COCS 6323: Statistical Methods in Research

Group Project

Group 2

Department of Computer Science

University of Houston

April 4, 2019

Contents

List of Tables

List of Figures

1 Contribution

Member	**Contribution**
Bradley Macdonald	Preprocess data and create regression models of Figure 4
Tung Huynh	Preprocess Data, create regression models of Table S4, Table S5
Yifan Zhang	Preprocess Data, and draw plot of Figure 4

Table 1: Contribution of group members

2 Figure 4

3 Supplementary Table S2

	CV		CV + Network		CV + Network [Standardized]	
CV parameters						
Department rank, β_r	-0.052***	(0.006)	-0.047***	(0.006)	-0.056***	(0.007)
Productivity (h-index), β_h	1.857***	(0.018)	1.866***	(0.018)	1.179***	(0.012)
Total NSF funding, $\beta_{\$1}$	-0.004*	(0.002)	-0.005**	(0.002)	-0.031**	(0.012)
# of NSF grants , β_{N1}	0.018	(0.012)	0.010	(0.012)	0.011	(0.013)
Total NIH funding, $\beta_{\$2}$	0.015***	(0.003)	0.018***	(0.003)	0.072***	(0.018)
# of NIH grants, β_{N2}	-0.062***	(0.016)	-0.054**	(0.017)	-0.060**	(0.018)
Network parameters						
PageRank Centrality, $\beta_{\zeta PR}$			0.041**	(0.014)	0.026**	(0.009)
Cross-displinary, β_χ			0.567***	(0.061)	0.085***	(0.009)
Discipline (O) dummy	Y		Y		Y	
5-year cohort ($y_{i,5^0}$) dummy	Y		Y		Y	
Constant	1.400***	(0.233)	1.708***	(0.271)	7.743***	(0.216)
n	4,190		3,900		3,900	
adj. R^2	0.883		0.882		0.882	

Standard errors in parentheses below estimate * p $\leq$ 0.05, ** p $\leq$ 0.01, *** p $\leq$ 0.0001

Table 2: Career data set: Poolel cross-sectional model

4 Supplementary Table S3

	(a) C^{PR}	(b) C^{B}	(c) C^{D}	(d) β_{N1}, β_{N2}	(e) β_{r}
CV parameters					
Department rank, β_r	-0.047***	-0.042***	-0.044***	-0.046***	
	(0.006)	(0.006)	(0.006)	(0.006)	
Productivity (h-index), β_h	1.866***	1.901***	1.848***	1.862***	1.892***
	(0.018)	(0.019)	(0.018)	(0.018)	(0.018)
Total NSF funding, $\beta_{\$1}$	-0.005**	-0.004*	-0.004*	-0.003**	-0.004*
	(0.002)	(0.002)	(0.002)	(0.001)	(0.002)
# of NSF grants , β_{N1}	0.010	0.009	0.005		0.004
	(0.012)	(0.012)	(0.012)		(0.012)
Total NIH funding, $\beta_{\$2}$	0.018***	0.012***	0.012***	0.003*	0.012***
	(0.003)	(0.003)	(0.003)	(0.001)	(0.003)
# of NIH grants, β_{N2}	-0.054**	-0.056**	-0.055**		-0.052**
	(0.017)	(0.017)	(0.017)		(0.017)
Network parameters					
PageRank Centrality, $\beta_{\zeta PR}$	0.041**			0.042**	0.057***
	(0.014)			(0.014)	(0.014)
Betweeness Centrality, $\beta_{\zeta B}$		-0.0003			
		(0.005)			
Degree Centrality, $\beta_{\zeta D}$			0.052***		
			(0.010)		
Cross-displinary, β_{χ}	0.567***	0.560***	0.526***	0.579***	0.552***
	(0.061)	(0.062)	(0.061)	(0.061)	(0.061)
Discipline (O) dummy	Y	Y	Y	Y	Y
5-year cohort ($y_{i,5^0}$) dummy	Y	Y	Y	Y	Y
Constant	1.708***	1.204***	1.345***	1.711***	1.617***
	(0.271)	(0.225)	(0.226)	(0.270)	(0.272)
n	3,900	3,387	3,900	3,900	3,900
adj. R^2	0.882	0.873	0.883	0.882	0.881

Standard errors in parentheses below estimate * p $\leq$ 0.05, ** p $\leq$ 0.01, *** p $\leq$ 0.0001

Table 3: Career data set: Poolel cross-sectional model - Robustness check