Attitudinal Trends in Alternative Postsecondary Learning

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Online Appendix

Appendix A - Question Reference

1. Do you contribute to hiring and firing decisions at your company?

    a. One selection among the following was allowed:

        i. Yes

        ii. No

        iii. Unemployed

2. For many professions, alternative credentials can qualify a person for an entry-level position.

    a. An integer selection inclusively between 1 and 10.

    b. Value of 1 labeled "Strongly Disagree"

    c. Value of 10 labeled "Strongly Agree"

    d. Other values unlabeled.

    e. This is the default answer pattern. If some question doesn't specify the available answers, then the answers available are similar to question #2.

3. It will soon become fairly conventional for high school graduates to obtain alternative credentials instead of going to college.

4. When you add up the pros and cons for online education, it's probably a good thing for society overall

5. When you add up the pros and cons for artificial intelligence, it's probably a good thing for society overall.

6. When you add up the pros and cons for cryptocurrency, it's probably a good thing for society overall.

7. When evaluating an applicant's education, it is important is important to check whether the degree was awarded from a US institution.

8. Have you heard of any of the following online course providers?

    a. Zero to many selections among the following were allowed:

        i. Udacity

        ii. Udemy

        iii. Coursera

iv. Pluralsight

                    v. Lynda.com

      b. Note: In the May 2019 administration and onward, the choice for Lynda.com
          was changed to Lynda.com / LinkedIn Learning. This is due to the LinkedIn ac-
          quisition of Lynda.com.

9. Do you work in a STEM profession?

      a. One selection among the following was allowed:

                    i. Yes

                    ii. No

                    iii. Unsure

10. Which of these industries most closely matches your profession?

      a. One selection among the following was allowed:

                    i. Agriculture

                    ii. Education

                    iii. Energy

                    iv. Finance, Investment, or Accounting

                    v. Health

                    vi. Information Technology

                    vii. Law

                    viii. Manufacturing

                    ix. Military

                    x. Other

                    xi. Retail

                    xii. Transportation

11. I consider myself religious

12. I consider myself Christian

13. Government regulation helps ensure businesses treat individuals more fairly.

14. Age

      a. Included by SurveyMonkey in 2018.

      b. In 2019 the question was explicitly asked.

      c. In May 2019 and onward, exact age was also asked.

      d. One selection among the following was allowed:

i. < 18

ii. 18 -29

iii. 30-44

iv. 45-60

v. > 60

15. Gender

    a. Included by SurveyMonkey in 2018.

    b. In 2019 the question was explicitly asked and the value of Other became a choice.

    c. One selection among the following was allowed:

        i. Male

        ii. Female

16. Household Income

    a. Included by SurveyMonkey in 2018.

    b. In 2019 the question was explicitly asked.

    c. Measured annually, in nominal USD.

    d. One selection among the following was allowed:

        i. 0-9,999

        ii. 10,000-24,999

        iii. 25,000-49,999

        iv. 50,000-74,999

        v. 75,000-99,999

        vi. 100,000-124,999

        vii. 125,000-149,999

        viii. 150,000-174,999

        ix. 175,000-199,999

        x. 200,000+

        xi. Prefer not to answer

17. Region

    a. Included by SurveyMonkey

    b. One selection among the following was allowed:

      i. New England

      ii. Middle Atlantic

      iii. East North Central

      iv. West North Central

      v. South Atlantic

      vi. East South Central

      vii. West South Central

      viii. Mountain

      ix. Pacific

18. Device Type

    a. Included by SurveyMonkey

    b. One selection among the following was allowed:

