Exploration of Educational Outcomes in the United States

Presented by Diana Fujimura and Hilary Draper

Team Members

Diana Fujimura

- Background:
 - From Chicago
 - Undergrad in Sports
 Medicine & graduated with
 BS from University of
 Louisville (Go Cards!)
 - Sales & Marketing Exec
 with +20 years in the Spirits
 & Alc Bev Industry
 - Currently a GM at Bacardi
 USA

Hilary Draper

- Background:
 - From Ohio
 - Undergraduate in Cultural Anthropology and a minor in Theater from OSU
 - Graduate degree in Educational Anthropology from FAU
 - More than a decade teaching in special needs education

Background and Data Source

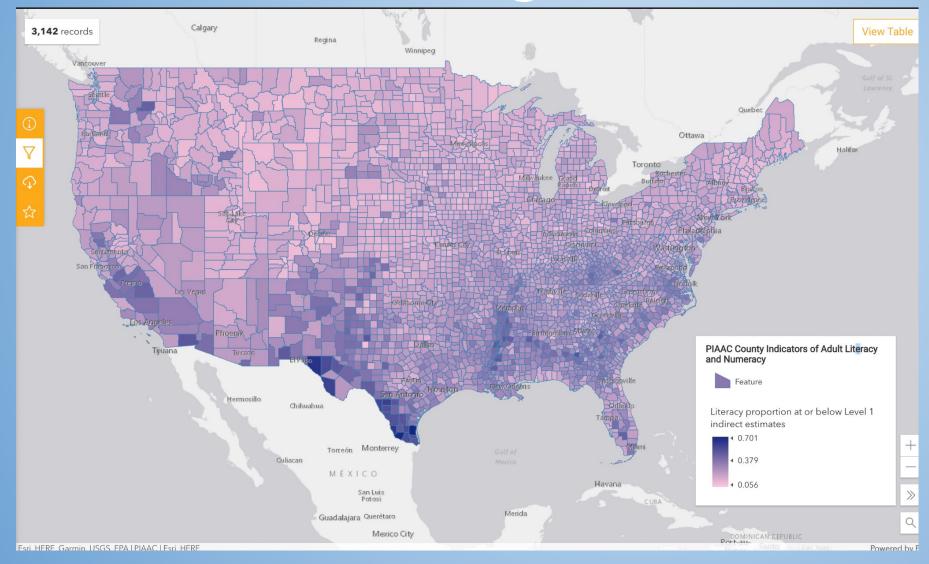
Data source- Gov entities

- Program for the International Assessment of Adult Competencies (PIAAC)
- National Center for Education Statistics
- Organization for Economic Cooperation and Development (OECD)

Methods of Analysis

- Excel for exploration
- R Studio for stats
- Jupyter Notebook for correlations

Project Site:



Site:

Site link for exploration and discussion



Literacy Competency Rates

Sorted by the highest percentage of low scores

Sorted by the highest percentage of high scores

| | Average | Average | Average | |
|-------------|-----------|-----------|-----------|--|
| State | of Lit_P1 | of Lit_P2 | of Lit_P3 | |
| Mississippi | 0.325 | 0.391 | 0.284 | |
| New Mexico | 0.308 | 0.344 | 0.348 | |
| Louisiana | 0.304 | 0.417 | 0.279 | |
| Texas | 0.298 | 0.368 | 0.334 | |
| Alabama | 0.283 | 0.402 | 0.315 | |

| | Average | Average | Average | |
|----------------------|-----------|-----------|-----------|--|
| State | of Lit_P1 | of Lit_P2 | of Lit_P3 | |
| Rhode Island | 0.149 | 0.304 | 0.548 | |
| Massachusetts | 0.159 | 0.300 | 0.542 | |
| District of Columbia | 0.223 | 0.250 | 0.527 | |
| New Hampshire | 0.123 | 0.351 | 0.526 | |
| Connecticut | 0.152 | 0.326 | 0.522 | |

