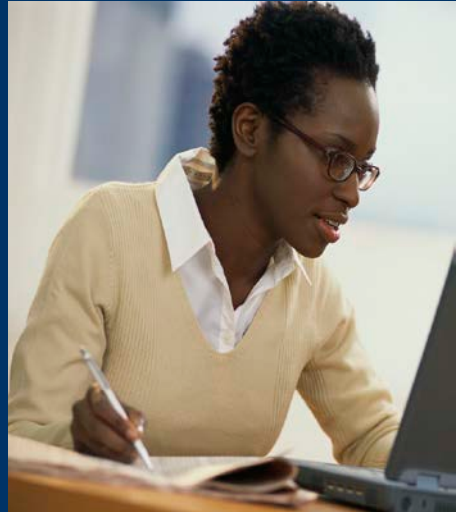


Homosociality or Crossing Race/Ethnicity/Gender Boundaries? Pipeline Interventions and the Production of Scholarly Careers



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National Science Foundation and American Sociological Association Questions that Motivated the Study

Questions from NSF:

- Anecdotal evidence suggested that NSF Dissertation Improvement Grant recipients begin submitting proposals to NSF very early in their careers.
- What are the characteristics of scientific productivity, professional networks, and professionalization (including mentoring) of these NSF awardees?
- Are these characteristics the same or different from those who do not receive NSF Dissertation Improvement Grant support or support from other sources, for example the ASA Minority Fellowship Program (MFP)?
- Are the career trajectories of Dissertation Improvement Grantees different from non-grantees in the same PhD cohort?



National Science Foundation and American Sociological Association Questions that Motivated the Study

Questions from ASA:

- Anecdotal evidence suggests that alumni of the Minority Fellowship Program benefit from mentoring activity and participation in an intentional network of MFP Fellows.
- What are the characteristics of MFP Fellows including their pre-doctoral characteristics, their post-doctoral career trajectories, their productivity, and their service to the profession compared to other groups?
- Do MFP mentoring activities improve the scholarly productivity of participants over the career trajectory compared to other groups?
- Do NSF and ASA investments create and enhance social capital, professionalization and professional networks? What are the underlying social processes that could be used to increase diversity or “broaden participation?”



BACKGROUND

- Social capital encompasses social networks and connections in gaining access to knowledge, institutional resources, and other support.
- Graduate school and early career mentoring is a key process by which exposure to these social networks takes place.
- Mentoring can create conditions for success in graduate school and beyond including scholarly productivity; grant funding; service to the discipline; tenure; and promotion.
- There is a call for more research on cross-cultural mentoring and the issue of cultural competency as well as more research on how gender and race intersect.



PURPOSES OF THIS PAPER: LEARNING ABOUT THE MENTORING PROCESS

- To find out whether mentoring relationships are homophilious, that is, are they segregated by race/ethnicity and gender (as in “birds of a feather flock together”) or whether they cross race/ethnicity and gender lines.
- We present findings based on new data on the career trajectories of three groups of sociology PhDs.
- The first is alumni of the American Sociological Association’s Minority Fellowship Program (MFP) (N=110).
- The second is former grant awardees in the predominantly white National Science Foundation (NSF) Dissertation Improvement Grant Program in sociology (N=267).
- The third is a randomly selected group of sociology PhDs (N=158).



STUDY DESIGN

Data Set

- Information on each of the three groups was from the MFP database from 1997 through 2006, the NSF data base of Dissertation Improvement Grant awardees from 1997 through 2006, and the ASA membership database for PhDs from 1997 through 2009. The MFP and NSF participants were tracked through 2009.
- Data on additional NSF awards were from the main NSF data base of grant recipients.
- NSF mentors were available from the NSF Dissertation Improvement Grant awards; mentors (dissertation advisors) for MFP and ASA control group were found in Dissertation Abstracts. All additional information was found through Google searches.



STUDY DESIGN

Statistical Methods

- Descriptive analysis of characteristics of mentors and mentees.
- Logistic regression analyses for yes versus no answers. These include having a tenure track position, receiving tenure in 7 years, teaching at Research I university, obtaining post-PhD NSF grants, and holding ASA section officership
- Poisson regression for number of publications.

Caveat

- The homophilious or heterogeneous relations between mentor and mentee are based on race, ethnicity, or gender. Unfortunately cell sizes were not large enough to allow us to examine intersectionality, i.e., race and gender.



