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ABSTRACT

This paper attempts to show that Florida's high percentages of elderly and minority citizens, two groups that show considerably lower than average higher educational attainment, cause simplistic statistical analyses to rank Florida lower in educational attainment than she deserves. Controlling for these demographic factors shows that Florida is performing better than usual analyses suggest. Florida ranks 31st in the United States in the percentage of population aged 25 and over who have a college degree, but when one adjusts the expected percentages of educational attainment for age, Florida's expected rank drops to 51st (50 states and the District of Columbia), and when one adjusts based on racial/ethnic proportions in the over 25 population, Florida's expected rank is 44. Thus, the simple rank of 31 is considerably above expectations based on age or racial/ethnic characteristics. Florida is among only 10 states that showed a 10% of greater increase in the number of students enrolled in higher education institutions between 1990 and 1997. The phenomenon of simplistic statistical analysis underestimating Florida's performance also occurs for K-12 education. The percentage of the population under 18 is about 79% of the national average, so if Florida actually spends the same amount per student as the average state, simplistic global statistics based on unadjusted estimates make it appear that Florida spends 21% less than the average state. An appendix contains a map of percent change in total enrollment in institutions of higher education by state from 1990 to 1997. (SLD)

Why Florida's Educational Attainment Is Far Better than It Appears

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Executive Summary

During the recent November, 2000 election, broadcasters reported that over the last four elections, Florida shows a consistent 20% voter turnout advantage over national averages. Florida's exceptionally large percentage of older citizens is a major causal factor both in voter turnout and in low higher educational attainment percentages. This paper attempts to show that Florida's high percentages of elderly and minority citizens, two groups that show considerably lower than average higher educational attainment, cause simplistic statistical analyses to rank Florida lower than she deserves. Controlling analyses for these demographic factors shows that Florida is performing considerably better than such analyses suggest. Abuses of global statistics commonly occur. One of the most misleading and frequently observed of these relates to salary comparisons across institutions that are not adjusted for cost-of-living differences.[1]

Florida ranks 31st in the nation in the percentage of population aged 25 and over who have a college degree. Florida's percentage is 21.7% which is 1.9% below the national average of 23.6%. However, when one adjusts the expected percentages of educational attainment for age, Florida's expected rank drops to 51st (50 states plus DC), and when one adjusts based on racial/ethnic proportions in the over 25 population, Florida's expected rank is 44. Thus, Florida's simple rank of 31 is considerably above expectations based upon either age or racial/ethnic characteristics. Further, Florida is among only ten states that showed a 10% or greater increase in the number of students enrolled in higher education institutions between 1990 and 1997 (see Figure 14 in Appendix A). Because increased higher education enrollments necessarily cause increased spending, not only is Florida doing considerably better than it looks on the surface, but she is now expending more resources to increase higher education than 80% of the other states.

A Note on K-12 Education in Florida

The phenomenon of simplistic statistical analysis underestimating Florida's performance also occurs for K-12 education. The percentage of Florida's population that is 18 or under is 21.6% while for the U.S. as a whole, this percentage is 27.4%. Thus, Florida's percentage under 18 is about 79% of the U.S. average (21.6/27.4). Obviously, when computing per capita education expenditures, if Florida actually spends the same amount per student as the average state, simplistic global statistics based on unadjusted estimates make it appear that Florida spends 21% less than the average state.

Recommendation

For the reasons noted above, Florida consistently gets a bum rap with regards to both educational expenditures and educational attainment. It is up to we institutional researchers to show how and why such errors occur and to present our state's education in a more valid way than typically occurs.

[1] For example, a homeowner's salary of $50,000 in Gainesville is about equal to $147,000 in New York City, $95,000 in Chicago and $105,000 in San Francisco (http://www.homefair.com/calc/salcalc.html).

High percentages of elderly and minority citizens, two groups that show considerably lower than average higher educational attainment, make simplistic statistical analyses rank Florida lower on higher education attainment than she deserves. Such statistical abuses are easy to find. One of the most misleading and frequently observed of these relates to salary comparisons across institutions that are not adjusted for cost-of-living differences. This study attempts to provide estimates of expected educational attainment corrected (controlled) for age and race/ethnicity differences among states.

A short discussion of the arithmetic mean's misleading nature in the presence of skewed distributions such of state educational attainment data is also included.