Average Portion of the Population at or Below the Lowest Literacy Levels

| Mississippi 0.3247 New Mexico | South Carolina 0.2774 Arizona | Tennessee 0.2445 North Carolina 0.2430 | Delaware 0.2093 | Nevada 0.2088 | | New 0.199 | Jersey 97 | New York 0.1922 | Ma 0.19 | ryland 914 | Washington 0.1908 | Avg. Lit P1 0.1234 |
|-------------------------------------|--------------------------------|---|-------------------------------------|------------------|--|--------------|---|--------------------|-------------------------|---------------------------|----------------------|-----------------------|
| 0.3076 | 0.2670 | West Virginia | Idaho 0.1907 | | Illinois 0.1754 | | Kansas 0.1740 | Hawaii 0.1696 | | South Dakota D.1689 | Michigan 0.1685 | |
| Louisiana 0.3039 | Arkansas 0.2608 | 0.2296 | Oregon 0.1858 | | | | | | | | | · |
| Toyon | California | Virginia 0.2233 | Indiana 0.1820 Ohio 0.1804 | | Massachusetts 0.1587 Alaska 0.1549 lowa 0.1528 North Dakota | | Connecticut Uta 0.1521 0.14 Wisconsin 0.1481 | | | Rhode Island 0.1492 | | |
| Texas 0.2979 | 0.2583 | District of Columbia 0.2230 | | | | | | | 1 | | | |
| Alabama | Kentucky 0.2568 | 0.2230 | | | | | | | Maine 0.1428 | Vermont 0.1394 | | |
| 0.2835 | 0.2568 | Missouri 0.2172 | Pennsylvania 0.1797 | | | | | Montana 0.1475 | | | | e. |
| | Florida 0.2452 | Oklahoma | Colorado | | 0.1528 | | | | | Wyoming 0.1360 | | |
| | 0.2452 | 0.2160 | Colorado 0.1786 | | Nebraska 0.1526 | | Minnesota 0.1441 | | New Hampshire 0.1234 | | | |

Numeracy Competency Rates

Sorted by the highest percentage of low scores

Sorted by the highest percentage of high scores

| | Average of | Average of | Average of | | |
|----------------|------------|------------|------------|--|--|
| State | Num_P1 | Num_P2 | Num_P3 | | |
| Mississippi | 0.495 | 0.296 | 0.209 | | |
| Louisiana | 0.464 | 0.342 | 0.194 | | |
| Alabama | 0.436 | 0.336 | 0.228 | | |
| Georgia | 0.434 | 0.364 | 0.203 | | |
| South Carolina | 0.428 | 0.329 | 0.243 | | |

| | Average of | Average of | Average of | |
|----------------------|------------|------------|------------|--|
| State | Num_P1 | Num_P2 | Num_P3 | |
| Rhode Island | 0.225 | 0.321 | 0.454 | |
| District of Columbia | 0.339 | 0.211 | 0.450 | |
| Massachusetts | 0.237 | 0.313 | 0.450 | |
| Connecticut | 0.237 | 0.346 | 0.418 | |
| New Hampshire | 0.207 | 0.379 | 0.414 | |

Average Portion of the Population at or Below the Lowest Numeracy Levels

| Mississippi 0.4948 | Texas 0.4094 | Florida 0.3675 | Delaware 0.3200 | Nevada 0.3141 | | Maryl 0.2949 | | New . 0.294 | Jersey 18 | Idah 0.294 | | Ohio 0.2941 | Avg. Num P1 0.2072 | 1 |
|--------------------------|--------------------------|--------------------------------|------------------------|------------------|--------------------|-----------------|--------------------|----------------|-----------------------|---------------|---------------------|-------------------------|-----------------------|---|
| Louisiana 0.4637 | Arkansas 0.4004 | West Virginia 0.3555 | New York 0.2931 | | Michigan 0.2756 | | Colorado 0.2744 | | South Dakot 0.2693 | | Kansas 0.2604 | Alaska 0.2592 | | |
| Alabama 0.4358 | Kentucky 0.3860 | California 0.3401 | Pennsylvania 0.2916 | | | | | | | | | | | |
| | | District of Columbia 0.3390 | Indiana 0.2901 | | Hawaii 0.2552 | | | lowa 0.241 | | Neb 0.23 | oraska 378 | Massachusetts 0.2373 | | |
| Georgia 0.4338 | Arizona 0.3786 | Virginia 0.3387 | Illinois | | Montana 0.2530 | | | | necticut | | Vermont | Wyoming | | |
| South Carolina 0.4281 | Tennessee 0.3756 | Missouri | 0.2793 | | Maine 0.2448 | | | 0.236 | 56 | | 0.2277 | 0.2275 | | |
| | | 0.3333 | Washington 0.2764 | 1 | Utah 0.2432 | | | Nort 0.234 | h Dakota 48 | | Rhode Island | d | | |
| New Mexico 0.4217 | North Carolina 0.3733 | Oklahoma 0.3324 | Oregon | | Misses | | | | nesota | | 0.2250 | | | |
| | | 0.5324 | 0.2763 | | Wisconsi 0.2422 | n | | 0.228 | 39 | | New Hamps 0.2072 | hire | | |

