### TABLE 4

# Item-response probabilities for the five-class job satisfaction latent transition analysis solution with three response options: 2015, 2017, and 2019

(Percent and probability)

Class (prevalence: 2015, 2017, 2019)Very satisfiedSomewhat satisfiedClass 1 (28.2, 27.3, 25.8%): Very Satisfied with Independence, Challenge, and ResponsibilitySalary0.1010.6000.229Benefits0.02190.52520.229Security0.04640.0580.178Location0.06040.02530.011Opportunities0.0530.05210.025Challenge0.8300.6520.229Responsibility0.7960.1930.011Independence0.8300.1610.009Responsibility0.7960.1930.011Independence0.8300.1610.009Salary0.7960.1930.011Contribution0.7660.0130.011Class 2 (22, 23.5, 25.5%): Very Satisfied with Everything0.7660.027Salary0.8450.0130.018Security0.8450.1370.008Security0.8450.1370.018Challenge0.8450.1350.030Opportunities0.9450.0370.001Independence0.9450.0370.001Challenge0.9450.0370.001Independence0.9450.0370.001Challenge0.9450.0370.001Independence0.9450.0020.001Independence0.9450.0020.001Independence0.9450.0020.001		Response		
Class 1 (28.2, 27.3, 25.8%): Very Satisfied with Independence, Challenge, and ResponsibilityImage: Challenge independence, Challenge, and ResponsibilityImage: Challenge independence, Challenge, and ResponsibilityBenefits0.01010.02090.229Security0.04640.03580.178Location0.06040.2950.0101Opportunities0.0530.0520.225Challenge0.8300.1610.009Responsibility0.7960.1930.011Independence0.8900.0100.011Contribution0.7660.2270.008Benefits0.7660.2270.008Benefits0.8420.1330.010Solurity0.7660.2270.008Deportunities0.8420.1330.010Challenge0.8420.1330.020Location0.8420.1330.020Location0.8420.0350.030Opportunities0.9520.0450.031Challenge0.9520.0450.001Responsibility0.9750.0240.001Responsibility0.9750.0240.001Independence0.9520.0450.002Contribution0.9520.0450.002Contribution0.9630.9550.036Opportunities0.7670.0260.002Contribution0.9630.05850.096Salary0.5850.05850.008Salary	Class (prevalence: 2015, 2017, 2019)	Very satisfied	Somewhat satisfied	Dissatisfied
Salary  0.101  0.609  0.291    Benefits  0.219  0.552  0.229    Security  0.464  0.358  0.178    Location  0.604  0.295  0.178    Opportunities  0.253  0.521  0.225    Challenge  0.830  0.161  0.009    Responsibility  0.796  0.193  0.011    Independence  0.796  0.193  0.011    Contribution  0.796  0.193  0.011    Contribution  0.796  0.193  0.011    Contribution  0.796  0.214  0.011    Contribution  0.796  0.217  0.008    Benefits  0.796  0.227  0.008    Benefits  0.845  0.137  0.018    Security  0.845  0.137  0.018    Security  0.845  0.137  0.016    Location  0.734  0.251  0.035    Opportunities  0.962  0	Class 1 (28.2, 27.3, 25.8%): Very Satisfied with Independence, Challenge, and Responsibility			
Benefits  0.219  0.552  0.229    Security  0.464  0.358  0.178    Location  0.604  0.295  0.101    Opportunities  0.53  0.521  0.225    Challenge  0.830  0.161  0.009    Responsibility  0.766  0.193  0.011    Independence  0.890  0.100  0.011    Contribution  0.768  0.214  0.017    Class 2 (22.2, 23.5, 25.5%): Very Satisfied with Everything  0.766  0.227  0.008    Benefits  0.842  0.137  0.018    Security  0.842  0.137  0.018    Security  0.842  0.137  0.018    Doportunities  0.842  0.135  0.030    Opportunities  0.842  0.135  0.030    Opportunities  0.842  0.037  0.015    Challenge  0.952  0.045  0.037    Challenge  0.955  0.024  0.007 <t< td=""><td>Salary</td><td>0.101</td><td>0.609</td><td>0.291</td></t<>	Salary	0.101	0.609	0.291