Methods

To estimate what Florida's and other states' College Baccalaureate Attainment percentage should be if controlled for important demographic characteristics, the following procedures were implemented using various Census Bureau source files:

- Each state's population broken by age and racial/ethnic group was computed.
- National statistics on educational attainment by age and racial/ethnic group were extracted from NCES (1999).
- For age computations:
  - Expected percentages of college graduates were computed separately for each state based on the percentage of a state's population in each 25 or over age group specified in NCES (1999). These groups were 25-34, 35-44, 45-54, 55-64, 65-74 and 75 or more.
  - These age-group expected percentages were then summed to estimate an expected college degree attainment rate for each state.
- For racial/ethnic group computations:
  - The national percentage of each racial ethnic population over age 25 was applied to total racial/ethnic populations for each state to estimate the total numbers and percentages for each group separately for each state.
  - National percentages of baccalaureate attainment (NCES, 1999) were then applied to the respective racial/ethnic group percentages for each state.
  - These racial/ethnic group expected percentages were then summed to estimate an expected college degree attainment rate for each state.

Limitations

Because national averages were used to estimate expected percentages in most cases, we can expect error to be present in the estimates. For example, although 52% of Hispanics nationally are over age 25 does not mean that this percentage holds true in all states. Analyses based on age do not include this source of error.

Findings and Discussion

Demographic Influences on Higher Educational Attainment Statistics

Figure 1, based on data from the U.S. Census Bureau (1998 and 1998a), shows substantial differences in attaining a bachelor's degree among various national and state population groups. The top panel shows that both whites (24.3%) and other races (36.4% - these are mostly Asian) are above the national average of 23.6%. African American (13.6%) and Hispanic (9.3%) subpopulations are considerably below that 23.6% average.

The middle panel shows the influence of age on these statistics. All groups between 25 and 54 years of age are above the national average. All groups aged 55 and over are below the national average and, the older the group, the farther below the national average they fall. This occurs because widespread higher education did not begin until after World War II (see Figure 2).

The bottom panel compares Florida and several Florida county higher educational attainment percentages with total Florida and national averages. All Florida counties are below the national average, as is Florida as a whole, at 21.7% compared with the national average of 23.6%.

This figure makes it apparent that demographics reduce Florida's higher education attainment, because, as will be shown in this paper, Florida has a far greater percentage of lower attaining groups than the nation as a whole. This is particularly true with regard to the elderly, but also among minority subgroups, due to our comparatively large Hispanic and African American populations. These large minority subpopulations are not countered by substantial percentages of high attaining other racial/ethnic groups, which, for example, occurs in California.

As an example of the age influence factor, the U.S. Census Bureau report (1998) notes that nationwide, people 65 and over make up 12.8% of the U.S. population, and that, fewer than 15% of these have a bachelor's degrees. Although Hillsborough County, at 12.3% is close to the national average, Florida, at 22.5% is almost twice this percentage, and several USF service area counties, Sarasota (32%), Manatee (28%) and Pinellas (27%), have considerably more than twice the national percentage of citizens over age 65. Thus, expectations of bachelor degrees should be considerably lower for this type of population.