Low Literacy Correlation Matrix

Correlation Matrix - National →

| | Lit_P1 | Lit_P2 | Lit_P3 | Male | Female | Less_HS | HS | More_HS | SNAP | Employed | Unemployed |
|------------|--------|----------|--------|--------|--------|---------|-------|---------|--------|----------|------------|
| Lit_P1 | 1.0 | 0.27 | -0.88 | 0.095 | -0.095 | 0.95 | 0.18 | -0.7 | 0.68 | -0.65 | 0.4 |
| Lit_P2 | 0.27 | 1.0 | -0.69 | 0.13 | -0.13 | 0.32 | 0.96 | -0.84 | 0.38 | -0.38 | 0.13 |
| Lit_P3 | -0.88 | -0.69 | 1.0 | -0.14 | 0.14 | -0.87 | -0.61 | 0.93 | -0.7 | 0.68 | -0.37 |
| Male | 0.095 | 0.13 | -0.14 | 1.0 | -1.0 | 0.12 | 0.14 | -0.16 | -0.076 | -0.29 | -0.17 |
| Female | -0.095 | -0.13 | 0.14 | -1.0 | 1.0 | -0.12 | -0.14 | 0.16 | 0.076 | 0.29 | 0.17 |
| Less_HS | 0.95 | 0.32 | -0.87 | 0.12 | -0.12 | 1.0 | 0.23 | -0.76 | 0.63 | -0.61 | 0.33 |
| нѕ | 0.18 | 0.96 | -0.61 | 0.14 | -0.14 | 0.23 | 1.0 | -0.81 | 0.3 | -0.28 | 0.06 |
| More_HS | -0.7 | -0.84 | 0.93 | -0.16 | 0.16 | -0.76 | -0.81 | 1.0 | -0.59 | 0.56 | -0.24 |
| SNAP | 0.68 | 0.38 | -0.7 | -0.076 | 0.076 | 0.63 | 0.3 | -0.59 | 1.0 | -0.69 | 0.6 |
| Employed | -0.65 | -0.38 | 0.68 | -0.29 | 0.29 | -0.61 | -0.28 | 0.56 | -0.69 | 1.0 | -0.47 |
| Unemployed | 0.4 | 0.13 | -0.37 | -0.17 | 0.17 | 0.33 | 0.06 | -0.24 | 0.6 | -0.47 | 1.0 |
| HS More HS | SNAP | Employed | Unemi | ployed | | | | | | | |

| P- | Lit_P1 | Lit_P2 | Lit_P3 | Male | Female | Less_HS | HS | More_HS | SNAP | Employed | Unemployed |
|------------|--------|--------|--------|-------|--------|---------|-------|---------|--------|----------|------------|
| Lit_P1 | 1.0 | 0.39 | -0.94 | 0.19 | -0.19 | 0.87 | 0.27 | -0.69 | 0.85 | -0.78 | 0.51 |
| Lit_P2 | 0.39 | 1.0 | -0.68 | 0.24 | -0.24 | 0.47 | 0.98 | -0.87 | 0.2 | -0.35 | -0.045 |
| Lit_P3 | -0.94 | -0.68 | 1.0 | -0.23 | 0.23 | -0.87 | -0.57 | 0.87 | -0.75 | 0.76 | -0.39 |
| Male | 0.19 | 0.24 | -0.23 | 1.0 | -1.0 | 0.34 | 0.25 | -0.35 | 0.049 | -0.51 | -0.2 |
| Female | -0.19 | -0.24 | 0.23 | -1.0 | 1.0 | -0.34 | -0.25 | 0.35 | -0.049 | 0.51 | 0.2 |
| Less_HS | 0.87 | 0.47 | -0.87 | 0.34 | -0.34 | 1.0 | 0.39 | -0.84 | 0.67 | -0.68 | 0.42 |
| нѕ | 0.27 | 0.98 | -0.57 | 0.25 | -0.25 | 0.39 | 1.0 | -0.83 | 0.061 | -0.27 | -0.17 |
| More_HS | -0.69 | -0.87 | 0.87 | -0.35 | 0.35 | -0.84 | -0.83 | 1.0 | -0.44 | 0.57 | -0.15 |
| SNAP | 0.85 | 0.2 | -0.75 | 0.049 | -0.049 | 0.67 | 0.061 | -0.44 | 1.0 | -0.67 | 0.67 |
| Employed | -0.78 | -0.35 | 0.76 | -0.51 | 0.51 | -0.68 | -0.27 | 0.57 | -0.67 | 1.0 | -0.34 |
| Unemployed | 0.51 | -0.045 | -0.39 | -0.2 | 0.2 | 0.42 | -0.17 | -0.15 | 0.67 | -0.34 | 1.0 |