Security  0.464  0.358  0.178    Location  0.604  0.295  0.101    Opportunities  0.253  0.521  0.225    Challenge  0.830  0.161  0.009    Responsibility  0.796  0.193  0.011    Independence  0.830  0.100  0.011    Contribution  0.766  0.227  0.008    Benefits  0.766  0.214  0.017    Salary  0.842  0.137  0.018    Security  0.842  0.137  0.018    Security  0.842  0.137  0.018    Security  0.842  0.137  0.018    Security  0.842  0.137  0.015    Challenge  0.842  0.137  0.015    Opportunities  0.842  0.137  0.015    Challenge  0.734  0.251  0.015    Challenge  0.975  0.024  0.001    Independence  0.975  0.024<	Benefits	0.219	0.552	0.229
Location  0.604  0.295  0.101    Opportunities  0.253  0.521  0.225    Challenge  0.830  0.161  0.009    Responsibility  0.766  0.193  0.011    Independence  0.890  0.100  0.011    Contribution  0.766  0.214  0.017    Class 2 (22.2, 23.5, 25.5%): Very Satisfied with Everything  0.766  0.227  0.008    Benefits  0.845  0.137  0.018    Security  0.845  0.137  0.018    Security  0.845  0.137  0.018    Opportunities  0.842  0.138  0.020    Location  0.845  0.155  0.030    Opportunities  0.734  0.251  0.015    Challenge  0.975  0.024  0.001    Independence  0.975  0.024  0.001    Independence  0.975  0.045  0.002    Contribution  0.877  0.116  0.002	Security	0.464	0.358	0.178
Opportunities  0.253  0.521  0.225    Challenge  0.830  0.161  0.009    Responsibility  0.796  0.193  0.011    Independence  0.890  0.100  0.011    Contribution  0.768  0.214  0.017    Class 2 (22.2, 23.5, 25.5%): Very Satisfied with Everything	Location	0.604	0.295	0.101
Challenge  0.830  0.161  0.009    Responsibility  0.796  0.193  0.011    Independence  0.890  0.100  0.011    Contribution  0.768  0.214  0.017    Class 2 (22.2, 23.5, 25.5%): Very Satisfied with Everything	Opportunities	0.253	0.521	0.225
Responsibility  0.796  0.193  0.011    Independence  0.890  0.100  0.011    Contribution  0.768  0.214  0.017    Class 2 (22.2, 23.5, 25.5%): Very Satisfied with Everything  0  0  0    Salary  0.766  0.227  0.008    Benefits  0.845  0.137  0.018    Security  0.845  0.137  0.018    Location  0.845  0.137  0.018    Opportunities  0.734  0.251  0.015    Challenge  0.962  0.037  0.001    Responsibility  0.975  0.024  0.001    Independence  0.952  0.045  0.002    Contribution  0.877  0.116  0.007    Class 3 (16.0, 17.0, 17.8%): Very Satisfied with Benefits	Challenge	0.830	0.161	0.009
Independence  0.890  0.100  0.011    Contribution  0.768  0.214  0.017    Class 2 (22.2, 23.5, 25.5%): Very Satisfied with Everything  0  0  0    Salary  0.766  0.227  0.008    Benefits  0.845  0.137  0.018    Security  0.845  0.137  0.018    Location  0.845  0.135  0.030    Opportunities  0.734  0.251  0.015    Challenge  0.962  0.037  0.001    Responsibility  0.975  0.024  0.001    Independence  0.952  0.045  0.002    Contribution  0.877  0.116  0.007    Class 3 (16.0, 17.0, 17.8%): Very Satisfied with Benefits	Responsibility	0.796	0.193	0.011
Contribution  0.768  0.214  0.017    Class 2 (22.2, 23.5, 25.5%): Very Satisfied with Everything	Independence	0.890	0.100	0.011
Class 2 (22.2, 23.5, 25.5%): Very Satisfied with Everything  Interpret in the second seco	Contribution	0.768	0.214	0.017
Salary  0.766  0.227  0.008    Benefits  0.845  0.137  0.018    Security  0.842  0.138  0.020    Location  0.815  0.155  0.030    Opportunities  0.734  0.251  0.015    Challenge  0.962  0.037  0.001    Responsibility  0.975  0.024  0.001    Independence  0.952  0.045  0.002    Contribution  0.877  0.116  0.007    Class 3 (16.0, 17.0, 17.8%): Very Satisfied with Benefits  0.585  0.396  0.019    Benefits  0.787  0.205  0.008    Security  0.631  0.283  0.086	Class 2 (22.2, 23.5, 25.5%): Very Satisfied with Everything			
