NEW INDICES, PREDICTORS & PEER GROUPS FOR THE CALIFORNIA COMMUNITY COLLEGES

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Introduction

Background

- Introduced Peer Grouping in the ARCC 2007
- Method for comparing performance with “like” colleges
- Accounts for the different environments of each college
- Prevents the simplistic ranking of 112 colleges

Developments

- Challenges in interpreting methodology, in ARCC 2.0 peer grouping will be supplementary
- Confusion surrounding different peer groups for each indicator, only peer grouping on one indicator
- Environmental variables (therefore peer groups) have been static, therefore…new indices, predictors and peer groups

Methodology

- Identify set of uncontrollable environmental factors that predicted each college performance indicator.
- Idea is to control for factors outside of college's purview (i.e. age of students, poverty, income) in order to gain some sort of comparability among colleges.
- These environmental factors or variables are used to create peer groups of colleges with similar exogenous characteristics.

Environmental Variables

- Example of original environmental variables considered for ARCC metrics:
  - Student Count
  - % Age 25+
  - % of financial aid students
  - Miles to nearest CSU or UC
  - Average Unit Load
  - % Basic Skills Students
  - Selectivity of nearest 4 year institution
  - Service area indices

Service Area Indices

- Indices developed by van Ommeren, Liddicoat & Hom (2008) as a proxy for characteristics of the population that a college serves, used in ARCC reports.
- Create by combining enrollment patterns by reported student zip code for a given college with Census Zip Code Tabulation Area (ZCTA) data.
- Services Area Indices developed include metrics for Median Household Income, Poverty, Unemployment, Foreign Born, Per Capita Income and ‘Bachelor’s Plus Index’

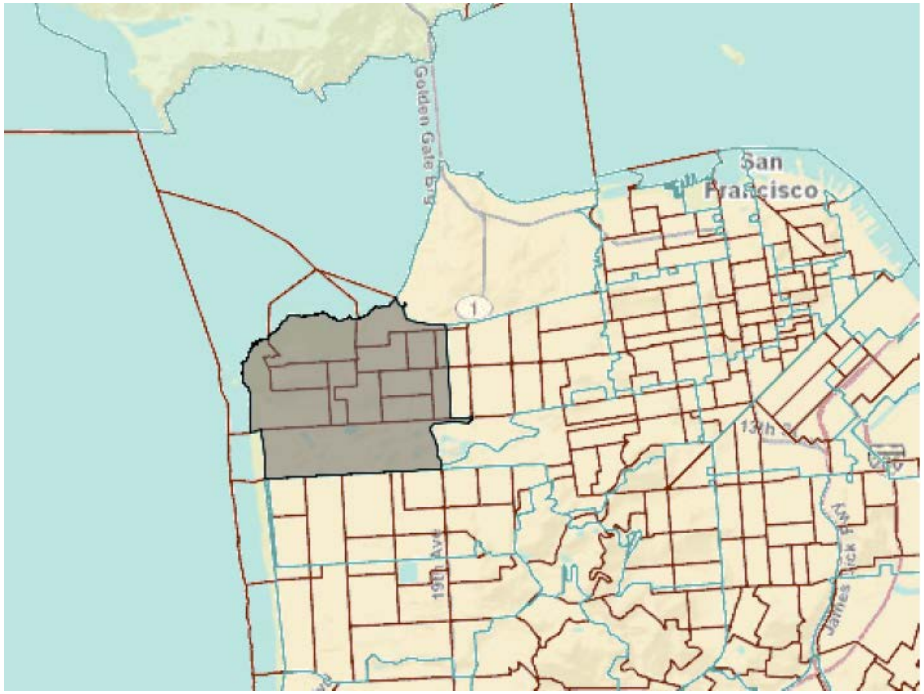
Example - College ‘A’ calculation of Household Median Income Service Area Index

Zip Code	Proportion of Students in Zip	Census ZCTA Value	Weighted Value
94218	.20	$30,500	$6,100
94219	.10	$24,300	$2,430
94221	.15	$19,700	$2,955
94228	.25	$26,400	$6,600
94231	.10	$42,500	$4,250
94245	.20	$37,300	$7,640
Total	1.00		$29,795

Service Area Indices

- Original Service Area Indices taken from Census 2000 ‘Long-Form’ data (SF3 & SF4)
- ‘Long-Form’ data has been replaced by the annual American Community Survey, begun in 2005.
- Census has not yet released American Community Survey data broken out by ZCTA. (Planned for late 2012?)
- In the absence of this, new service area indices can be calculated by aggregating available ACS Census tract data to ZCTA level through a ZCTA to Census Tract crosswalk file.
- 2006-2010 5 year ACS data used. Use 5 year sample data to reduce margin of error for tract level estimates.

ZCTA's & Census Tracts



New Potential Predictors

- High School Academic Performance Index (CDE)
  - Composite API for each college weighted by the percent of first time student cohort from a given high school.
- Gini Inequality Index (Census ACS)
- % of ZCTA in Professional Occupations (Census ACS)
- Population Density (Census ACS)

High School Academic Performance Index by College Calculation

- Annual API data by high school pulled from CDE.
- Proportion of students from each California high school at a given community college calculated.
- This ‘feeder high school’ proportion is then applied to the school’s API score.
- Proportional API scores are then summed to get an aggregate API score for the college.