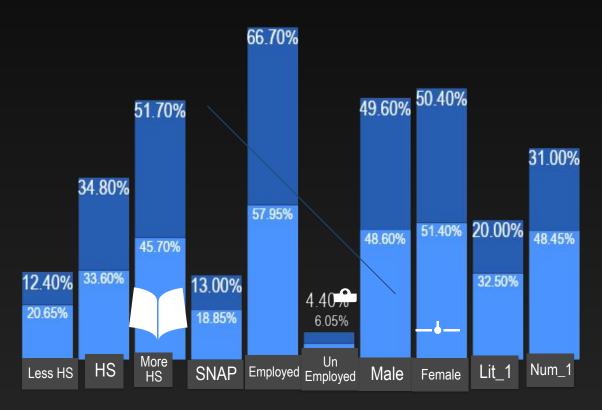
← Correlation Matrix - Mississippi



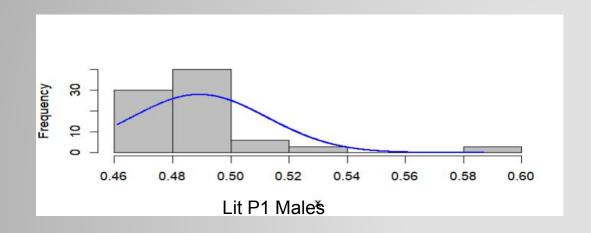
Literacy & Numeracy Averages

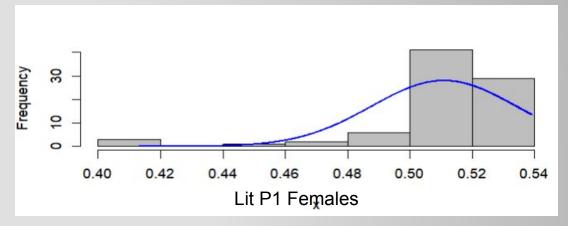
50%

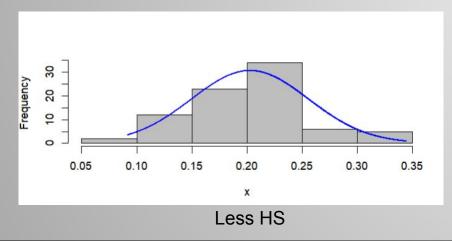
Average of Males & Females at the lowest Literacy & Numeracy levels also show correlation with Less HS, SNAP benefits & being unemployed.