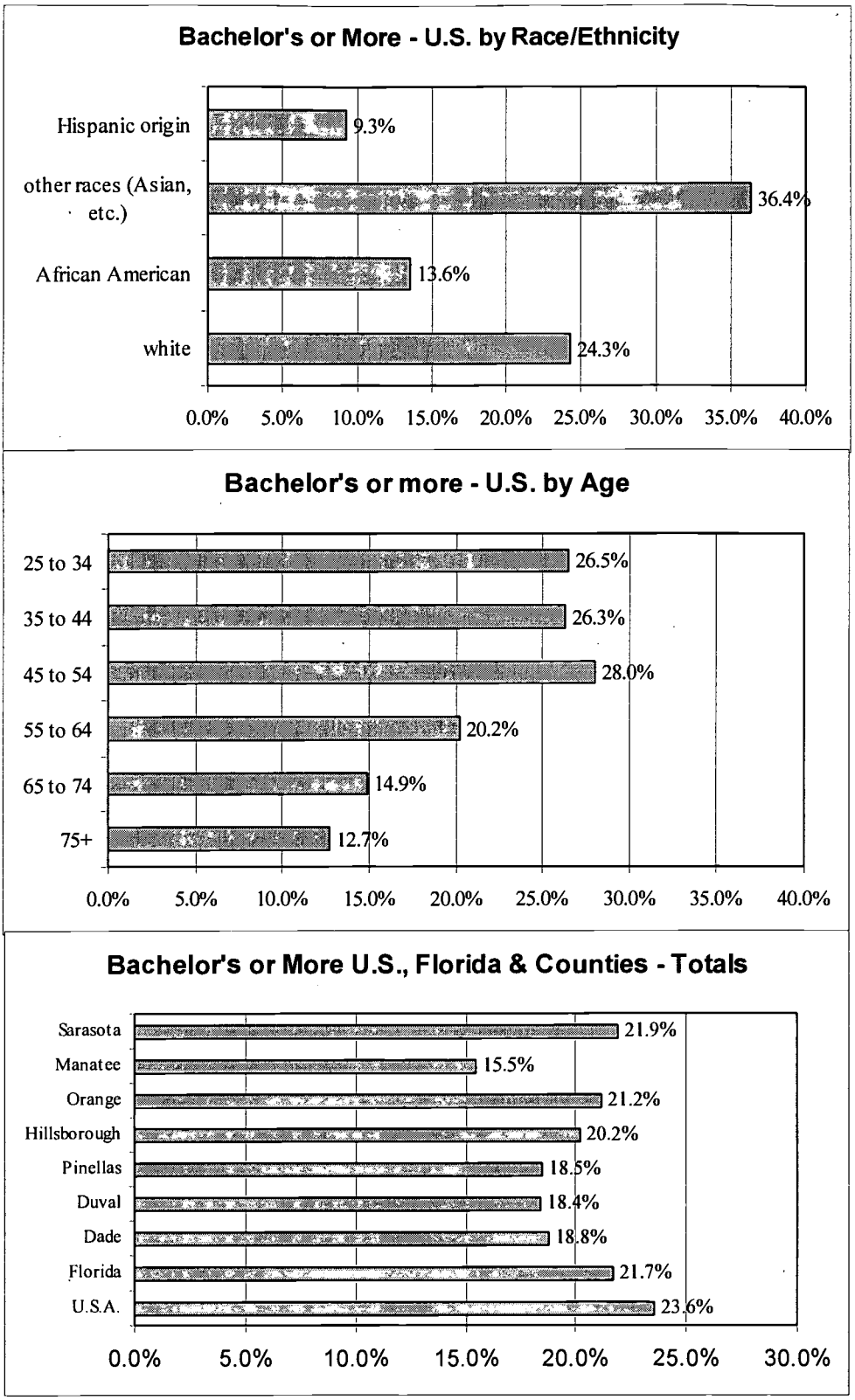


Figure 1

Percent of 25 or Over Population Having a Baccalaureate

Figure 2 shows the reason for the percentage differences in educational attainment across ages. This results from the rather massive increase in degrees granted between 1960 and 1975 (a 250% increase). Most of those who graduated between 1967 and 1975 would be between 45 and 55 today, which explains the higher percentage of college graduates in that

group. Those in the next older group (55-65) are most likely to have graduated sometime between 1957 and 1966, a time when far fewer degrees were granted. Obviously, the farther back in time one goes the smaller the number of college degrees awarded.

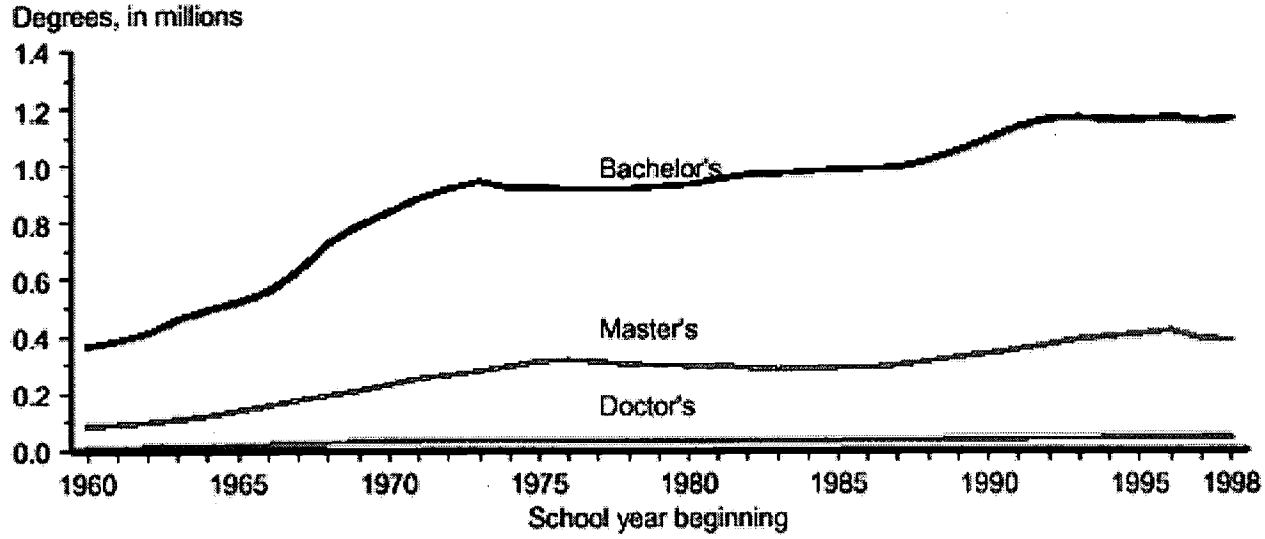


Figure 2

From NCES (1999) – Total Degrees Granted 1960 to 1998

Figure 3 shows that Florida possesses substantially larger percentages of the less well educated sub-populations identified in Figure 1. Florida's percentage over 65 years of age (who have considerably lower higher educational attainment than younger populations) is 76% greater than the national average. The percentage over 55 is 54% above the national average. The percentage of African American and Hispanic Floridians is 27% greater than the national average. Obviously, to expect "average" higher educational attainment among the population over age 25 in Florida is patently absurd in light of these data.

