Reflection 4*

Kevin Roe, Cher Ning-Li, Fangning Zhang, Jierui Zhan, Jingchuan Xu

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1 How to Obtain the Data

After creating the an IPUMS USA account, you first go to the Get Data button on the home page. Then you want to Select Samples and only select ACS 2022 option and deselect all other default options and you submit your sample selection. Under Select Harmonized Variables and Geographic, select STATEICP. Under Demographic choose SEX, EDUC, EDUCD. You then go under View Cart and create a data extract and make sure to create the data extract as a csv. Once you're able to, download and unzip the data.

Unzip the data and look for a file called "usa_00002.csv". Load the file in the quarto document and work off the document.

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2 Overview of Ratio Estimators Approach

The ratio estimators approach first assumes the number of respondents in California then finds the percentage of respondents with a doctorate. Using this ratio, assuming that all states ahve the same percentage of doctorates, we divide the number of doctorates by the ratio to find the estimated number of respondents for each state.

3 Estimates and Actual Number of Respondents (#sec-estimates)

Please find results under Section 5

4 Explanation for Difference

The reason why there is a difference is because the Ratio Estimators Approach assumes that the percentage of doctorates across all 50 states equals the percentage of doctorates in California. California, a highly educated state, is not a good representation of the entire population in terms of the proportion of doctorates. With many research universities and start-ups the proportion of doctorates in California does not represent the entire population. Therefore, because we use the California proportion for all states, it is not a good representation and there will be discrepancies.

5 Code Output

State Code	Number of Doctorates
1	600
2	165
3	2014
4	244
5	177
6	131
11	152
12	1438
13	2829
14	1620
21	1457
22	620
23	991

State Code	Number of Doctorates
24	1213
25	513
31	258
32	321
33	572
34	621
35	153
36	60
37	71
40	1531
41	460
42	251
43	2731
44	1451
45	450
46	263
47	1421
48	647
49	3216
51	448
52	1608
53	281
54	841
56	159
61	896
62	1031
63	175
64	113
65	282
66	350
67	428
68	72
71	6336
72	647
73	1195
81	51
82	214
98	311

State Code	Number of Doctorates	Estimated Total
1	600	37042.708
2	165	10186.745
3	2014	124340.024
4	244	15064.035
5	177	10927.599
6	131	8087.658
11	152	9384.153
12	1438	88779.024
13	2829	174656.370
14	1620	100015.312
21	1457	89952.043
22	620	38277.465
23	991	61182.207
24	1213	74888.009
25	513	31671.516
31	258	15928.365
32	321	19817.849
33	572	35314.049
34	621	38339.203
35	153	9445.891
36	60	3704.271
37	71	4383.387
40	1531	94520.644
41	460	28399.410
42	251	15496.200
43	2731	168606.061
44	1451	89581.616
45	450	27782.031
46	263	16237.054
47	1421	87729.481
48	647	39944.387
49	3216	198548.917
51	448	27658.556
52	1608	99274.458
53	281	17348.335
54	841	51921.530
56	159	9816.318
61	896	55317.111
62	1031	63651.720
63	175	10804.123
64	113	6976.377

State Code	Number of Doctorates	Estimated Total
65	282	17410.073
66	350	21608.247
67	428	26423.799
68	72	4445.125
71	6336	391171.000
72	647	39944.387
73	1195	73776.727
81	51	3148.630
82	214	13211.899
98	311	19200.470

State Code	Number of Doctorates	Estimated Respondents	Actual Respondents	Difference
1	600	37042.708	37369	326.2917
2	165	10186.745	14523	4336.2552
3	2014	124340.024	73077	-51263.0243
4	244	15064.035	14077	-987.0347
5	177	10927.599	10401	-526.5990
6	131	8087.658	6860	-1227.6580
11	152	9384.153	9641	256.8472
12	1438	88779.024	93166	4386.9757
13	2829	174656.370	203891	29234.6302
14	1620	100015.312	132605	32589.6875
21	1457	89952.043	128046	38093.9566
22	620	38277.465	69843	31565.5347
23	991	61182.207	101512	40329.7934
24	1213	74888.009	120666	45777.9913
25	513	31671.516	61967	30295.4844
31	258	15928.365	33586	17657.6354
32	321	19817.849	29940	10122.1510
33	572	35314.049	58984	23669.9514
34	621	38339.203	64551	26211.7969
35	153	9445.891	19989	10543.1094
36	60	3704.271	8107	4402.7292
37	71	4383.387	9296	4912.6128
40	1531	94520.644	88761	-5759.6441
41	460	28399.410	51580	23180.5903
42	251	15496.200	31288	15791.8003
43	2731	168606.061	217799	49192.9392

State Code	Number of Doctorates	Estimated Respondents	Actual Respondents	Difference
44	1451	89581.616	109349	19767.3837
45	450	27782.031	45040	17257.9688
46	263	16237.054	29796	13558.9462
47	1421	87729.481	109230	21500.5191
48	647	39944.387	54651	14706.6128
49	3216	198548.917	292919	94370.0833
51	448	27658.556	46605	18946.4444
52	1608	99274.458	62442	-36832.4583
53	281	17348.335	39445	22096.6649
54	841	51921.530	72374	20452.4705
56	159	9816.318	18135	8318.6823
61	896	55317.111	74153	18835.8889
62	1031	63651.720	59841	-3810.7205
63	175	10804.123	19884	9079.8767
64	113	6976.377	11116	4139.6233
65	282	17410.073	30749	13338.9271
66	350	21608.247	20243	-1365.2465
67	428	26423.799	35537	9113.2014
68	72	4445.125	5962	1516.8750
71	6336	391171.000	391171	0.0000
72	647	39944.387	43708	3763.6128
73	1195	73776.727	80818	7041.2726
81	51	3148.630	6972	3823.3698
82	214	13211.899	14995	1783.1007
98	311	19200.470	6718	-12482.4705