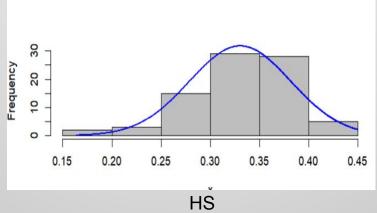


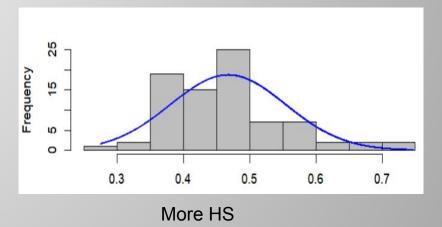
Literacy Histograms for Mississippi



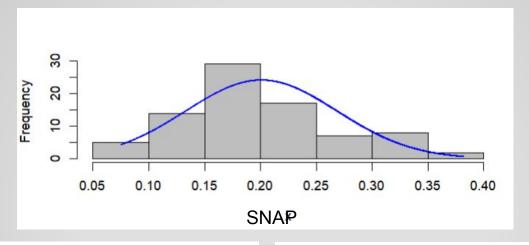


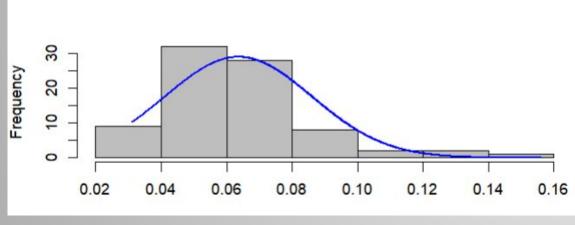




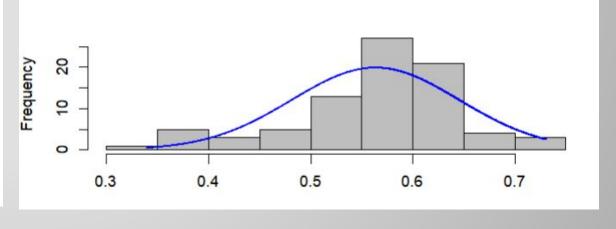


Literacy Histograms for Mississippi





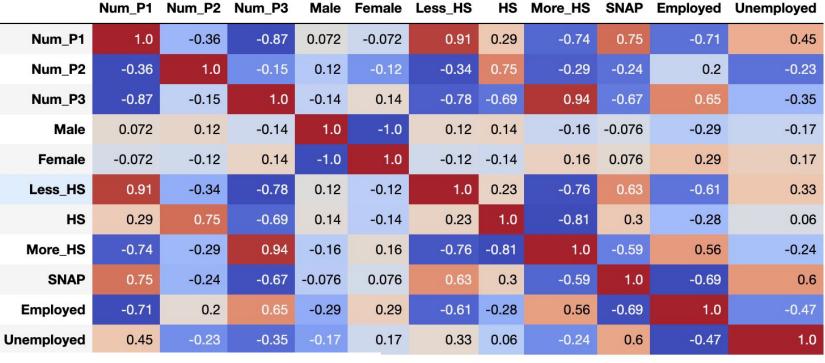
Unemployed



Employed

Low Numeracy Correlation Matrix

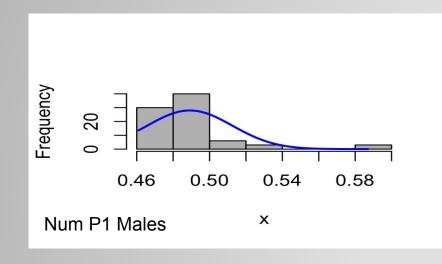
Correlation matrix national→

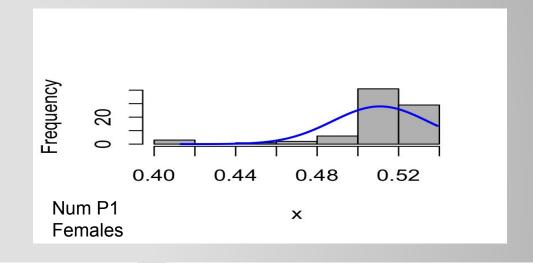


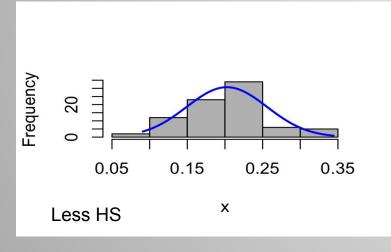
| | Num_P1 | Num_P2 | Num_P3 | Male | Female | Less_HS | HS | More_HS | SNAP | Employed | Unemployed |
|------------|--------|--------|--------|-------|--------|---------|-------|---------|--------|----------|------------|
| Num_P1 | 1.0 | -0.68 | -0.9 | 0.13 | -0.13 | 0.8 | 0.27 | -0.65 | 0.86 | -0.78 | 0.51 |
| Num_P2 | -0.68 | 1.0 | 0.29 | 0.052 | -0.052 | -0.43 | 0.51 | -0.033 | -0.7 | 0.5 | -0.54 |
| Num_P3 | -0.9 | 0.29 | 1.0 | -0.21 | 0.21 | -0.79 | -0.66 | 0.87 | -0.7 | 0.72 | -0.35 |
| Male | 0.13 | 0.052 | -0.21 | 1.0 | -1.0 | 0.34 | 0.25 | -0.35 | 0.049 | -0.51 | -0.2 |
| Female | -0.13 | -0.052 | 0.21 | -1.0 | 1.0 | -0.34 | -0.25 | 0.35 | -0.049 | 0.51 | 0.2 |
| Less_HS | 0.8 | -0.43 | -0.79 | 0.34 | -0.34 | 1.0 | 0.39 | -0.84 | 0.67 | -0.68 | 0.42 |
| нѕ | 0.27 | 0.51 | -0.66 | 0.25 | -0.25 | 0.39 | 1.0 | -0.83 | 0.061 | -0.27 | -0.17 |
| More_HS | -0.65 | -0.033 | 0.87 | -0.35 | 0.35 | -0.84 | -0.83 | 1.0 | -0.44 | 0.57 | -0.15 |