      i. iOS Phone / Tablet

      ii. Android

      iii. Other Phone / Tablet

      iv. Windows Desktop

      v. MacOS Desktop

      vi. Other

19. What is the highest level of education you have completed?

    a. Did Not Graduate from High School

    b. GED

    c. High School Diploma

    d. Some College

    e. Obtained Undergraduate Degree

    f. Obtained Non-Doctoral Graduate Degree

    g. Obtained a Doctoral Degree

20. Which race/ethnicity best describes you?

    a. American Indian or Alaskan Native

    b. Asian / Pacific Islander

    c. Black or African American

    d. Hispanic

e. White / Caucasian

f. Other

Appendix B – Questions Per Survey

Question Definition Number*	Short Name(s)	2018, Feb	2018, Oct	2019, Feb	2019, May
1	Employment Status, Employer Effects	X	X	X	X
2	Entry-Level Suitability, Variable of Interest	VOI	VOI	VOI	VOI
3	Expected Conventionality	X	X	X	X
4	Online Education	X	X	X	X
5	Artificial Intelligence, Innovation Bias, Status Quo Bias		X	X	X
6	Cryptocurrency	X	X		
7	US Degree Centrism, Anti-Foreign Bias	X	X		
8	Provider Recognition	X	X	X	X
9	STEM	X	X		
10	Industry	X	X	X	X
11	Religiosity		X		
12	Christian Identification		X		
13	Regulatory Favorability		X	X	X
14	Age	X	X	X	X
15	Gender	X	X	X	X
16	Income	X	X	X	X
17	Region	X	X	X	X
18	Device Type	X	X	X	X
	Time		C	C	C
	Collector			C	C
19	Ethnicity				X
20	Educational Attainment				X

* Question definition number allows cross-reference into Appendix A and is not a statement about the presentation order of questions.

C - Response value was determined automatically, rather than by response of the participant.

VOI - Question was present and represents the variable of interest.

X - Question was present for survey. This does not guarantee every respondent answered the question. Particularly, Q14-Q18 were presented as SurveyMonkey included data for paid responses only during 2018. Beginning in 2019, Q14-Q16 were asked of all respondents, but Q17-Q18 remained observed for SurveyMonkey paid responses.

Appendix C – Table of Variable Summary Statistics

Variable	N	Mean	SD	P25	Median	P75	Min	Max
ceduc1	406	4.65	1.4	4	5	5	1	8
ceduc2	406	23.55	13.26	16	25	25	1	64
ceduc3	406	127.51	105.17	64	125	125	1	512
cprovider1	1190	1.29	1.2	0	1	2	0	5
cprovider2	1190	3.1	5.22	0	1	4	0	25
cprovider3	1190	9.85	23.71	0	1	8	0	125
crage1	809	3.19	0.99	2	3	4	1	5
crage2	809	11.14	6.52	4	9	16	1	25
crage3	809	41.88	34.91	8	27	64	1	125
crea1	406	39.97	13.72	29	37	50	17	88
crea2	406	1785.07	1221.51	841	1369	2500	289	7744
crea3	406	87800.18	90599.36	24389	50653	1.25E+05	4913	6.81E+05
crincome1	773	4.28	2.08	3	4	5	1	10
crincome2	773	22.6	22.54	9	16	25	1	100
crincome3	773	141.9	219.35	27	64	125	1	1000
csmage1	771	3.42	1.08	2	4	4	2	5
csmage2	771	12.88	7.44	4	16	16	4	25
csmage3	771	52.05	41.27	8	64	64	8	125
csmincome1	699	4.06	2.07	3	4	5	1	10
csmincome2	699	20.76	21.24	9	16	25	1	100
csmincome3	699	126.53	200.29	27	64	125	1	1000
ctime1	1190	21557.74	138.76	21466	21604	21677	21241	21678
ctime2	1190	4.65E+08	5.96E+06	4.61E+08	4.67E+08	4.70E+08	4.51E+08	4.70E+08
ctime3	1190	1.00E+13	1.92E+11	9.89E+12	1.01E+13	1.02E+13	9.58E+12	1.02E+13
ioi	1190	19.55	6.13	16	20	24	3	30
iscollector1	1190	0.03	0.18	0	0	0	0	1
iscollector10	1190	0.23	0.42	0	0	0	0	1
iscollector11	1190	0.17	0.37	0	0	0	0	1
iscollector12	1190	0.17	0.38	0	0	0	0	1

