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Urban versus Rural Community Colleges: A National Study of Student Gender and Ethnicity

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Methodology

[Urban versus Rural Community Colleges: A National Study of Student Gender and Ethnicity](#)

Approximately half of the U.S. population currently lives in suburban locales, one-fourth in big cities, and another fourth in small towns and rural areas. Hodgkinson (2003) indicates that the U.S. population is undergoing an increasing migration into rural areas. This relocation holds many challenging and ominous implications for urban and rural higher education as colleges and universities struggle to meet the divergent needs of shifting demographics. Public community colleges are especially impacted by these changes in student populations.

Honeyman and Sullivan (2006) identified three critical issues faced by administrators of community colleges: (1) continuation of open access policies; (2) establishment of an accrediting body for community colleges; and (3) formation of partnerships with vocational colleges. Minority students are most likely to be impacted by loss of open access. The California Postsecondary Education Commission (2006), likewise, identified three major issues currently affecting California community colleges in rural and remote areas: (1) diverse student needs; (2) rural community colleges receiving less funding and more legislative funding cuts than their urban counterparts; and (3) restrictive administrative policies that limit rural community colleges from expanding their programs.

Substantial shifts in demographics may further complicate the problems faced by public rural community colleges. The demise of open access, a cornerstone in community college education, may loom eminently near. Pennington, Williams, and Karvonen (2006) identified a host of problems brought on by changes in student demographics. Funding, grants, and technology were particularly highlighted. Waller, Flannery, Adams, Bowen, Norvell, Sherman, et.al. (2007) identified inequities in ad valorem tax revenue between metropolitan and non-metropolitan public community colleges in the Lone Star State.

Bolman and Deal (1995) and Lyson (2002) emphatically discussed the importance of educational institutions to the well-being of rural communities. Public community colleges often serve as the educational fulcrum upon which much of the local economy depends. They provide a skilled workforce to meet local need. Without their efforts many critical employment fields would not be assessable to rural communities. Access to meaningful employment for minority populations residing in rural areas is clearly linked with access to higher education opportunity and services.

McHewitt (1993) found significant differences in graduation rates among Virginia Community College institutions with age, race, and gender related to successful completion of an award (i.e., certificate, diploma, or associate degree). The researcher also found that students who initially enrolled full-time were five times more likely to graduate than part-time students.

Fischer (2007) indicated that minority student enrollment in higher education has increased significantly over the last 30 years. African-American student enrollment increased by 14.9%, and Hispanic/Latino enrollment increased by 25.4%. The numbers of international students also increased with over a half

million enrolled in American higher education institutions and over 80,000 of these enrolled in community colleges during the 2005 to 2006 academic year (Chen, 2007).

Beekhoven, De Jong, and Van Hout (2004) studied 520 university students in the Netherlands to determine if ethnicity (Dutch versus non-Dutch) affected perception of personal problems and “study progress.” Minority (non-Dutch) students felt that they were not as integrated as their Dutch counterparts. They perceived themselves to have more personal problems. The researchers found that minority students faced more challenges than those in the majority and were more likely to drop out of school. Fischer (2007) found that lack of “formal academic ties” as well as “informal social ties” with both professors and other students were strongly associated with attrition rates.

Cole, Matheson, and Anisman (2007) studied 273 students at a predominantly White Canadian university to determine if negative stereotypes of minorities would affect academic performance. Even though minority students had similar expectations of academic success at the beginning of the school year, they exhibited higher levels of anxiety and depression at the end of the school year. Conversely, students who had higher levels of anxiety and depression at the end of the school year had poorer grades.

In a study of 4,655 individuals enrolled in higher education, 349 of whom were enrolled part-time, Stratton, O’Toole, and Wetzel (2007) found that “racial and ethnic characteristics had a greater impact on those initially enrolled part-time” (p. 453) versus full-time. In other words, if an individual was a minority and enrolled part-time, the chances of dropping out increased. The Washington State Board for Community and Technical Colleges (2005) compiled a progress report of Washington community and technical colleges. They found that although minority students had “equitable” access to community colleges, the dropout rate was higher for these students and most of them were not as “college ready” as their majority counterparts.

Current federal definitions for degree of urbanization were utilized in this study. “City” refers to populations from inside an urbanized area and inside a principle city greater than or equal to 100,000. The classification of “suburban” refers to populations inside an urbanized area but outside a principle city. “Town” is described as a territory inside an urban cluster but outside an urbanized area. “Rural” refers to an area outside an urbanized area (IPEDS, 2007).

Purpose

The researchers examined student gender and ethnicity in public two-year, degree-granting community colleges by the four major degree of urbanization classifications of city, suburban, town, and rural. The following four research questions were explored:

1. What is the gender distribution at public two-year, degree-granting community colleges by the four major degree of urbanization classifications of city, suburban, town, and rural?
2. What is the ethnicity distribution at public two-year, degree-granting community colleges by the four major degree of urbanization classifications of city, suburban, town, and rural?
3. What differences in gender distribution exists between and among public two-year, degree-granting community colleges by the four major degree of urbanization classifications of city, suburban, town, and rural?

rural?

