

Appendix to Denrell and Kovacs (2020): “The Ecology of Management Concepts”

Table A1: Results with 5-year periods collapsed

	Poisson models Keyword FE			NBReg models Keyword RE, Year FE		
	M1	M2	M3	M4	M5	M6
Keyword age	-0.006*** [0.000]	-0.013*** [0.000]	-0.002*** [0.000]	-0.013*** [0.000]	-0.017*** [0.000]	-0.012*** [0.000]
Keyword popularity in t-1	0.337*** [0.005]	0.405*** [0.005]	0.431*** [0.005]	0.438*** [0.008]	0.450*** [0.008]	0.536*** [0.008]
Change in popularity from t-2 to t-1	0.003*** [0.000]	0.003*** [0.000]	0.001*** [0.000]	0.002** [0.001]	0.006*** [0.000]	0.002*** [0.000]
Affiliation with popular others	0.243*** [0.002]			0.467*** [0.005]		
Popularity in t-1 X Affiliation with popular others	-0.044*** [0.000]			-0.109*** [0.001]		
Local crowding		0.334*** [0.002]			0.405*** [0.003]	
Popularity in t-1 X Local crowding		-0.053*** [0.000]			-0.072*** [0.001]	
Combination with similar concepts			0.109*** [0.002]			0.084*** [0.001]
Popularity in t-1 X Combination with similar concepts			-0.013*** [0.000]			-0.012*** [0.000]
Constant				0.112*** [0.016]	0.229*** [0.017]	-0.057*** [0.015]
Observations	137,132	137,132	137,132	151,757	151,757	151,757
Log-likelihood	-89,869	-83,433	-94,959	-116,637	-112,380	-119,138

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table A2: Truncating keyword trajectories 10 years after last mention

	Poisson models Keyword FE			NBReg models Keyword RE, Year FE		
	M1	M2	M3	M4	M5	M6
Keyword age	0.006*** [0.000]	-0.009*** [0.000]	0.005*** [0.000]	0.005*** [0.000]	-0.007*** [0.000]	0.005*** [0.000]
Keyword popularity in t-1	0.589*** [0.007]	0.762*** [0.006]	0.641*** [0.005]	0.675*** [0.010]	0.766*** [0.008]	0.690*** [0.007]
Change in popularity from t-2 to t-1	-0.007*** [0.000]	0.006*** [0.000]	-0.005*** [0.000]	-0.016*** [0.001]	0.015*** [0.001]	-0.012*** [0.001]
Affiliation with popular others	0.022*** [0.002]			0.002 [0.004]		
Popularity in t-1 X Affiliation with popular others	-0.005*** [0.000]			0.000 [0.001]		
Local crowding		0.278*** [0.001]			0.325*** [0.001]	
Popularity in t-1 X Local crowding		-0.064*** [0.000]			-0.077*** [0.000]	
Combination with similar concepts			0.106*** [0.001]			0.098*** [0.001]
Popularity in t-1 X Combination with similar concepts			-0.022*** [0.000]			-0.022*** [0.000]
Constant				0.457*** [0.040]	0.445*** [0.041]	0.594*** [0.040]
Observations	363,316	363,316	363,316	364,885	364,885	364,885
Log-likelihood	-179,379	-151,172	-170,717	-202,556	-177,819	-196,914

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table A3: Re-estimating the models using the subset of keywords with less than 1000 total mentions