New Student Progress & Attainment Rate (SPAR)

- ARCC currently being retooled as part of Student Success Task Force recommendations.
- There will be a review of the new ARCC metrics in later session (tomorrow @ 2).
- New definition for inclusion in cohort – First time Cohort, 6 units completed, attempted any level Math or English course

Best Predictors of SPAR

- Total SPAR calculated for each college.
- Correlations and Hierarchical Regression was run to determine best predictors.
- Results of indicated that API, BA+ Index and % students aged 25+ strongest predictors of the total SPAR rate.
- Overall model adjusted r-square was .67
- BA Plus index was single strongest predictor of old SPAR
- New API variable is now better predictor, alone in model had an r-square of .60

Regression Summary

Step	Variables	B	Std. Error	Standardized Coefficients	Variation Inflation Index (VIF)
1	(Constant) API	-51.9 .15	7.9 .01	 .77	 1.0
2	(Constant) API BA+	-36.4 .10 3.1	7.9 .01 .67	 .53 .35	 1.9 1.9
3	(Constant) API BA+ 25+	-40.1 .09 3.3 -59.5	8.0 .02 .67 29.9	 .47 .38 -.12	 2.1 1.9 1.2

Peer Grouping

- The three environmental variables strongest correlation with each college performance metric were used to construct a peer group of similar colleges for a particular measure.
- Cluster Analysis (Ward's Method) used to group colleges into 6 peer groups on variables API, BA+ Index and % students aged 25+

Composition of Peer Groups

Group 1:	Group 2:	Group 3:	Group 4:	Group 5:	Group 6:
ALLAN HANCOCK	CABRILLO	BUTTE	BARSTOW	ALAMEDA	BERKELEY CITY
ANTELOPE VALLEY	CHABOT	CITRUS	COMPTON	AMERICAN RIVER	CANADA
BAKERSFIELD	CHAFFEY	COLUMBIA	COPPER MOUNTAIN	CANYONS	FOOTHILL
CERRITOS	CONTRA COSTA	CRAFTON HILLS	EAST L.A.	CERRO COSO	IRVINE VALLEY
COALINGA	COSUMNES RIVER	CUESTA	HARTNELL	COASTLINE	MARIN
DESERT	CUYAMACA	DE ANZA	L.A. TRADE-TECH	GAVILAN	MISSION
FRESNO CITY	CYPRESS	DIABLO VALLEY	PALO VERDE	L.A. CITY	OHLONE
IMPERIAL VALLEY	EL CAMINO	FULLERTON	RIO HONDO	LANEY	SAN DIEGO MIRAMAR
L.A. HARBOR	EVERGREEN VALLEY	GROSSMONT	SAN BERNARDINO	LASSEN	SAN FRANCISCO CITY
L.A. MISSION	FEATHER RIVER	L.A. PIERCE	SOUTHWEST L.A.	LONG BEACH CITY	SAN MATEO
MENDOCINO	FOLSOM LAKE	LAS POSITAS	TAFT	MERRITT	SKYLINE
MERCED	GLENDALE	MIRA COSTA		SAN DIEGO CITY	WEST VALLEY
MODESTO	GOLDEN WEST	MOORPARK		SAN JOSE CITY	
OXNARD	L.A. VALLEY	MT. SAN ANTONIO		SANTA ANA	
PORTERVILLE	LAKE TAHOE	ORANGE COAST		WEST L.A.	
REEDLEY	LOS MEDANOS	PASADENA CITY			
RIVERSIDE	MONTEREY	SADDLEBACK			
SAN JOAQUIN DELTA	MT. SAN JACINTO	SAN DIEGO MESA			
SEQUOIAS	NAPA VALLEY	SANTA BARBARA CITY			
SOUTHWESTERN	PALOMAR	SANTA MONICA CITY			
VICTOR VALLEY	REDWOODS	VENTURA			
YUBA	SACRAMENTO CITY				
	SANTA ROSA				
	SANTIAGO CANYON				
	SHASTA				
	SIERRA				
	SISKIYOUS				
	SOLANO				

Peer Group Averages

Group #	API	BA +	25+	SPAR
1	661.7	17.4	33.1	40.0
2	704.0	27.3	34.4	46.2
3	724.1	33.5	28.0	51.8
4	671.6	16.5	47.5	33.0
5	682.2	28.3	45.9	42.2
6	745.0	40.1	40.1	52.2

Peer Group Standard Deviations

Group #	Group API SD	Total API SD	Group 25+ SD	Total 25+ SD	BA + SD	Total BA + SD
1	18.9	44.2	2.3	7.7	3.6	10.0
2	20.9	44.2	2.8	7.7	4.3	10.0
3	29.4	44.2	2.4	7.7	7.8	10.0
4	32.4	44.2	7.6	7.7	3.3	10.0
5	33.5	44.2	4.9	7.7	6.5	10.0
6	24.1	44.2	5.7	7.7	5.4	10.0

Cluster Sensitivity Index

- Cluster Sensitivity (CSI) Index developed by Hom (2010) measures the effect that alternative cluster methods would have. (Ward's Method vs. Average Linkage & McQuitty's Similarity Analysis)
- Value of 1.0 represents maximum ambiguity of assigned cluster (high sensitivity to cluster method chosen) vs. value of 0 which means no ambiguity of assigned cluster.
- By College the CSI ranged from a high of .53 to a low of .01. Fairly stable cluster groups.
- Median CSI for all colleges was .43

Interpreting Peer Grouping

- Use caution when using rankings within peer group
- Instead take the outcome average of the group as a comparison (and low and high outcome rate)
- Use peer groups as a rough guide for evaluation.
- Reminder—peer groups are based on *uncontrollable factors*, not controllable factors or outcomes
- Use peer grouping in conjunction with the year-to-year performance level and the college profile

How to use the new peer groups

- Colleges can compare performance with institutions that have similar environmental characteristics
- Examine best practices among peer colleges
- Understand trends that may be affecting colleges with similar environmental characteristics
- Research of colleges in the same peer group
- Systemwide researchers use the peer groups as a method for stratified sampling

Questions & Comments