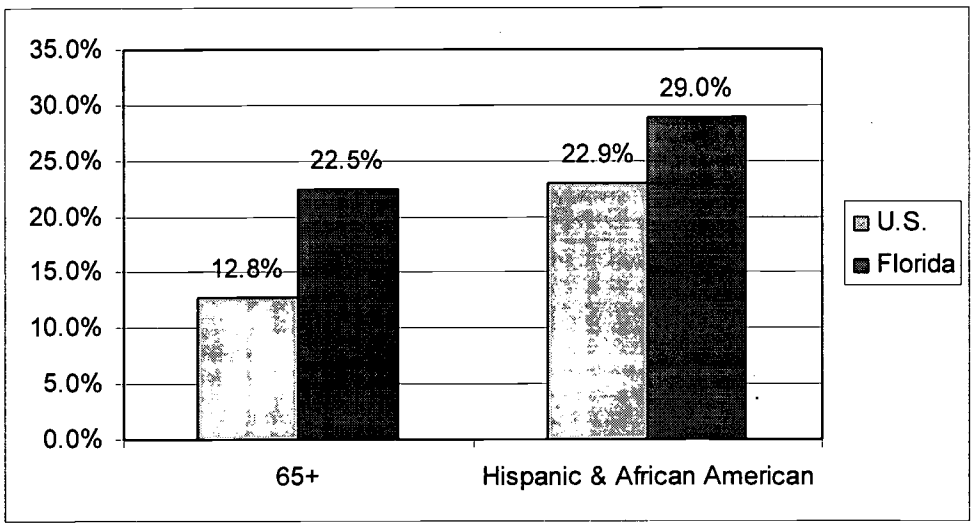


Figure 3

National and Florida Percentages of Sub-Populations Having Less Education

Florida's Actual and Expected Higher Educational Attainment Ranks

Figure 4 shows Florida's actual rank (31) among the 51 states (including District of Columbia) and her expected rank when educational attainment is adjusted for age (51) and for race/ethnicity (44). When adjusting for age, Florida should be the lowest ranking state in the country, yet she shows an educational attainment 20 ranks higher than expected. The race/ethnicity expected rank is not quite as extreme; however, Florida's actual rank is still above 13 more states than it should be. Please note that Florida's Hispanic population includes a large segment of Cubans. Unlike many Hispanic subpopulations in the U.S., the Cuban group contains many comparatively affluent and well-educated individuals who fled Cuba following the demise of the Batista Regime. As Mortensen (1999) clearly shows, affluence is by far the best predictor of a student's college success. Consequently, national averages for Hispanics may not accurately reflect Florida's Hispanic population. Therefore, this paper puts more emphasis on age than on race/ethnicity.

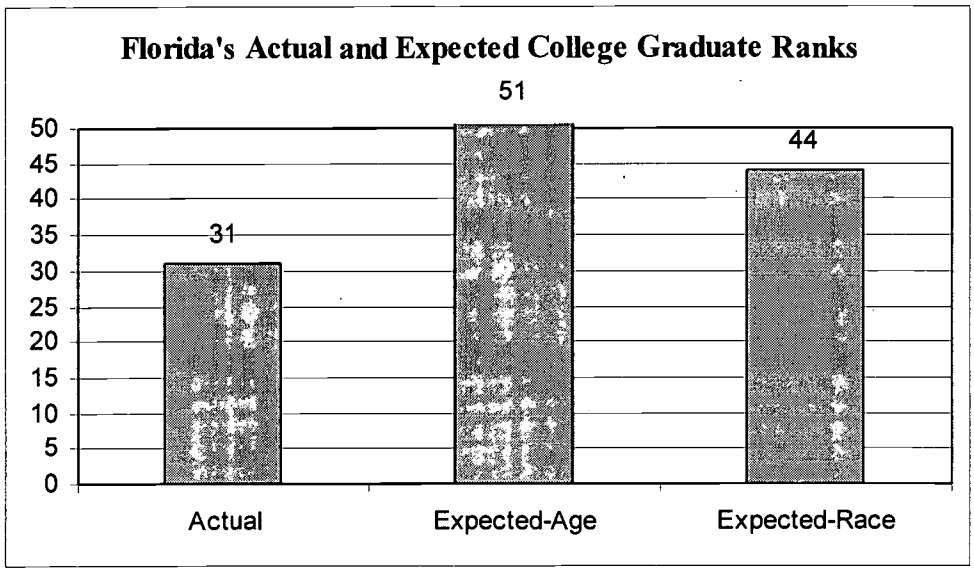


Figure 4

Florida's Actual and Expected Higher Educational Attainment Ranks, Including Expectations Adjusted for Age and Racial/ethnic Proportions