	Poisson models Keyword FE			NBReg models Keyword RE, Year FE		
	M1	M2	M3	M4	M5	M6
Keyword age	-0.000*** [0.000]	-0.016*** [0.000]	-0.002*** [0.000]	-0.007*** [0.000]	-0.019*** [0.000]	-0.006*** [0.000]
Keyword popularity in t-1	0.642*** [0.009]	0.772*** [0.007]	0.776*** [0.006]	0.799*** [0.013]	0.836*** [0.009]	0.901*** [0.008]
Change in popularity from t-2 to t-1	-0.027*** [0.001]	0.033*** [0.001]	-0.020*** [0.001]	-0.041*** [0.001]	0.050*** [0.001]	-0.035*** [0.001]
Affiliation with popular others	0.047*** [0.003]			0.042*** [0.006]		
Popularity in t-1 X Affiliation with popular others	-0.010*** [0.001]			-0.010*** [0.002]		
Local crowding		0.345*** [0.001]			0.431*** [0.002]	
Popularity in t-1 Local crowding		-0.086*** [0.001]			-0.106*** [0.001]	
Combination with similar concepts			0.168*** [0.001]			0.159*** [0.001]
Popularity in t-1 X Combination with similar concepts			-0.043*** [0.001]			-0.044*** [0.001]
Observations	664,376	664,376	664,376	674,773	674,773	674,773
Log-likelihood	-190,481	-155,965	-179,607	-219,807	-187,640	-211,845

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table A4: Controlling for the productivity of the article authors

	Poisson models Keyword FE			NBReg models Keyword RE, Year FE		
	M1	M2	M3	M4	M5	M6
Keyword age	-0.003*** [0.000]	-0.013*** [0.000]	-0.004*** [0.000]	-0.006*** [0.000]	-0.016*** [0.000]	-0.007*** [0.000]
Keyword popularity in t-1	0.956*** [0.007]	1.055*** [0.007]	0.940*** [0.005]	1.054*** [0.008]	1.159*** [0.009]	1.035*** [0.006]
Change in popularity from t-2 to t-1	-0.010*** [0.001]	0.018*** [0.001]	-0.011*** [0.001]	-0.015*** [0.001]	0.016*** [0.001]	-0.014*** [0.001]
Affiliation with popular others	0.031*** [0.002]			0.036*** [0.003]		
Popularity in t-1 X Affiliation with popular others	-0.010*** [0.001]			-0.012*** [0.001]		
Local crowding		0.285*** [0.001]			0.323*** [0.001]	
Popularity in t-1 X Local crowding		-0.077*** [0.000]			-0.095*** [0.001]	
Combination with similar concepts			0.050*** [0.000]			0.052*** [0.000]
Popularity in t-1 X Combination with similar concepts			-0.014*** [0.000]			-0.015*** [0.000]
Author productivity	0.462*** [0.003]	0.268*** [0.003]	0.456*** [0.002]	0.400*** [0.003]	0.227*** [0.003]	0.398*** [0.003]
Constant				0.283 [0.205]	2.126*** [0.715]	0.447** [0.225]
Observations	615,596	615,596	615,596	615,596	615,596	615,596
Log-likelihood	-231,306	-197,443	-226,728	-218,643	-191,544	-215,573

Standard errors in brackets

*** p<0.01, ** p<0.05, * p<0.1

Table A5: Models using an alternative measure for “Affiliation with popular others”: Max popularity of co-mentioned keywords in year t-1.

	Poisson model Keyword FE	NBReg model Keyword RE, Year FE
Keyword age	0.009*** [0.000]	0.002*** [0.000]
Keyword popularity in t-1	1.763*** [0.004]	1.716*** [0.006]
Change in popularity from t-2 to t-1	-0.031*** [0.001]	-0.032*** [0.001]
Max pop. of co-mentioned keywords (t-1)	0.132*** [0.002]	0.094*** [0.002]
Popularity in t-1 X (max pop. of co-mentioned keywords)	-0.053*** [0.001]	-0.034*** [0.001]
Constant		-14.549 [2,023.656]
Observations	676,719	676,720
Log-likelihood	-265,553	-244,162

Standard errors in brackets

*** p<0.01, ** p<0.05, * p<0.1

Table A6: Re-estimating the models with log-linear specification. OLS models with keyword fixed effects, the DV is $\ln(\text{count}+1)$.