FINDINGS

We present the results of our investigation of career trajectories among the three groups, including:

1. Differences in scholarly productivity, being “on track” in the career pipeline, and service to the discipline;
1. The relationship between the race or ethnicity of the mentor (dissertation advisor) and the race and ethnicity of the student; and, most importantly,
1. Do homophilious or heterogeneous mentoring relations positively or negatively affects the career characteristics of each of the three groups?

The findings can be used to examine changes that can increase the effectiveness of scientific mentoring programs for under-represented minorities. An additional contribution is to develop and apply new approaches to measuring mentoring.

DESCRIPTIVE STATISTICS

	NSF Fellows	MFP Fellows	Control Group
Total Number of 1997-2009 Sociology PhD Graduates Sampled	332	170	200
Total Number of 1997-2009 Sociology PhD Graduates Employed and in U.S.	267	110	158
Graduated in 2002 or Earlier	28.1%	43.6%	52.5%
Graduated from Research I Universities	97.8%	81.8%	69.6%
Female	60.3%	62.7%	62%
Minority	13.2%	100.0%	22.8%
White Male Advisor	55.8%	40.9%	48.1%
Minority Advisor	7.1%	22.7%	11.4%
In Tenured/Tenure Track Positions	71.5%	59.1%	62.7%
Total Number of 1997-2009 Sociology PhD Graduates in Academic Positions	191	65	99
Employed at Research I University	56.5%	21.9%	28.3%
Received Post-PhD NSF Grants	16.8%	9.2%	5.1%
ASA Section Officer	16.8%	13.8%	7.1%
Median Number of Publications	2	3	1
Total Number of 1997-2002 Sociology PhD Graduates in Academic Positions	56	32	54
Tenured by 2010	21.4%	25.0%	35.2%

GETTING ACADEMIC JOBS

Expected Probability of Holding a Tenured/Tenure Track Academic Position in 2010 for 1997-2009 Sociology PhD Graduates by Group

(N=535)

Group Differences

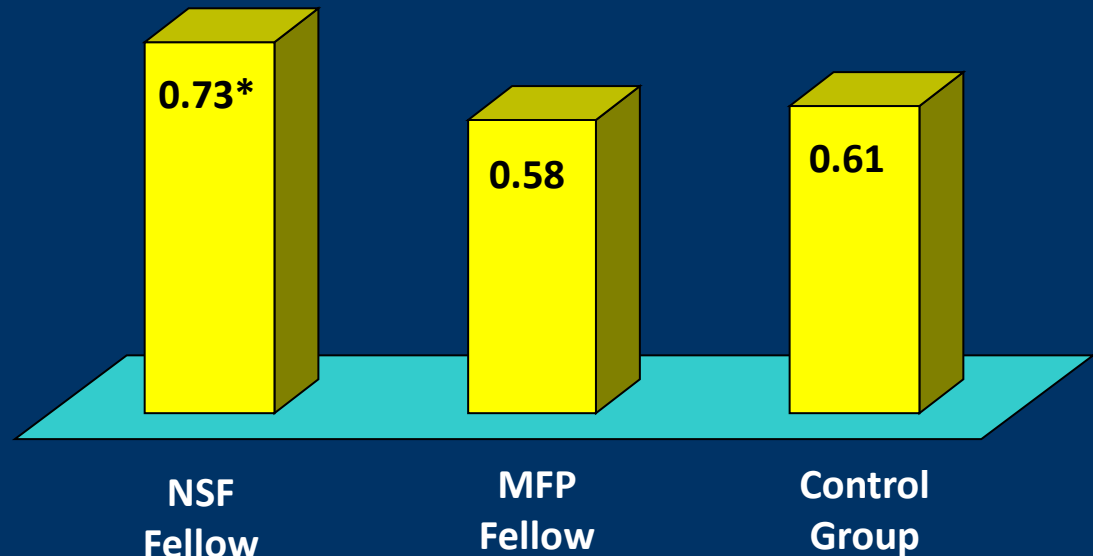
- NSF Fellows but not MFP Fellows are more likely to be in tenured/tenure track positions than the control group.

Mentor Influence

- No significant effects.

Other Significant Factors

- Years since graduation has a positive effect.



Results from the logistic regression with robust standard errors, non-significant effects excluded. Control variables are held constant at the mean.