The top panel of Figure 5 shows that adjusting for age and race cuts the shortfall of Florida's Higher Educational Attainment about in half. It is somewhat disturbing that Florida's actual higher education attainment should fall below even expectations adjusted for age or racial/ethnic group. However, the bottom panel shows that the majority of states fall below national expectations, whether those be simple averages (55%), or expected values based on age (61%) or race/ethnicity (61%). This fact shows the positively skewed nature of the Educational Attainment distribution across states. This occurs because a few states have extremely high values (most notably The District of Columbia, Massachusetts and Maryland, all of which are about 10% above the national average) while the majority of states fall near or below an arithmetic mean that is pulled upward by a few high values. A better estimate of center in this case is the median, which is 22.5%, compared with a mean of 23.6%.

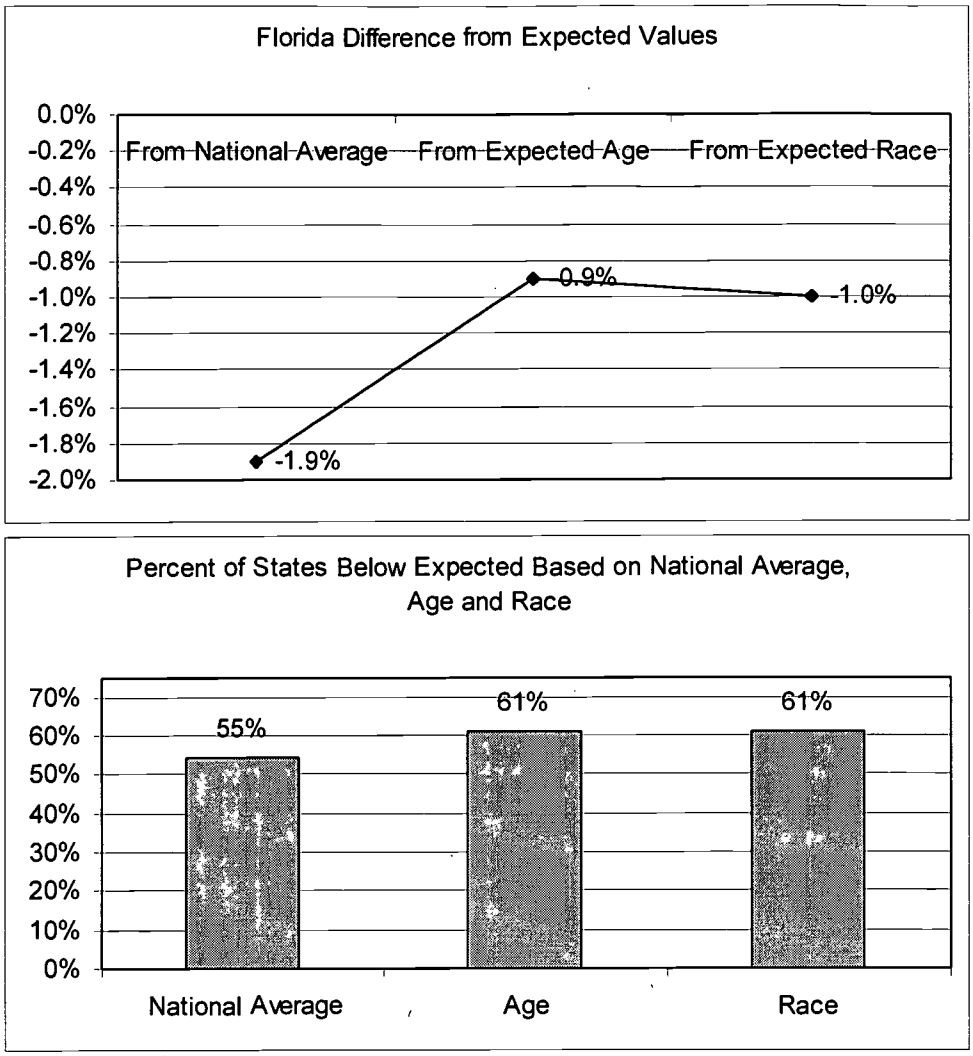


Figure 5

Comparison of Actual with National Means and Expected Educational Attainment Values