iscollector2	1190	0.09	0.28	0	0	0	0	1
iscollector3	1190	0.02	0.13	0	0	0	0	1
iscollector4	1190	0.09	0.28	0	0	0	0	1
iscollector5	1190	0.03	0.16	0	0	0	0	1
iscollector6	1190	0.07	0.26	0	0	0	0	1
iscollector7	1190	0.02	0.13	0	0	0	0	1
iscollector8	1190	0.08	0.28	0	0	0	0	1
iscollector9	1190	0.01	0.09	0	0	0	0	1
isethnicity1	406	0.02	0.13	0	0	0	0	1
isethnicity2	406	0.14	0.34	0	0	0	0	1
isethnicity3	406	0.1	0.3	0	0	0	0	1
isethnicity4	406	0.07	0.26	0	0	0	0	1
isethnicity5	406	0.65	0.48	0	1	1	0	1
isethnicity6	406	0.03	0.17	0	0	0	0	1
isfemale	1190	0.47	0.5	0	0	1	0	1
ishighered	1190	0.84	0.37	1	1	1	0	1
isindustry1	1190	0.02	0.13	0	0	0	0	1
isindustry10	1190	0.25	0.43	0	0	0	0	1
isindustry11	1190	0.09	0.29	0	0	0	0	1
isindustry12	1190	0.03	0.18	0	0	0	0	1
isindustry2	1190	0.12	0.33	0	0	0	0	1
isindustry3	1190	0.02	0.14	0	0	0	0	1
isindustry4	1190	0.08	0.26	0	0	0	0	1
isindustry5	1190	0.12	0.32	0	0	0	0	1
isindustry6	1190	0.18	0.38	0	0	0	0	1
isindustry7	1190	0.03	0.18	0	0	0	0	1
isindustry8	1190	0.05	0.22	0	0	0	0	1
isindustry9	1190	0.01	0.11	0	0	0	0	1
ismale	1190	0.46	0.5	0	0	1	0	1
ismanager	1190	0.37	0.48	0	0	1	0	1
isnotstem	381	0.65	0.48	0	1	1	0	1
isregion1	770	0.06	0.23	0	0	0	0	1
isregion2	770	0.13	0.34	0	0	0	0	1
isregion3	770	0.13	0.33	0	0	0	0	1

isregion4	770	0.07	0.26	0	0	0	0	1
isregion5	770	0.19	0.39	0	0	0	0	1
isregion6	770	0.06	0.24	0	0	0	0	1
isregion7	770	0.09	0.29	0	0	0	0	1
isregion8	770	0.07	0.26	0	0	0	0	1
isregion9	770	0.2	0.4	0	0	0	0	1
isreportedfemale	809	0.48	0.5	0	0	1	0	1
isreportedincomeprefernotdisclos	809	0.04	0.21	0	0	0	0	1
isreportedmale	809	0.5	0.5	0	1	1	0	1
isreportednonbinary	809	0.02	0.14	0	0	0	0	1
isstem	381	0.23	0.42	0	0	0	0	1
issurveymonkeyfemale	1190	0.36	0.48	0	0	1	0	1
issurveymonkeyincomeprefernotdis	1190	0.06	0.24	0	0	0	0	1
issurveymonkeymale	1190	0.29	0.45	0	0	1	0	1
issurveymonkeyunreportedgender	1190	0.35	0.48	0	0	1	0	1
isunemployed	1190	0.12	0.33	0	0	0	0	1
isunreportedgender	809	0	0	0	0	0	0	0
isunreportedstem	381	0	0	0	0	0	0	0
isunsurestem	381	0.12	0.32	0	0	0	0	1
nvoifai1	1049	5.95	2.53	4	6	8	1	10
nvoifai2	1049	41.79	30.03	16	36	64	1	100
nvoifai3	1049	322.39	313.02	64	216	512	1	1000
nvoifamerican1	381	5.94	2.63	4	6	8	1	10
nvoifamerican2	381	42.22	30.85	16	36	64	1	100
nvoifamerican3	381	329.63	318.86	64	216	512	1	1000
nvoifchristianity1	240	5.15	3.66	1	5	9	1	10
nvoifchristianity2	240	39.79	40.48	1	25	81	1	100
nvoifchristianity3	240	349.15	411.8	1	125	729	1	1000
nvoifconventionalsoon1	1190	6.13	2.6	4	6	8	1	10
nvoifconventionalsoon2	1190	44.26	31.17	16	36	64	1	100
nvoifconventionalsoon3	1190	349.73	328.68	64	216	512	1	1000
nvoifcrypto1	381	4.62	2.6	2	5	6	1	10