** Statistically different from the control group.*

EMPLOYMENT AT RESEARCH-EXTENSIVE UNIVERSITIES

Group Differences

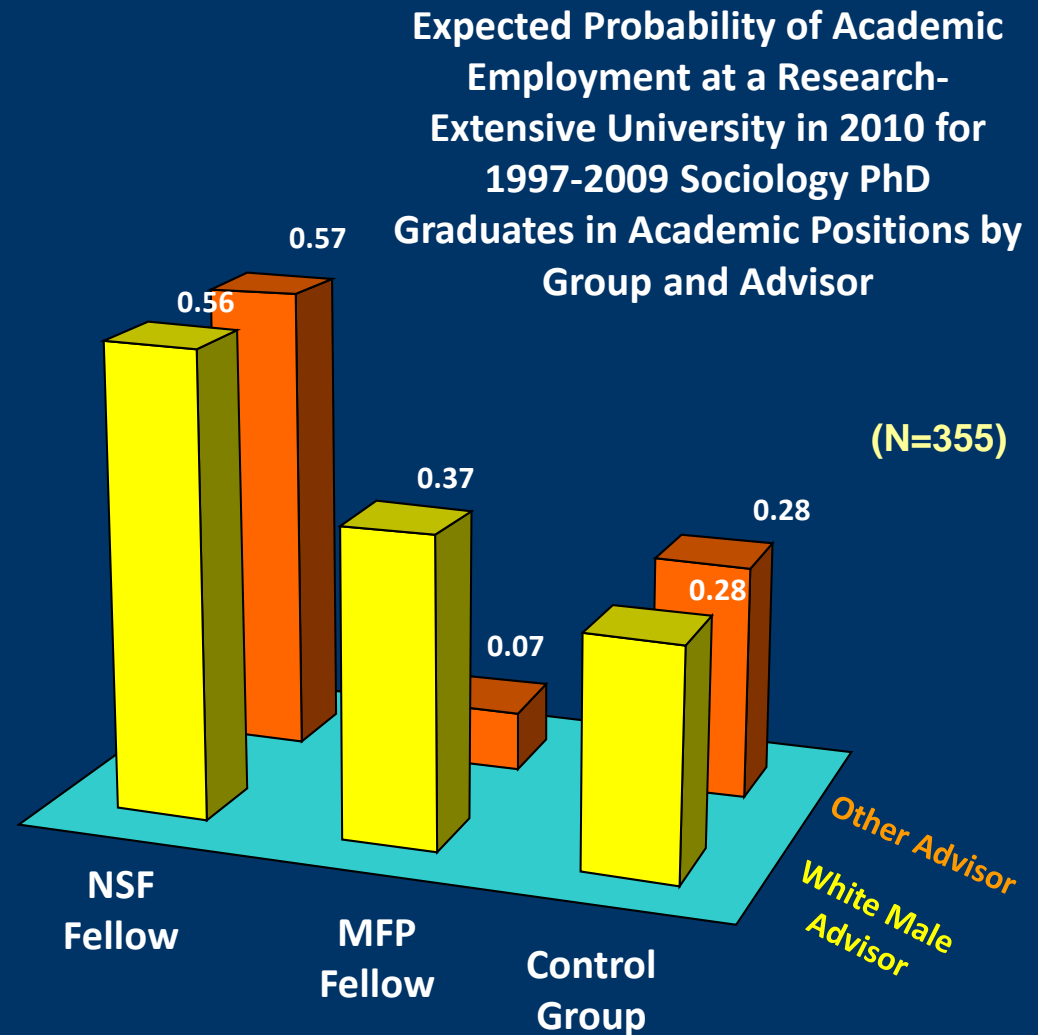
- NSF Fellows are more likely and MFP Fellows are less likely to work at Research I universities than the control group.

Mentor Influence

- For MFP Fellows, having a minority advisor decreases and having a white male advisor increases their chances of working at a Research I university.

Other Significant Factors

- None.



Results from the logistic regression with robust standard errors, non-significant effects excluded. Control variables are held constant at the mean.

POST-PHD NSF GRANT AWARDS

Group Differences

- Both NSF and MFP Fellows are more likely to receive NSF grants after graduation than the control group.