Benefits  0.845  0.137  0.018    Security  0.842  0.138  0.020    Location  0.815  0.155  0.030    Opportunities  0.734  0.251  0.015    Challenge  0.962  0.037  0.001    Responsibility  0.975  0.024  0.001    Independence  0.952  0.045  0.002    Contribution  0.877  0.116  0.007    Class 3 (16.0, 17.0, 17.8%): Very Satisfied with Benefits  0.585  0.396  0.019    Benefits  0.787  0.205  0.008    Security  0.631  0.283  0.085	Salary	0.766	0.227	0.008
Security  0.842  0.138  0.020    Location  0.815  0.155  0.030    Opportunities  0.734  0.251  0.015    Challenge  0.962  0.037  0.001    Responsibility  0.975  0.024  0.001    Independence  0.952  0.045  0.022    Contribution  0.877  0.116  0.007    Class 3 (16.0, 17.0, 17.8%): Very Satisfied with Benefits  0  0.585  0.396    Salary  0.585  0.396  0.019    Benefits  0.631  0.225  0.008    Security  0.631  0.283  0.086	Benefits	0.845	0.137	0.018
Location  0.815  0.155  0.030    Opportunities  0.734  0.251  0.015    Challenge  0.962  0.037  0.001    Responsibility  0.975  0.024  0.001    Independence  0.952  0.045  0.002    Contribution  0.877  0.116  0.007    Class 3 (16.0, 17.0, 17.8%): Very Satisfied with Benefits	Security	0.842	0.138	0.020
Opportunities  0.734  0.251  0.015    Challenge  0.962  0.037  0.001    Responsibility  0.975  0.024  0.001    Independence  0.952  0.045  0.002    Contribution  0.877  0.116  0.007    Class 3 (16.0, 17.0, 17.8%): Very Satisfied with Benefits	Location	0.815	0.155	0.030
Challenge  0.962  0.037  0.001    Responsibility  0.975  0.024  0.001    Independence  0.952  0.045  0.002    Contribution  0.877  0.116  0.007    Class 3 (16.0, 17.0, 17.8%): Very Satisfied with Benefits	Opportunities	0.734	0.251	0.015
Responsibility  0.975  0.024  0.001    Independence  0.952  0.045  0.002    Contribution  0.877  0.116  0.007    Class 3 (16.0, 17.0, 17.8%): Very Satisfied with Benefits	Challenge	0.962	0.037	0.001
Independence  0.952  0.045  0.002    Contribution  0.877  0.116  0.007    Class 3 (16.0, 17.0, 17.8%): Very Satisfied with Benefits	Responsibility	0.975	0.024	0.001
Contribution  0.877  0.116  0.007    Class 3 (16.0, 17.0, 17.8%): Very Satisfied with Benefits	Independence	0.952	0.045	0.002
Class 3 (16.0, 17.0, 17.8%): Very Satisfied with Benefits  Image: Class 3 (16.0, 17.0, 17.8%): Very Satisfied with Benefits  Image: Class 3 (16.0, 17.0, 17.8%): Very Satisfied with Benefits  Image: Class 3 (16.0, 17.0, 17.8%): Very Satisfied with Benefits  Image: Class 3 (16.0, 17.0, 17.8%): Very Satisfied with Benefits  Image: Class 3 (16.0, 17.0, 17.8%): Very Satisfied with Benefits  Image: Class 3 (16.0, 17.0, 17.8%): Very Satisfied with Benefits  Image: Class 3 (16.0, 17.0, 17.8%): Very Satisfied with Benefits  Image: Class 3 (16.0, 17.0, 17.8%): Very Satisfied with Benefits  Image: Class 3 (16.0, 17.0, 17.8%): Very Satisfied with Benefits  Image: Class 3 (16.0, 17.0, 17.8%): Very Satisfied with Benefits  Image: Class 3 (16.0, 17.0, 17.8%): Very Satisfied with Benefits  Image: Class 3 (16.0, 17.0, 17.8%): Very Satisfied with Benefits  Image: Class 3 (16.0, 17.8%): Very Satisfied with Benefits  Image: Class 3 (16.0, 17.8%): Very Satisfied with Benefits  Image: Class 3 (16.0, 17.8%): Very Satisfied with