Ratio Estimator*

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First sentence. Second sentence. Third sentence. Fourth sentence.

1 Instructions on Extracting Data

We first go to the IPUMS american data website and then we click 'get data' https://usa.ipums.org/usa/. Next we click SELECT SAMPLES then we deselect everything there. We then click ASC 2022 to get the 2022 data. Then we check which values we want so we go to Households and pick Geographic, where we select STATEICP. And we go to Person and click education where we click EDUC. Once we finished that we click view cart to see our dataset (click CREATE DATA EXTRACT). We change the data format to .dta and we change the sample size to 500 after we click CUSTOMISE SAMPLE SIZES. Then we give and an appropriate detail fo extract that includes today's date and what columns we are going to be looking at. Then we download it (after making an account) and add it to our repository to read.

2 brief overview of the ratio estimators approach

Refered to the textbook to follow the approch of finding the ratio estimators. we first filtered for the state of california. Then we counted how many actual respondants there were and how many of them have their doctorate. We then divide it to find the ratio and then we apply that to the number of doctorate person in each state.

*Code and data are available at: https://github.com/NotSakura/RatioEstimator.git.

3 Ratio and Actual Number of Respondants

State ICP	Doctoral Respondents	Actual Respondents	Estimated Total Respondents
1	80	5,518	4,982.94
2	29	2,175	1,806.32
3	274	10,946	17,066.58
4	37	2,151	2,304.61
5	25	1,514	1,557.17
6	13	1,002	809.73
11	23	1,404	1,432.60
12	197	13,692	12,270.50
13	430	30,064	26,783.32
14	239	19,503	14,886.54
21	222	19,134	13,827.67
22	97	10,436	6,041.82
23	139	14,953	8,657.86
24	181	17,902	11,273.91
25	78	9,205	4,858.37
31	38	4,965	2,366.90
32	51	4,457	3,176.63
33	90	8,628	5,605.81
34	93	9,644	5,792.67
35	15	2,918	934.30
36	6	1,212	373.72
37	11	1,465	685.15
40	209	13,216	13,017.94
41	58	7,631	3,612.63
42	40	4,645	2,491.47
43	368	32,350	22,921.54
44	242	16,051	15,073.40
45	80	6,804	4,982.94
46	30	4,423	1,868.60
47	241	16,057	15,011.12
48	93	8,084	5,792.67
49	470	43,739	29,274.79
51	64	6,888	3,986.35
52	249	9,349	15,509.41
53	39	5,775	2,429.18
54	137	10,746	8,533.29
56	24	2,620	1,494.88
61	132	10,961	8,221.86

State ICP	Doctoral Respondents	Actual Respondents	Estimated Total Respondents
62	164	8,899	10,215.03
63	30	2,936	1,868.60
64	27	1,636	1,681.74
65	46	4,569	2,865.19
66	58	3,014	3,612.63
67	51	5,243	3,176.63
68	8	865	498.29
71	931	57,989	57,989.00
72	119	6,604	7,412.13
73	176	11,913	10,962.47
81	3	1,033	186.86
82	38	2,217	2,366.90
98	28	987	1,744.03

4 Explanation for why they are different

California is home to many universities and research institutions, which may contribute to a higher number of doctoral degree holders relative to the population. This uniqueness can skew the ratio when applied to other states that do not share the same educational environment.

Also the ratio estimator assumes that the relationship between doctoral respondents and total respondents in California is same for all other states. This may not be true as in some states there may not be as much universities or the proportion of regular students to doctorate students could be different.

5 References