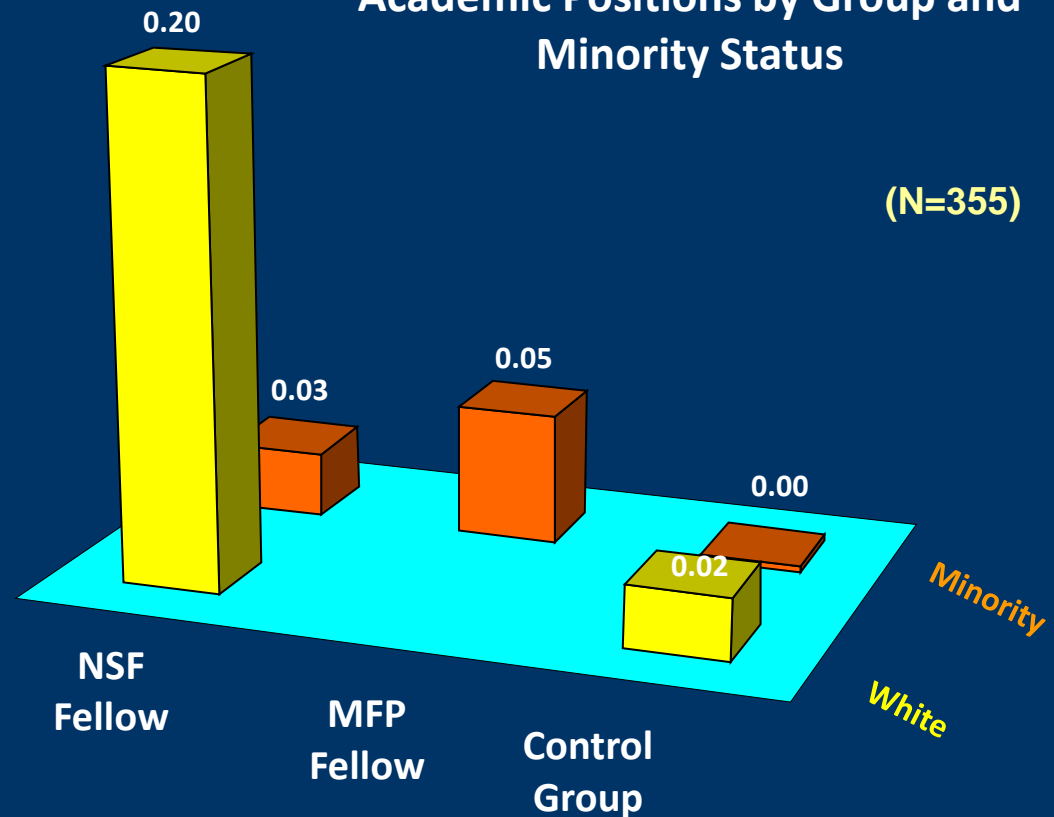
Mentor Influence

- None of the PhD graduates with minority mentors received post-PhD NSF grants.

Other Significant Factors

- Except for MFPs, minorities across other groups are less likely to get NSF grants compared to whites.
- Faculty at Research I universities are more likely to get NSF grants.
- Years since graduation has a positive effect.

Expected Probability of Receiving Post-PhD NSF Grant Awards for 1997-2009 Sociology PhD Graduates in Academic Positions by Group and Minority Status



Results from the logistic regression with robust standard errors, non-significant effects excluded. Control variables are held constant at the mean.

SERVING THE DISCIPLINE BY BECOMING AN ASA SECTION OFFICER

Group Differences

- NSF Fellows but not MFP Fellows are more likely to serve as ASA Section Officers than the control group.

