



A Period of Adjustment? Race-adjusted Rates for a State Accountability Report

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Session Objectives

- Release new demographic-level rates for ARCC
- Present a new analysis of ARCC 2010 data that considers the demographic composition at each college
- Discuss how policy makers and administrators could use these results
- Collect input from community college IR staff, et al, about future efforts in this area

Need for Two New Tools

- Race-specific tables for performance indicators
- Race-adjusted rates for performance indicators
- Not mutually exclusive

Demand for ARCC Indicators Tabulated by Race*

- Various researchers and interested parties have criticized ARCC for omitting race-specific figures for its performance indicators.

*For brevity, we mean “race/ethnicity” wherever you see the term “race” in this session.

Historic Hurdles to Race-Specific ARCC Indicators

- During the AB 1417 phase (the development of the framework), there was opposition to race-specific indicators.
- Before AB 1417, during the work for the “Persistently Low-Transfer College” reports, strong opposition arose for such indicators.
- Resource limitations existed (size of main report; tight schedule; staffing levels).
- Confidentiality issue with small n’s

Hypothesized Negative Effects of Specifying Race with Indicators

- Self-fulfilling prophecy and stereotype threat for members of groups with rates far below average
- Stigma for certain colleges and for some student groups
- Possible diversion of attention and resources away from factors that officials can change

Other Drawbacks to Factoring in Race for ARCC

- Results may reflect more about the kinds of students who enrolled at a college than about the job the college has done with a certain group of students—the issue of pre-existing differences among students combined with self-selection.
- Unless we statistically “control” for pre-existing differences and self-selection, it is hard to evaluate institutional performance.

One Potential Consequence

- If institutions see a penalty for a relatively low success rate for one population segment, one possible institutional reaction may be “creaming” students for that population segment—denying access to members of that population segment who appear to have low prospects for success.

A Look at Race-Specific ARCC Indicators

- State-level rates
- College-level rates

- See handout

A Different Look and Purpose

- What if we needed to account for different compositions of student enrollment when we evaluate the overall performance of a college on a performance indicator like the SPAR (student progress and achievement rate in ARCC) or a traditional one like the transfer rate to baccalaureates?

One Argument to Use Race in ARCC

- Some people believe that performance indicators (like those in ARCC) are unfair to specific colleges because they do not directly account for the variation in student demographics at each of the community colleges.

(See Appendix B of the 2011 ARCC Report for the state's methodology in calculating performance indicators.)

BA Plus Index* as a Proxy for Race

- A good predictor of SPAR in ARCC
- Avoids hurdles of race-specific tabulation
- But relies upon Census data that can be obsolete over time
- Doesn't satisfy some community or special interest groups

* BA Plus Index = Bachelor's of Arts Degree or higher index

Difference in Uses

- Race-specific rates/tables:
differences in “outcomes” for a segment of the population served—
a student segment focus
- Race-adjusted rates/tables:
between-institution differences in outcomes for all of the population served (the initial ARCC mandate)—
an overall institutional focus

Both Methods Deal With Equity

- Race-specific tabulation is about any achievement gap between students at a specific college—a narrow focus.
- Race-adjusted rates are about evaluating the overall performance of individual colleges relative to their peer groups or to one another—a broad focus.

Use Race-Specific Tables or Standardized Rates?

- Both functions are important.
- If our concern is to level the playing field in a comparison of performance between CCCs, the ARCC mission, then use rate adjustment to account for racial composition.
- If our concern is how differently a population segment fared in comparison to other segments, then use crude race-specific rates.

The Technical Aspects

Standardized (Adjusted) Rate

- 'Adjustment' is a general term.
- A rate which differs from crude rate because it has been standardized to a standard population.
- Standardized rates can be used to compare across population groups or time periods if the population compositions of the subgroups differ.

Standardized Rate

- Standardization produces a weighted average from a *standard* population.
- Using standardization may reduce the effects of 'extraneous' factors, such as age, gender, and race/ethnicity.
- Standardization requires the use of data from two population groups.

Data for Standardization

- Population 1: The study population or the population being standardized
- Population 2: The standard population
- Stratum-specific rates for the standard and study populations
- For example, college-level data cover the study population and state-level data cover the standard population.

Two Basic Ways to Standardize

- Direct standardization: using stratum-specific rates from study populations, weights provided by the standard population.
- Indirect standardization: using stratum-specific rates from the standard population, weights provided by study populations.