| SNAP | 0.86 | -0.7 | -0.7 | 0.049 | -0.049 | 0.67 | 0.061 | -0.44 | 1.0 | -0.67 | 0.67 |
| Employed | -0.78 | 0.5 | 0.72 | -0.51 | 0.51 | -0.68 | -0.27 | 0.57 | -0.67 | 1.0 | -0.34 |
| Unemployed | 0.51 | -0.54 | -0.35 | -0.2 | 0.2 | 0.42 | -0.17 | -0.15 | 0.67 | -0.34 | 1.0 |

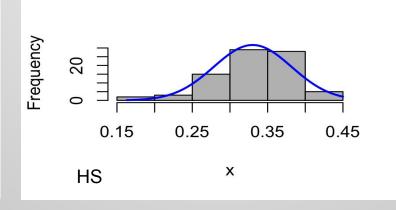
← Correlation matrix Mississippi

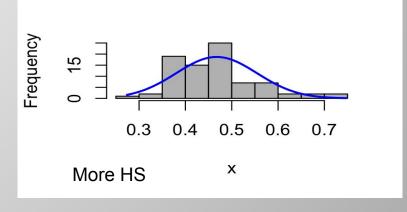
Numeracy Histograms for Mississippi:



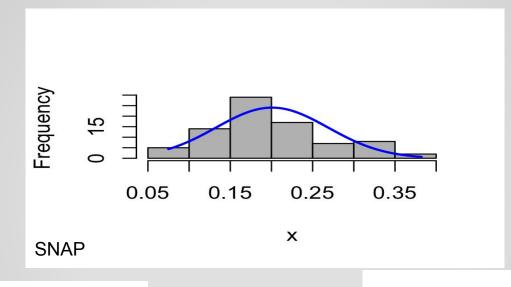


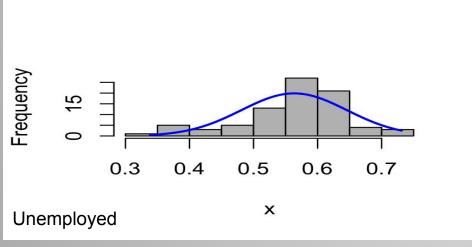


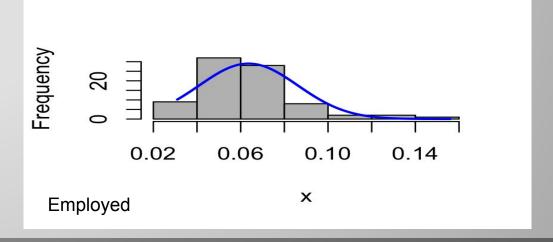




Numeracy Histograms for Mississippi:







Next Steps for Data Exploration:

- Given the correlations between less HS education, SNAP & higher incidence with females, further exploration of the variables specifically with HHI & employment data for male vs female in MS and other key states is worth exploring
- Also exploring further if incidence of females as single parents and college education and understanding if the distribution of state
 education funds from 2019-2021 & how that was distributed to MS and other low Lit_P1 & Num_P1 states was also highly correlated
- If applicable, looking at early childhood funding in MS to see if there is a trend from the adult population to early childhood in these states is worth exploring

Data Source: https://data-nces.opendata.arcgis.com/datasets/nces::piaac-county-indicators-of-adult-literacy-and-numeracy/about