Conclusions and Implications

This paper seeks to show that simple statistical analyses can be extremely misleading and to emphasize how cautious one should be when looking at any "average" that supposedly summarizes a set of data. By far the best way to look at a set of data is in the form of a frequency distribution, a sorted list of values or possibly a box and whisper plot. All of these provide information regarding the distribution as a whole rather than about a single point on the distribution, which a mean or a rank provide. The only appropriate way to view distributions such as those discussed in this paper is a ranked list, which Table 1 provides. This table shows both the values and ranks for each state (ranks along left side). For actual higher educational attainment, Florida ranks 31, however, when one adjusts for age, the expected rank drops to 51, and, when one adjusts for race/ethnicity, it drops to 44. This method of comparison shows how states that are highly ranked sometimes don't deserve praise. Take, for example, Alaska, which shows the ninth highest educational attainment. However, when one adjusts for age, Alaska should rank first, and when adjusted for race/ethnicity, second. Clearly, simple rankings give Alaska undeserved credit (Alaska is, however, above expected in all cases). The reason Hawaii ranks so high on the race/ethnicity adjustment is the large percentage of other races among its population

(which are primarily Asian). Note that the District of Columbia, on the racial/ethnic adjustment, ranks 51st. This occurs due to the large percentage of non-Asian minorities in the DC area. However, the city of Washington draws many educated individuals, so actual educational attainment is considerably above expectations computed using national statistics as a base.

In addition to deserving a higher rank than she receives, Florida is also one of the top states regarding the increase in the numbers of students enrolled in higher education between the fall 1990 and fall 1997 (NCES, 1999). The map in Appendix A (Figure 14) shows that Florida belongs in the group of ten states that showed an increase of 10% or more during that eight year period.

The last figure in the Appendix shows historic and projected changes in enrollment among various age groups. Interestingly, between 1970 and 1997, the 30 year and older group showed substantial increases in higher education enrollment. However, this is expected to flatten out between 1998 and 2009, with a substantial increase in the under 22 population occurring during that time.

Table 1

State Ranks for Age and College Degrees, Expected and Actual for 25 and Over Population

			College Degrees					
Rank		Median age	Actual		Expected Age		Expected Race/Ethnicity	
	US	35.2		23.6%		23.4%		22.4%
1	WV	38.5	DC	33.7%	Alaska	24.8%	Hawaii	30.7%
2	Florida	38.4	Mass	33.5%	Georgia	24.0%	Alaska	25.8%
3	Penn	37.6	Maryland	32.2%	Colorado	24.0%	S Dakota	25.1%
4	Maine	37.4	Conn	30.0%	Utah	23.9%	Montana	24.8%
5	Montana	37.4	Colorado	28.9%	Texas	23.9%	N Dakota	24.7%
6	DC	36.9	NJ	28.5%	Virginia	23.8%	Maine	24.3%
7	Conn	36.8	Minn	28.3%	Cal	23.8%	Vermont	24.3%
8	NJ	36.7	Virginia	28.0%	Maryland	23.8%	Minn	24.2%
9	Oregon	36.7	Alaska	27.5%	NH	23.7%	NH	24.2%
10	Vermont	36.7	Cal	27.5%	Wash	23.7%	Oklahoma	24.1%
11	Iowa	36.6	Kansas	27.5%	Vermont	23.7%	Wash	24.1%
12	RI	36.4	NH	27.0%	Nevada	23.7%	Iowa	24.0%
13	Hawaii	36.3	Delaware	26.8%	New Mex	23.6%	WV	24.0%
14	Mass	36.2	Utah	26.7%	S Car	23.6%	Oregon	23.9%
15	NY	36.0	Wash	26.1%	Wyo	23.5%	Utah	23.8%
16	Tenn	35.9	NY	25.8%	LA	23.5%	Wyo	23.8%
17	Missouri	35.8	RI	25.7%	DC	23.5%	Wisc	23.7%
18	N Dakota	35.8	Montana	25.2%	Michigan	23.5%	Idaho	23.7%
19	Ohio	35.8	Illinois	25.0%	Delaware	23.5%	Nebraska	23.6%
20	Arkansas	35.7	Oregon	24.3%	Minn	23.5%	Kentucky	23.6%
21	Kentucky	35.7	Vermont	23.7%	Tenn	23.5%	Mass	23.5%
22	NH	35.7	New Mex	23.6%	N Car	23.5%	RI	23.5%
23	Wisc	35.7	Missouri	22.9%	Illinois	23.5%	Kansas	23.4%
24	Wyo	35.7	Penn	22.9%	Idaho	23.5%	Indiana	23.3%
25	Alabama	35.6	N Car	22.6%	Indiana	23.4%	Penn	23.2%