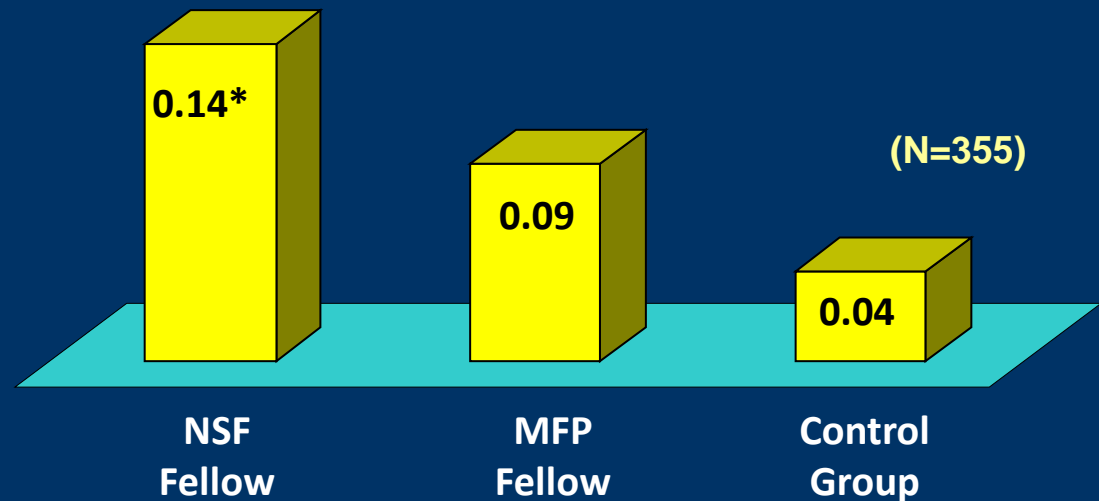
Mentor Influence

- No significant effects.

Other Significant Factors

- Faculty at Research I universities are more likely to serve as ASA Section Officers.
- Years since graduation also has a positive effect.

Expected Probability of Holding an ASA Section's Officer Position for 1997-2009 Sociology PhD Graduates in Academic Positions by Group



Results from the logistic regression with robust standard errors, non-significant effects excluded. Control variables are held constant at the mean.

** Statistically different from the control group.*

PUBLICATIONS

Group Differences

- There are no differences between NSF Fellows and the control group.
- MFP Fellows, unlike other minorities, follow the pattern of publications of whites in the control group and among NSF Fellows.

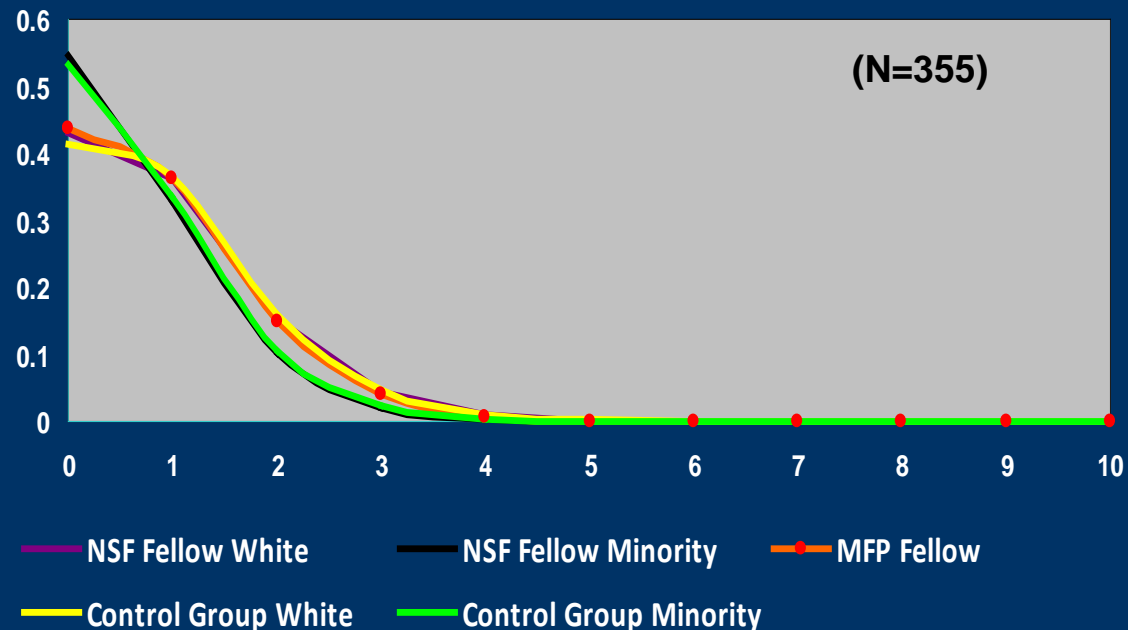
Mentor Influence

- Having a white male advisor is positively associated and having a minority advisor is negatively associated with the number of publications across groups.
- But these results are not robust.

Other Significant Factors

- Minorities, except for MFPs, publish less.
- Years since graduation and having publication prior to graduation have a positive effect.
- Faculty at Research I universities publish more.