Direct Standardization Formula

- Directly standardized rate is the sum of the products of stratum-specific rates in a specific population being standardized and standard weights over sum of all standard weights.

Directly Standardized Rate

$$= \frac{\sum(\textit{stratum specific rates} \times \textit{standard weights})}{\sum(\textit{standard weights})}$$

Direct Standardization

- applies the same set of weights to the stratum-specific rates of each study population.
- is an expected rate which can be compared to crude rate or to other similarly standardized rates.

Main Reasons to Use Direct Standardized Rate

- Easier to compare summary indices than to compare multiple strata of two or more populations, especially in populations with many strata.

Indirect Standardization Formula

- The indirectly standardization rate is the sum of the product of stratum-specific rates in a standard population and the proportion representation of those strata in the study population .

Indirectly Standardized Rates

$$= \sum \left(\begin{array}{l} \textit{Stratum specific} \\ \textit{rates in the} \\ \textit{standard population} \end{array} \times \frac{\textit{Stratum sizes from study population}}{\textit{Total size of study population}} \right)$$

Indirect Standardization Formula

- Second step: expected number of cases

Calculating standardized ratio : dividing the actual number of cases in the population being standardized by the expected number of cases if using the stratum-specific rates from the standard population.

Indirect Standardization

- is applied when stratum-specific numbers of study population are small.
- reports *expected* number of incidents that would occur in study populations if the stratum-specific rates of the standard population would apply.
- Indirect standardized rates can't be compared across other populations because these rates don't have the same weights.
- Comparison of indirect standardization can be performed using a standardized ratio.

When to Use Direct Method or Indirect Methods

- Direct standardization is used when stable stratum-specific rates of study populations are available.
- Indirect standardization is used when stratum-specific rates of study populations are not available or unstable due to small number of cases.

SPAR Standardized for Race

- Using direct standardization method
- Standard population is defined as state-level data for each indicator.
- Study populations are college-level data for each indicator.

Direct Standardization Example

2004-05 statewide count of students by race/ethnicity as standard population, ARCC 2010

Race/Ethnicity	SPAR	Progress Total	Total Students	Percent of Total Students
Black	42.3%	4,601	10,883	6.5%
Native American	44.7%	582	1,303	0.8%
Asian	69.2%	15,704	22,689	13.6%
Filipino	57.9%	4,151	7,174	4.3%
Hispanic	43.2%	21,652	50,141	30.0%
Pacific Islanders	48.9%	665	1,359	0.8%
White	57.7%	33,909	58,763	35.2%
Unknown	56.6%	8,356	14,769	8.8%
Statewide rate	53.6%	89,620	167,081	100.0%

Compton College

2004-05 count of students by race/ethnicity, ARCC 2010

Race/Ethnicity	SPAR	Progress Total	Total Students
Black	33.6%	99	295
Native American	0.0%	-	1
Asian	57.1%	8	14
Filipino	0.0%	-	5
Hispanic	27.8%	106	381
Pacific Islanders			
White	0.0%	-	5
Unknown	25.0%	4	16
Total	30.3%	217	717

De Anza College

2004-05 count of students by race/ethnicity,
ARCC 2010

Race/Ethnicity	SPAR	Progress Total	Total Students
Black	48.0%	47	98
Native American	62.5%	5	8
Asian	86.6%	985	1137
Filipino	72.4%	126	174
Hispanic	48.1%	154	320
Pacific Islanders	42.9%	9	21
White	73.4%	405	552
Unknown	58.4%	195	334
Total	72.8%	1,926	2,644

Imperial Valley College

2004-05 count of students by race/ethnicity, ARCC 2010

Race/Ethnicity	SPAR	Progress Total	Total Students
Black	50.0%	6	12
Native American	33.0%	1	3
Asian	50.0%	3	6
Filipino	60.0%	3	5
Hispanic	33.8%	233	690
Pacific Islanders	100.0%	1	1
White	60.0%	30	50
Unknown	42.9%	3	7
Total	36.1%	280	774

Redwood College

2004-05 count of students by race/ethnicity, ARCC 2010

Race/Ethnicity	SPAR	Progress Total	Total Students
Black	37.5%	6	16
Native American	35.9%	19	53
Asian	33.3%	8	24
Filipino			
Hispanic	44.3%	27	61
Pacific Islanders	40.0%	2	5
White	49.7%	270	543
Unknown	48.0%	49	102
Total	47.4%	381	804