			College Degrees					
Rank		Median age	Actual		Expected Age		Expected Race/Ethnicity	
26	Delaware	35.6	Hawaii	22.5%	Kentucky	23.4%	Missouri	23.2%
27	Colorado	35.5	Texas	22.4%	Oregon	23.4%	Ohio	23.1%
28	Maryland	35.5	Wisc	22.4%	Mass	23.4%	Michigan	22.8%
29	Oklahoma	35.5	Georgia	22.3%	NY	23.4%	Conn	22.8%
30	Michigan	35.3	Wyo	22.2%	Miss	23.4%	Tenn	22.6%
31	Nebraska	35.3	Florida	21.7%	Hawaii	23.4%	Colorado	22.6%
32	Wash	35.3	Iowa	21.7%	Alabama	23.4%	Arkansas	22.6%
33	Indiana	35.2	Ohio	21.5%	NJ	23.4%	Nevada	22.5%
34	Kansas	35.2	Nebraska	21.3%	Maine	23.3%	Arizona	22.4%
35	Minn	35.2	Michigan	21.0%	Wisc	23.3%	Virginia	22.3%
36	Nevada	35.2	Miss	20.9%	Ohio	23.3%	Delaware	22.3%
37	N Car	35.2	N Dakota	20.5%	Arizona	23.3%	NJ	22.2%
38	S Car	35.2	Oklahoma	20.5%	Conn	23.3%	N Car	22.1%
39	S Dakota	35.1	S Dakota	20.1%	Kansas	23.3%	Illinois	22.1%
40	Virginia	35.1	Maine	20.0%	Montana	23.2%	NY	21.9%
41	Illinois	34.9	Nevada	19.9%	Missouri	23.2%	Cal	21.8%
42	Arizona	34.4	Arizona	19.5%	Oklahoma	23.2%	Alabama	21.7%
43	New Mex	34.1	Idaho	19.4%	Nebraska	23.1%	Maryland	21.6%
44	LA	33.8	Alabama	19.3%	RI	23.1%	Florida	21.5%
45	Georgia	33.7	S Car	19.2%	Arkansas	23.0%	Georgia	21.4%
46	Miss	33.4	LA	18.1%	N Dakota	23.0%	S Car	21.3%
47	Cal	33.3	Kentucky	17.6%	WV	23.0%	New Mex	21.2%
48	Idaho	33.3	Tenn	17.1%	S Dakota	23.0%	LA	21.0%
49	Texas	32.9	Indiana	16.2%	Penn	22.9%	Miss	20.6%
50	Alaska	31.4	WV	14.7%	Iowa	22.9%	Texas	20.5%
51	Utah	26.7	Arkansas	14.6%	Florida	22.5%	DC	17.7%

References

Mortenson, T.G. (1999). *The Impact of Financial Aid on College Retention for Minority Students*. Postsecondary Education Opportunity, Oskaloosa, IA, 52577.

NCES (1999). *Digest of Educational Statistics – 1999*. National Center for Education Statistics, Washington, D.C.