Benefits  Image: Class 3 (16.0, 17.8%): Very Satisfied with Benefits  Image: Class 3 (16.0, 17.8%): Very Satisfied with Benefits  Image: Class 3 (16.0, 17.8%): Very Satisfied with Benefits  Image: Class 3 (16.0, 17.8%): Very Satisfied with Benefits  Image: Class 3 (16.0, 17.8%): Very Satisfied with Benefits  Image: Class 3 (16.0, 17.8%): Very Satisfied with Benefits  Image: Class 3 (16.0, 17.8%): Very Satisfied with Benefits  Image: Class 3 (16.0, 17.8%): Very Satisfied with Benefits  Image: Class 3 (16.0, 17.8%): Very Satisfied with Benefits  Image: Class 3 (16.0, 17.8%): Very Satisfied with Be	Contribution	0.877	0.116	0.007
Salary  0.585  0.396  0.019    Benefits  0.787  0.205  0.008    Security  0.631  0.283  0.086	Class 3 (16.0, 17.0, 17.8%): Very Satisfied with Benefits			
Benefits  0.787  0.205  0.008    Security  0.631  0.283  0.086	Salary	0.585	0.396	0.019
Security 0.631 0.283 0.086	Benefits	0.787	0.205	0.008
•	Security	0.631	0.283	0.086
Location 0.300 0.106	Location	0.594	0.300	0.106
Opportunities 0.146 0.610 0.244	Opportunities	0.146	0.610	0.244
Challenge 0.351 0.552 0.097	Challenge	0.351	0.552	0.097
Responsibility 0.355 0.579 0.065	Responsibility	0.355	0.579	0.065
Independence 0.564 0.366 0.070	Independence	0.564	0.366	0.070
Contribution 0.428 0.483 0.089	Contribution	0.428	0.483	0.089
Class 4 (17.6, 15.8, 15.4%): Dissatisfied with Opportunities for Advancement	Class 4 (17.6, 15.8, 15.4%): Dissatisfied with Opportunities for Advancement			
Salary 0.092 0.388 0.519	Salary	0.092	0.388	0.519
Benefits 0.192 0.434 0.374	Benefits	0.192	0.434	0.374
Security 0.200 0.342 0.457	Security	0.200	0.342	0.457
Location 0.349 0.354 0.297	Location	0.349	0.354	0.297
Opportunities 0.010 0.130 0.861	Opportunities	0.010	0.130	0.861
Challenge 0.094 0.369 0.536	Challenge	0.094	0.369	0.536
Responsibility 0.049 0.461 0.490	Responsibility	0.049	0.461	0.490
Independence 0.252 0.412 0.336	Independence	0.252	0.412	0.336
Contribution 0.200 0.464 0.337	Contribution	0.200	0.464	0.337
Class 5 (15.9, 16.4, 15.5%): Somewhat Satisfied with Everything	Class 5 (15.9, 16.4, 15.5%): Somewhat Satisfied with Everything			
Salary 0.034 0.755 0.211	Salary	0.034	0.755	0.211
Benefits 0.100 0.762 0.137	Benefits	0.100	0.762	0.137
Security 0.269 0.610 0.122	Security	0.269	0.610	0.122
Location 0.325 0.539 0.136	Location	0.325	0.539	0.136
Opportunities 0.023 0.678 0.299	Opportunities	0.023	0.678	0.299
Challenge 0.117 0.811 0.072	Challenge	0.117	0.811	0.072
Responsibility 0.044 0.911 0.044	Responsibility	0.044	0.911	0.044
Independence 0.311 0.646 0.042	Independence	0.311	0.646	0.042

### TABLE 4

## Item-response probabilities for the five-class job satisfaction latent transition analysis solution with three response options: 2015, 2017, and 2019

(Percent and probability)

	Response		
Class (prevalence: 2015, 2017, 2019)	Very satisfied	Somewhat satisfied	Dissatisfied
Contribution	0.229	0.722	0.049

### Note(s):

Item-response probabilities were estimated simultaneously using the 2015, 2017, and 2019 Survey of Doctorate Recipients cycles but were constrained to be equal across cycles. Rows may not sum to 1.000 due to rounding. Response probabilities greater than or equal to 0.500 are considered salient and are represented in bold. Response probabilities more than twice as large as the next-largest probability in a row are highlighted in blue.

#### Source(s):

National Center for Science and Engineering Statistics, Survey of Doctorate Recipients.