nvoifcrypto2	381	28.12	26.91	4	25	36	1	100
nvoifcrypto3	381	197.13	259.62	8	125	216	1	1000
nvoifonline1	1190	6.81	2.49	5	7	9	1	10
nvoifonline2	1190	52.55	31.45	25	49	81	1	100
nvoifonline3	1190	434.07	342.81	125	343	729	1	1000
nvoifregulation1	1049	6.23	2.5	5	6	8	1	10
nvoifregulation2	1049	45.03	29.92	25	36	64	1	100
nvoifregulation3	1049	352.99	314.41	125	216	512	1	1000
nvoifreligion1	240	5.09	3.4	1	5	8	1	10
nvoifreligion2	240	37.38	37.12	1	25	64	1	100
nvoifreligion3	240	312.66	373.82	1	125	512	1	1000
voi	1190	6.61	2.57	5	7	9	1	10

Appendix D – Table of Variable Strength

Variable	N	Factor Name	2018 Strength*	2019 Strength*	Preferred
ceduc1	406	Education	N	M	Y
ceduc2	406	Education	N	M	Y
ceduc3	406	Education	N	L	N
cprovider1	1190	Provider Recognition	W	M	Y
cprovider2	1190	Provider Recognition	M	M	Y
cprovider3	1190	Provider Recognition	W	W	N
crage1	809	Age	N	W	N
crage2	809	Age	N	W	N
crage3	809	Age	N	L	N
crea1	406	Age	N	L	N
crea2	406	Age	N	W	N
crea3	406	Age	N	W	N
crincome1	773	Income	N	L	N
crincome2	773	Income	N	W	N
crincome3	773	Income	N	L	N
csmage1	771	Age	M	M	Y
csmage2	771	Age	S	M	Y
csmage3	771	Age	M	M	Y
csmincome1	699	Income	S	W	Y
csmincome2	699	Income	M	M	Y
csmincome3	699	Income	L	M	Y
ctime1	1190	Time	M	L	Y
ctime2	1190	Time	L	L	Y
ctime3	1190	Time	L	M	Y
ioi	1190	VOI	VOI	VOI	VOI
iscollector1	1190	Collector	N	L	N
iscollector10	1190	Collector	N	L	N
iscollector11	1190	Collector	N	L	N
iscollector12	1190	Collector	N	L	N
iscollector2	1190	Collector	N	L	N
iscollector3	1190	Collector	N	L	N