Solano College

2004-05 count of students by race/ethnicity, ARCC 2010

Race/Ethnicity	SPAR	Progress Total	Total Students
Black	41.6%	84	202
Native American	57.1%	8	14
Asian	72.5%	66	91
Filipino	63.9%	129	202
Hispanic	43.5%	94	216
Pacific Islanders	56.0%	14	25
White	54.0%	314	581
Unknown	58.1%	54	93
Total	53.6%	763	1,424

Southwestern College

2004-05 count of students by race/ethnicity, ARCC 2010

Race/Ethnicity	SPAR	Progress Total	Total Students
Black	51.9%	56	108
Native American	50.0%	6	12
Asian	67.5%	52	77
Filipino	60.2%	251	417
Hispanic	48.1%	870	1,810
Pacific Islanders	60.0%	15	25
White	56.1%	189	337
Unknown	50.7%	74	146
Total	51.6%	1,513	2,932

Two Ways to Use Adjusted Rates

- Method A:
Compare crude SPAR in ARCC to adjusted rates for a college.
- Method B:
Use adjusted rates as the dependent variable in regression adjustment models that determine the peer group factors and then redefine the members for each peer group.

Example of Method A

2004-05 SPAR Rates for Selected Colleges

	SPAR Crude Rate	Direct Rate	Indirect Rate	Differences		
				Crude- Direct	Crude- Indirect	Direct - Indirect
Statewide	53.6%	-	-			
Compton College	30.3%	20.5%	37.0%	9.8%	-6.8%	-16.5%
De Anza College	72.8%	64.2%	65.0%	8.6%	7.8%	-0.8%
Imperial Valley College	36.1%	48.7%	43.6%	-12.6%	-7.5%	5.1%
Redwoods College	47.4%	42.6%	45.7%	4.8%	1.7%	-3.1%
Solano college	53.6%	53.4%	53.5%	0.2%	0.1%	-0.1%
Southwestern college	51.6%	54.6%	57.3%	-3.0%	-5.7%	-2.7%

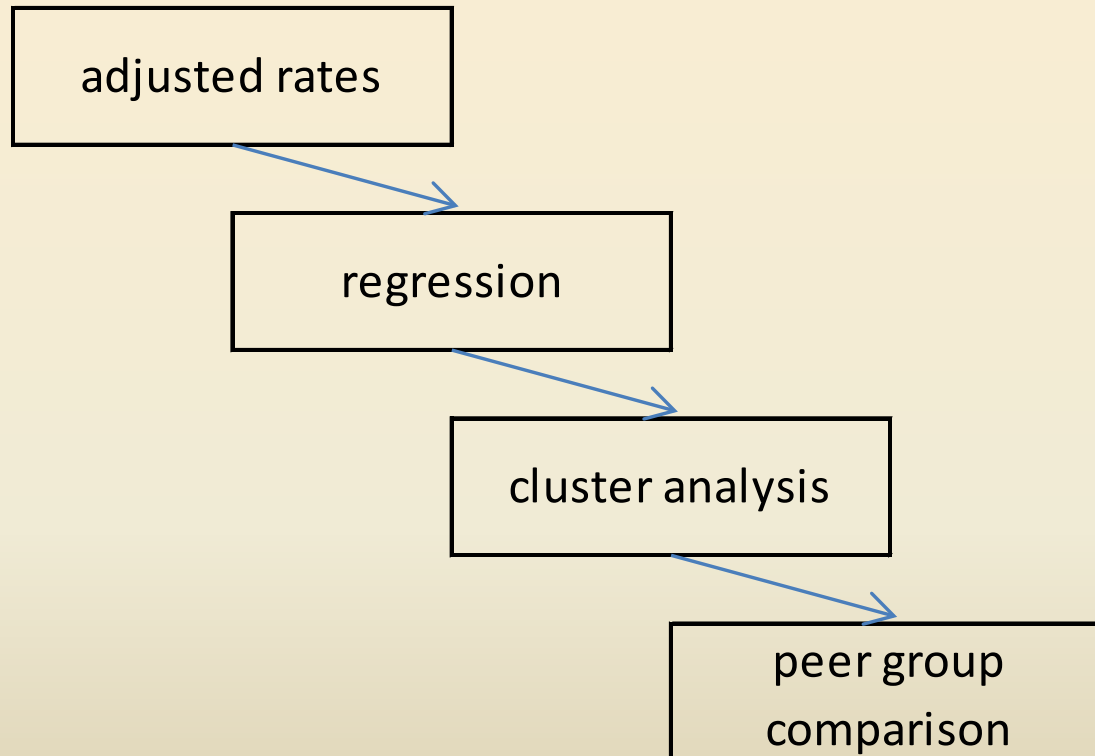
Comments on Example

- Solano has little difference in crude and adjusted rates because it resembles the state in terms of the proportion of students it has for different “performance” levels that the population groups may have.
- Imperial Valley shows the adjustment for an above average proportion of lower performing students. De Anza shows the opposite case.
- Compton needs the indirect rate for small n 's.