Expected Probabilities of Publication Counts for 1997-2009 Sociology PhD Graduates in Academic Positions by Group



Results from the poisson regression with robust standard errors, non-significant effects excluded. Control variables are held constant at the mean.

GETTING TENURE WITHIN 7 YEARS SINCE GRADUATION

Group Differences

- NSF Fellows but not MFP Fellows are more likely to get tenure within seven years of graduation.

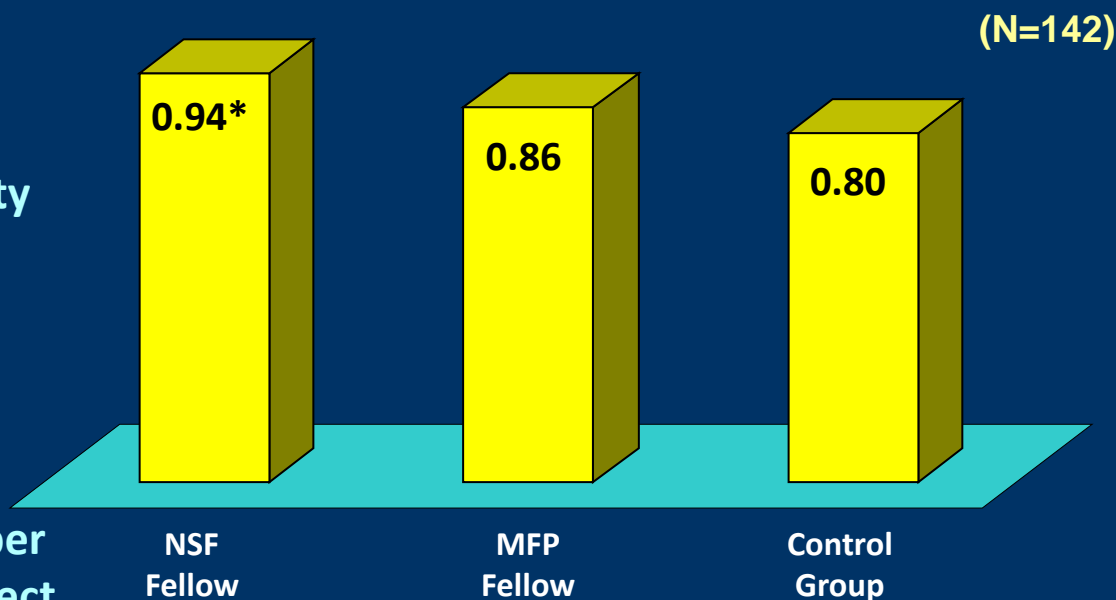
Mentor Influence

- No significant effects.
- But, all MFP Fellows with minority advisors working at Research I universities were tenured after seven years.

Other Significant Factors

- Years since graduation and number of publication have a positive effect on getting tenure.
- Faculty at Research I universities are less likely to have tenure.

Expected Probability of Getting Tenure by 2010 for 1997-2002 Sociology PhD Graduates in Academic Positions by Group



Results from the logistic regression with robust standard errors, non-significant effects excluded. Control variables are held constant at the mean.

** Statistically different from the control group.*

CONCLUSIONS

- More than 20 percent of MFP Fellows have minority mentors (homophilious relations) compared to 7 percent of NSF Fellows (heterogeneous relations).
- High status white male mentors (heterogeneous relations) are instrumental to MFP Fellows in securing academic positions in high status research-extensive universities. This is because there are proportionally fewer minority faculty members in high status positions.
- All MFP Fellows teaching at Research I schools received tenure if they had minority faculty advisors (homophilious relations). This finding may indicate the importance of cultural competency for learning to navigate the tenure track.
- Participation in MFP gives minority students a leg-up compared to minority students who are not part of the program; MFP Fellows are more likely to receive NSF grants when in academic positions and they also publish more, but not clear if mentoring is the reason.



NEXT STEPS

- We will enlarge the sample by adding 3 more cohorts so that intersectional analysis becomes more valid.
- We will add data on publication and grant status of mentors to further understand the effects of the mentoring relationship.
- We will examine co-authorship patterns to see if NSF Fellows and MFP Fellows are more likely to be part of networks than the ASA control group. We hypothesize that MFPs will be more embedded in networks than the other groups because the program is based on the idea of network mentoring rather than 1 to 1 mentoring.



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