iscollector4	1190	Collector	N	L	N
iscollector5	1190	Collector	N	L	N
iscollector6	1190	Collector	N	L	N
iscollector7	1190	Collector	N	L	N
iscollector8	1190	Collector	N	L	N
iscollector9	1190	Collector	N	L	N
isethnicity1	406	Ethnicity	N	L	N
isethnicity2	406	Ethnicity	N	L	N
isethnicity3	406	Ethnicity	N	L	N
isethnicity4	406	Ethnicity	N	M	Y
isethnicity5	406	Ethnicity	N	W	N
isethnicity6	406	Ethnicity	N	M	Y
isfemale	1190	Gender	L	W	N
ishighered	1190	Education	N	M	Y
isindustry1	1190	Industry	M	W	Y
isindustry10	1190	Industry	M	M	Y
isindustry11	1190	Industry	M	W	Y
isindustry12	1190	Industry	L	M	Y
isindustry2	1190	Industry	M	W	Y
isindustry3	1190	Industry	L	W	N
isindustry4	1190	Industry	M	W	Y
isindustry5	1190	Industry	M	W	Y
isindustry6	1190	Industry	M	W	Y
isindustry7	1190	Industry	L	M	Y
isindustry8	1190	Industry	L	W	N
isindustry9	1190	Industry	L	L	N
ismale	1190	Gender	L	S	N
ismanager	1190	Employment	L	M	Y
isnotstem	381	STEM	M	N	Y
isregion1	770	Region	L	L	N
isregion2	770	Region	S	M	Y
isregion3	770	Region	M	M	Y
isregion4	770	Region	L	M	Y
isregion5	770	Region	L	L	N

isregion6	770	Region	M	L	Y
isregion7	770	Region	S	L	Y
isregion8	770	Region	L	L	N
isregion9	770	Region	L	W	N
isreportedfemale	809	Gender	N	L	N
isreportedincomeprefernotdisclos	809	Gender	N	L	N
isreportedmale	809	Gender	N	W	N
isreportednonbinary	809	Gender	N	L	N
isstem	381	STEM	M	N	Y
issurveymonkeyfemale	1190	Gender	S	L	Y
issurveymonkeyincomeprefernotdis	1190	Income	L	L	N
Issurveymonkeymale	1190	Gender	L	M	Y
issurveymonkeyunreportedgender	1190	Income	L	L	N
isunemployed	1190	Employment	L	M	Y
isunreportedgender	809	Gender	N	L	N
isunreportedstem	381	STEM	L	N	N
isunsurestem	381	STEM	L	N	N
nvoifai1	1049	Artificial Intelligence	S	L	Y
nvoifai2	1049	Artificial Intelligence	S	L	Y
nvoifai3	1049	Artificial Intelligence	L	S	Y
nvoifamerican1	381	US Degree Centrism	L	N	N
nvoifamerican2	381	US Degree Centrism	S	N	Y
nvoifamerican3	381	US Degree Centrism	L	N	N
nvoifchristianity1	240	Christianity	W	N	N
nvoifchristianity2	240	Christianity	W	N	N
nvoifchristianity3	240	Christianity	W	N	N
nvoifconventionalsoon1	1190	Conventionalism	W	L	N
nvoifconventionalsoon2	1190	Conventionalism	W	S	Y
nvoifconventionalsoon3	1190	Conventionalism	S	S	Y
nvoifcrypto1	381	Cryptocurrency	L	N	N

nvoifcrypto2	381	Cryptocurrency	M	N	Y
nvoifcrypto3	381	Cryptocurrency	L	N	N
nvoifonline1	1190	Online Education	L	M	Y
nvoifonline2	1190	Online Education	S	S	Y
nvoifonline3	1190	Online Education	M	M	Y
nvoifregulation1	1049	Regulatory Policy	S	S	Y
nvoifregulation2	1049	Regulatory Policy	M	L	Y
nvoifregulation3	1049	Regulatory Policy	M	L	Y
nvoifreligion1	240	Religiousness	S	N	Y
nvoifreligion2	240	Religiousness	L	N	N
nvoifreligion3	240	Religiousness	L	N	N
voi	1190	VOI	VOI	VOI	VOI

*The letter represents the most significant model the factor survived into. N = Not present in this administration. VOI = included as a variable of interest, and not assessed for explanatory significance. L = Long Model, W = Weak Model, M = Adjuster R-squared Maximizing Model, or Medium Importance, and S = Strong Model. Preferred variables were M or S in exploration of at least one year.