Comments on Method A Example

- This keeps the existing ARCC process “intact” but allows users to compare with the statewide rates and across all colleges.
- Take into account the differences of race/ethnicity distribution at each college/statewide when comparing SPAR rates across colleges.
- This does not factor in the demographic variable into the regression model.

Example of Method B



Regressions: Crude SPAR rate					
Variables	Coefficients	S.E.	Betas	Correlations	Adjusted R2
Constant	55.04***	2.8			.629***
Proportion Age 25+ Fall 2006	-25.50***	4.35	-.346	-.295	
Proportion Basic Skills Fall 2006	-30.79***	7.82	-.241	-.401	
BA Plus Index	55.91***	5.34	0.642	0.686	

*** Statistically significant at .01 level

Regressions: SPAR race direct standardized rate

Variables	Coefficients	S.E.	Betas	Correlations	Adjusted R2
Constant	56.53***	2.99			.447***
Proportion Age 25+ Fall 2006	-21.76***	4.66	-.337	-.294	
Proportion Basic Skills Fall 2006	-24.60**	8.36	-.220	-.346	
BA Plus Index	39.48***	5.71	0.517	0.556	

Statistically significant at *** .01 and ** .05 level

Any Change?

- The beta coefficients differ.
- All predictors in both equations are significant and the signs agree.
- Adjusted R-square drops with standardized rate (so maybe other predictors may help the fit?).
- The same set of independent variables can be applied for both crude rate and standardized rates in cluster analyses.

Compare Peer Groups

	2010 Peer Groups			
	Peer Group Average	Peer Group Low	Peer Group High	Group Count
Crude SPAR rate				
A1	47.9	39.0	55.8	35
A2	59.7	52.4	70.5	19
A3	47.0	37.8	54.9	7
A4	55.7	42.3	67.3	23
A5	47.9	37.5	62.4	15
A6	42.5	26.0	54.1	9
SPAR Race Direct Standardized rate				
A1	50.3	38.5	57.9	35
A2	58.8	47.8	65.3	19
A3	49.2	41.8	54.6	7
A4	55.5	43.7	63.4	23
A5	50.3	39.1	71.2	15
A6	45.2	20.5	52.0	9

Conclusion for Method B Example

- The regression model changed in term of coefficients and the model fit.
- No change in peer groups since all environmental factors are unchanged.
- Changes in 2010 peer groups and the current data are mostly based on changes in distribution of independent variables for cluster analyses.

Policy Implications of Standardization

- Standardized rates for ARCC (or any) performance indicators fit the demand for concise score card reporting.
- Such rates avoid stigma, self-fulfilling prophecy, and debates over group differences.
- However, standardized rates for ARCC indicators will not isolate inequities (disparate impact) in outcomes for racial groups.

Policy Implications of Race-specific Tabulation

- Such tabulations compare one racial group to other racial groups, isolating inequities.
- These respond to community concerns about equity.
- They don't fit a score card, and they narrow our focus on institutional performance.
- No achievement gap **does not** mean that the institution or system has performed well.

Separate Pieces of Equity

- Standardized rates = equity between colleges
- Race-specific tabulation =
equity between racial segments at a
college
- Both pieces can serve public policy.

And Efficiency vs. Equity?

- Adjusted rates address efficiency in institutional performance.
- Race-specific tables address equity in institutional performance.
- See Okun, A. (1975). Equity and efficiency: the big tradeoff. Washington, D.C.: Brookings.

Conclusions

- This session shows two ways to address concerns about demographic factors (such as race/ethnicity of enrollment).
- It is also possible to adjust for age, gender, or other selected demographic variables.
- The results indicate that the BA Plus Index is a robust predictor of SPAR at each CCC, capturing more than a “race” factor.

Further Information

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Thank you for your participation.

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