	M1	M2	M3	M4
Keyword age	-0.000*** [0.000]	-0.000*** [0.000]	-0.001*** [0.000]	0.000*** [0.000]
Keyword popularity in t-1	0.253*** [0.001]	0.118*** [0.002]	0.045*** [0.001]	0.223*** [0.001]
Change in popularity from t-2 to t-1	-0.023*** [0.000]	-0.032*** [0.000]	0.017*** [0.000]	-0.019*** [0.000]
Affiliation with popular others		0.067*** [0.001]		
Popularity in t-1 X Affiliation with popular others		-0.009*** [0.000]		
Local crowding			0.245*** [0.000]	
Popularity in t-1 X Local crowding			-0.048*** [0.000]	
Combination with similar concepts				0.105*** [0.000]
Popularity in t-1 X Combination with similar concepts				-0.021*** [0.000]
Constant	0.066*** [0.001]	0.079*** [0.001]	0.079*** [0.000]	0.057*** [0.000]
Observations	676,720	676,720	676,720	676,720
R-squared	0.051	0.076	0.656	0.229

Standard errors in brackets

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table A7: Re-estimating the models of Table 3 with a split-sample approach.

(a) Poisson models with keyword fixed effects

	M1	M2	M3	M4	M5	M6
Sample	$\ln(\text{popularity}_{t-1}) \leq 1$	$\ln(\text{popularity}_{t-1}) > 1$	$\ln(\text{popularity}_{t-1}) \leq 1$	$\ln(\text{popularity}_{t-1}) > 1$	$\ln(\text{popularity}_{t-1}) \leq 1$	$\ln(\text{popularity}_{t-1}) > 1$
Affiliation with popular others	0.259*** [0.005]	0.014*** [0.000]				
Local crowding			0.625*** [0.002]	0.069*** [0.001]		
Combination with similar concepts					0.380*** [0.003]	0.016*** [0.000]
Keyword age	-0.006*** [0.000]	0.010*** [0.000]	-0.028*** [0.000]	-0.001*** [0.000]	-0.008*** [0.000]	0.013*** [0.000]
Change in popularity from t-2 to t-1	-0.113*** [0.003]	-0.001 [0.001]	0.103*** [0.004]	0.002*** [0.001]	-0.064*** [0.004]	0.008*** [0.001]
Observations	651,974	15,585	651,974	15,585	651,974	15,585
Log-likelihood	-157755	-31629	-115802	-27668	-144249	-31024

(b) Negative binomial models with keyword random effects and year fixed effects

	M7	M8	M9	M10	M11	M12
	$\ln(\text{popularity}_{t-1}) \leq 1$	$\ln(\text{popularity}_{t-1}) > 1$	$\ln(\text{popularity}_{t-1}) \leq 1$	$\ln(\text{popularity}_{t-1}) > 1$	$\ln(\text{popularity}_{t-1}) \leq 1$	$\ln(\text{popularity}_{t-1}) > 1$
Affiliation with popular others	0.286*** [0.005]	0.016*** [0.001]				
Local crowding			0.629*** [0.002]	0.073*** [0.001]		
Combination with similar concepts					0.271 [0.000]	0.015*** [0.000]
Keyword age	-0.013*** [0.000]	0.010*** [0.000]	-0.027*** [0.000]	0.001** [0.000]	-0.012*** [0.000]	0.012*** [0.000]
Change in popularity from t-2 to t-1	-0.149*** [0.004]	-0.007*** [0.001]	0.107*** [0.004]	0.001 [0.001]	-0.112*** [0.004]	0.003** [0.002]
Constant	-0.032** [0.016]	0.183*** [0.029]	1.555*** [0.062]	0.515*** [0.032]	0.170*** [0.019]	0.182*** [0.029]
Observations	662,397	17,701	662,397	17,701	662,397	17,701
Log-likelihood	-191333	-33121	-151258	-30974	-181414	-33018

Standard errors in brackets

*** p<0.01, ** p<0.05, * p<0.1