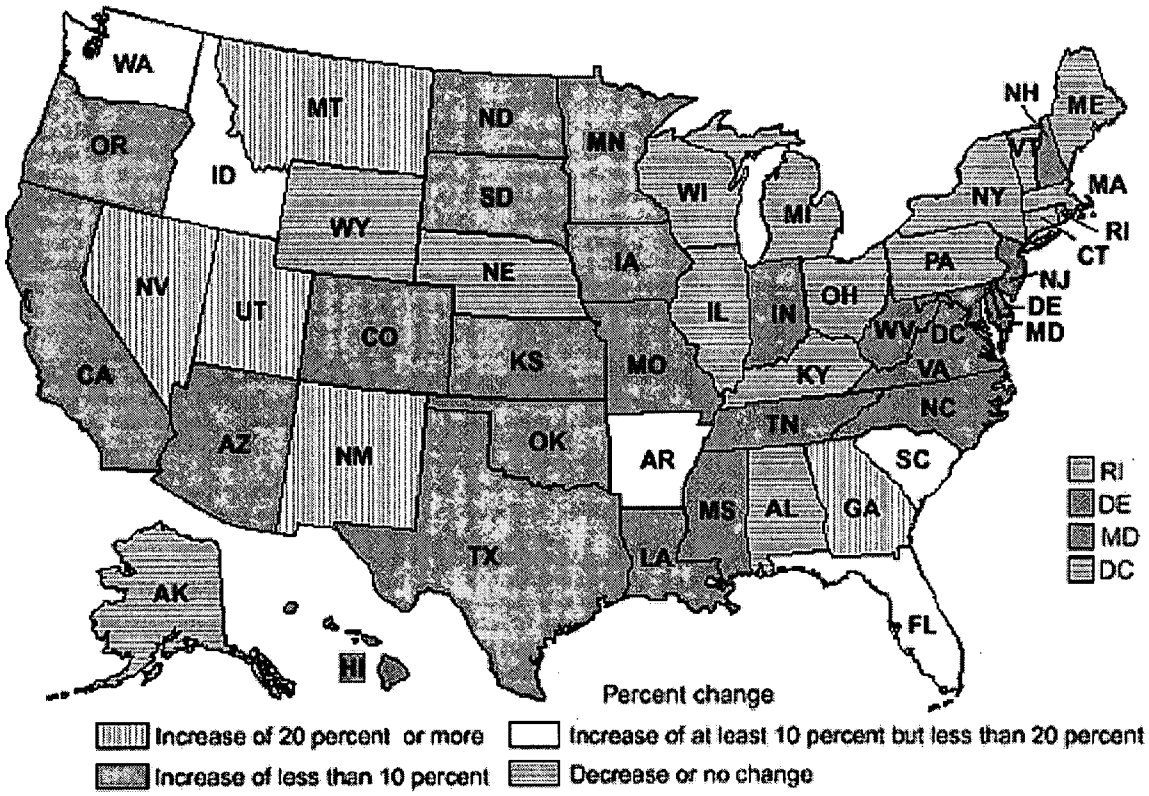
U.S. Census Bureau (1998a). USA Counties 1998 – General Profile - http://govinfo.kerr.orst.edu/usaco-stateis.html.

U.S. Census Bureau (1998). 1997 Population Profile of the United States - http://www.census.gov/prod/3/98pubs/p23-194.pdf.

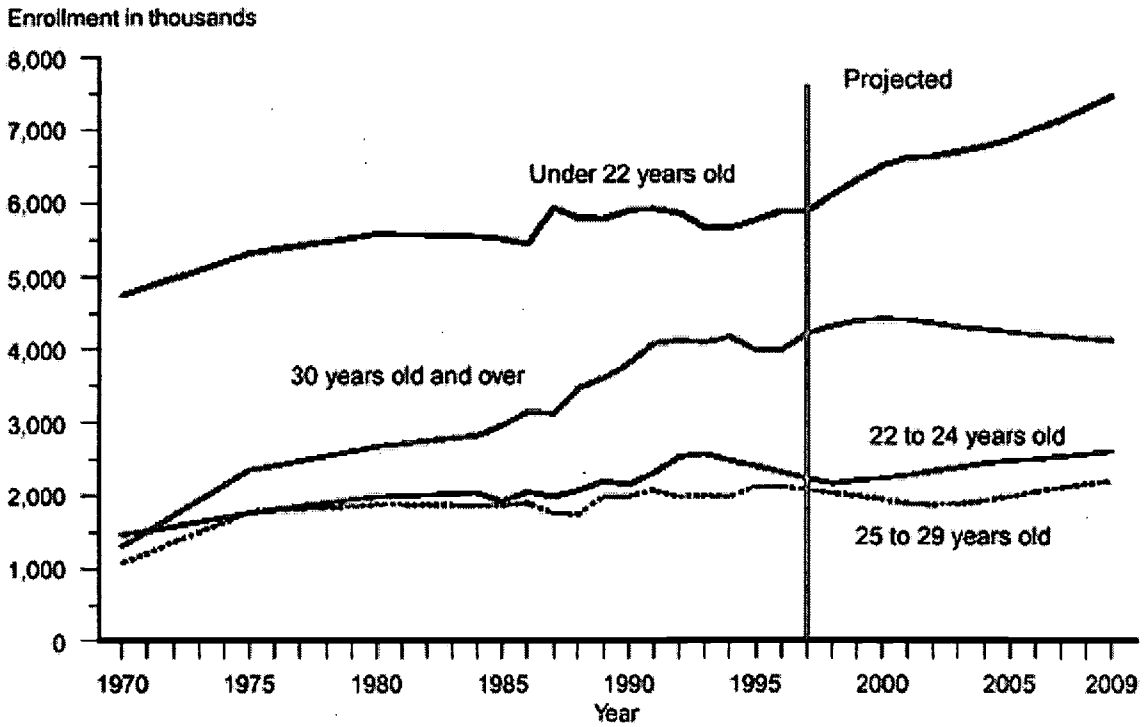
Appendix A

Figures from NCES, 1999

Figure 14.–Percentage change in total enrollment of institutions of higher education, by state: Fall 1990 to fall 1997



SOURCE: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS), "Fall Enrollment" surveys.



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