

Using Generalized Variance Procedure to Study Diversity of College Enrollment

The current concern for social equity in US colleges and universities has increased the awareness of and the need for student diversity on the college campuses. Diversity is usually defined in terms of individual attributes or characteristics such as gender, race, ethnicity, Socio-economic status, age, or sexual orientation. However many colleges and universities have moved beyond the demographic dimensions of diversity to include acceptance, respect, recognition and appreciation of individuals. The current operational definition of diversity in many institutions however, focuses on demographic variety of student population on a campus as indicators of diversity.

The purpose of this study was to use a new measure of diversity, the Generalized Variance approach to investigate 1) the diversity of six major ethnic groups enrolled in California State University system(CSU), and 2) the changes in diversity of the selected ethnic groups' enrollment from Fall 2006 to Fall 2011. The six selected major ethnic groups in CSU system were: African American, Asian American, Filipino, Mexican American, Other Latino and White.

The student enrollment data for the study was downloaded from the California State University web site accessible to the public.
(http://www.calstate.edu/as/stat_reports/2011-2012/rfeth01.htm)

The total number of the six selected ethnic groups were 339,929, 309,975 and 350,479 in Fall 2006, 2008 and 2011 respectively.

The ethnic distributions of the group for Fall 2006 -2011 are presented in the Table 1 below:

Table 1
Distribution of Six Ethnic Groups in CSU 2006-2011
Proportions

Ethnicity	2006	2008	2011
African American	.084	.085	.064
Asian	.147	.140	.170
Filipino	.066	.063	.025
Mexican American	.219	.237	.331
Other Latino	.083	.091	.097
White	.401	.384	.313

To answer the research questions, Generalized Variance (GV) procedure was used to analyze the proportions of the six ethnic groups in the CSU system presented above.

The distributions of enrollment data for the selected ethnic groups in Lower Division, Upper Division, Post baccalaureate and Graduates were also analyzed to obtain measures of diversity for the four categories of college levels.

GV takes the form:

$$GV = \sum p_i(1-p_i) = 1 - \sum p_i^2$$

(Where $-\sum p_i^2$ is the sum of the variances of the five ethnic categories.)

It provides a single index that summarizes variability of different groups in an institution.

Results: CSU system wide enrollment of the six ethnic groups was most diverse in Fall 2011 (GV = .739) and least diverse in Fall 2008. (GV = .671).

On the whole, Lower Division students in the system were the most diverse than the Upper, Post baccalaureate and the Graduate students. The least diverse group was the Post baccalaureate followed by the Graduate students. The GV of the Post baccalaureate group was consistently lower than the other groups for Fall 2006-2011.

The results of the data analysis suggest that Lower and Upper division students in the CSU system lose much of their diversity as they progress through the system. This may reflect the differential effect of university education on different ethnic groups.