Summary of Respondents and Doctoral Counts with Estimation by State for 2022 ACS

Group 39

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This exercise is for estimating the number of respondents who get a doctoral degree for each state in US 2022 ACS.

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1 Data Obtaining

To obtain the data from IPUMS USA, follow these steps: First, open the IPUMS website and navigate to the IPUMS USA section. Once there, create a data set by selecting samples from the '2022 ACS' dataset and submit the selection. Next, choose the following harmonized variables for your dataset: (i) STATEICP under GEOGRAPHIC VARIABLES–HOUSEHOLD, (ii) SEX under DEMOGRAPHIC VARIABLES–PERSON, and (iii) EDUC under EDUCATION VARIABLES–PERSON. After selecting the variables, proceed to view your cart and create the data extract. Change the data format from the default .dat to .csv, then submit the extract. Wait until the status of your data extract changes to 'completed,' at which point you can download the data. Upon downloading, a file with the .gz suffix will be received. Decompress this file to obtain the final dataset in .csv format.

Table 1: Summary of Respondents and Doctoral Counts with Estimation by State for 2022 ACS

State	Total Respondents	Total Actual Doctor	Estimated Doctor	Difference in Doctor
Alabama	51580	460	835	-375
Alaska	6972	51	113	-62
Arizona	74153	896	1201	-305
Arkansas	31288	251	507	-256
California	391171	6336	6336	0
Colorado	59841	1031	969	62
Delaware	9641	152	156	-4
District of Columbia	6718	311	109	202
Florida	217799	2731	3528	-797
Georgia	109349	1451	1771	-320
Hawaii	14995	214	243	-29
Idaho	19884	175	322	-147
Illinois	128046	1457	2074	-617
Indiana	69843	620	1131	-511
Iowa	33586	258	544	-286
Kansas	29940	321	485	-164
Kentucky	46605	448	755	-307
Louisiana	45040	450	730	-280
Maryland	62442	1608	1011	597
Michigan	101512	991	1644	-653
Minnesota	58984	572	955	-383
Mississippi	29796	263	483	-220
Missouri	64551	621	1046	-425
Montana	11116	113	180	-67
Nebraska	19989	153	324	-171
Nevada	30749	282	498	-216
New Jersey	93166	1438	1509	-71
New Mexico	20243	350	328	22
New York	203891	2829	3303	-474
North Carolina	109230	1421	1769	-348
North Dakota	8107	60	131	-71
Ohio	120666	1213	1954	-741
Oklahoma	39445	281	639	-358
Oregon	43708	647	708	-61
Pennsylvania	132605	1620	2148	-528
South Carolina	54651	647	885	-238

State	Total Respondents	Total Actual Doctor	Estimated Doctor	Difference in Doctor
South Dakota	9296	71	151	-80
Tennessee	72374	841	1172	-331
Texas	292919	3216	4745	-1529
Utah	35537	428	576	-148
Virginia	88761	1531	1438	93
Washington	80818	1195	1309	-114
West Virginia	18135	159	294	-135
Wisconsin	61967	513	1004	-491
Wyoming	5962	72	97	-25

2 Estimation

We start by matching STATEICP to the state name and getting the actual value for each state and replacing NA with 0. Select California's row from the actual values we get, using the number of doctoral degrees in the California data as a percentage of total respondents to get a ratio. Finally, the doctoral degree and the proportion of total respondents obtained in California are mapped to each state, and the estimated doctoral degree of each state is obtained from the total respondents of each state. The doctoral difference column is obtained by comparing the value we obtained with the actual value.

3 Explanation of the Difference

There are several reasons why the ratio of people holding a doctoral degree in each state can vary, such as state education policies or cultural attitudes toward education that lead to differences in the distribution of educational resources across states. For instance, states with more universities and research institutions tend to have a higher proportion of residents with advanced degrees. Therefore, using California's doctorate-to-respondent ratio as representative of all states may not be accurate, as it does not account for these regional differences in education opportunities and demographics.

Additionally, population demographics vary between states. States with more young individuals may have fewer people with advanced degrees, while states with older populations may have more. States with industries that require highly educated workers often have more individuals with advanced degrees, and states with a higher cost of living may also attract more individuals with advanced degrees due to higher earning potential.