4. What differences in the distribution of ethnicity exists between and among public two-year, degree-granting community colleges by the four major degree of urbanization classifications of city, suburban, town, and rural?

The analysis utilized national data extracted from the Integrated Post-Secondary Education Data System (IPEDS). The data include the limitations traditionally associated with institutional self-reporting and estimation of enrollment patterns. The most current information available at the time of the study was for the 2005 academic year (AY 2005). Extracted data correspond to the public 2-year sector and degree granting status. The study was delimited to the primary degrees of urbanization provided through the IPEDS data cutting tool. Sub-degrees were combined into the primary urbanization degrees of city, suburban, town, and rural.

“City” was defined as within an urbanized area and a principal city. “Suburban” was within an urbanized area but outside a principal city. “Town” was outside an urbanized area but containing an urbanized cluster. “Rural” was defined by default as outside an urbanized area without an urbanized cluster. Although data for American Samoa, the Commonwealth of the Northern Mariana Islands, Guam, and the Virgin Islands are generally included in the IPEDS extractions, they were omitted from this study. (IPEDS, 2007)

The data set provided institutional reports of AY 2005 headcounts by the classifications of total enrollment, male, female, white non-Hispanic, black non-Hispanic, Hispanic, Asian or Pacific Islander, Native American or Native Alaskan, ethnicity unknown, and non-resident alien. The percentages of each demographic were calculated by the following formulas:

1. Percentage Male = Male Headcount / Total Headcount;
2. Percentage White non-Hispanic = White non-Hispanic Headcount / Total Headcount;
3. Percentage Black non-Hispanic = Black non-Hispanic Headcount / Total Headcount;
4. Percentage Hispanic = Hispanic Headcount/Total Headcount;
5. Percentage Asian/Pacific Islander = Asian/Pacific Islander Headcount / Total Headcount;
6. Percentage Native American/Alaskan = Native American/Alaskan Headcount/ Total Headcount;
7. Percentage Unknown Ethnicity = Unknown Ethnicity Headcount/ Total Headcount; AND
8. Percentage Non-Resident Alien = Non-Resident Alien Headcount / Total Headcount.

Statistical Packages for the Social Sciences (SPSS) was utilized to obtain descriptive statistics and to conduct multiple-factor analysis of variance (ANOVA) to examine differences between and among the several variables. The statistical testing utilized a significance level of 0.05. Post hoc analyses were conducted where required to address the third and fourth research questions. The post hoc analyses utilized the Dunnett T3 and did not assume homogeneity of variances.

Findings

Descriptive analysis of gender and ethnicity is provided in Appendix 1. Gender and ethnicity categories are subdivided into classifications of city, suburban, town, rural, and total. Analyses indicated that public two-year, degree granting institutions are composed of 59.3% female and 40.7% male enrollment. Rural institutions posted the highest percentage of female enrollment at 60.5% followed by 59.5% in their town counterparts. Suburban colleges indicated the lowest percentage of female enrollment at 58.1%, only slightly higher than the 58.7% female enrollment of city colleges. Though national demographics for public two-year, degree-granting colleges were predominantly female, rural institutions provided higher percentages of females while suburban colleges enrolled the highest percentages of males.

The study provided student demographics for the 1,043 public two-year, degree-granting colleges as follows: 64.8% white non-Hispanic, 13.6% black non-Hispanic, 9.3% Hispanic, 3.9% Asian/Pacific Islander, 3.0% Native American/Native Alaskan, 4.6% ethnicity unknown, and 0.8% non-resident alien. City colleges provided the lowest white non-Hispanic enrollment at 55.5% and the highest black non-Hispanic, Hispanic, and non-resident alien enrollments of 16.3%, 14.2%, and 1.3%. Suburban colleges followed suit with demographics of 60.8% white non-Hispanic, 12.8% black non-Hispanic, 11.9% Hispanic, 6.3% Asian/Pacific Islander, 0.7% Native American/Native Alaskan, 6.2% unknown, and 1.2% non-resident alien.

Town and rural colleges tracked closely together in all ethnicity categories. Town institutions indicated the highest percentage of white non-Hispanic enrollments at 73.6% and the lowest black enrollments at 10.9%. For town colleges, Hispanic, Asian/Pacific Islander, Native American/Native Alaskan, unknown, and non-resident alien enrollments were 6.3%, 2.1%, 3.1%, 3.5%, and 0.5% respectively. Rural colleges posted the highest Native American/Native Alaskan enrollments at 6.2% and lowest Hispanic, Asian/Pacific Islander, and non-resident alien enrollments at 5.1%, 1.8%, and 0.4%. Black non-Hispanic and unknown enrollments were 13.7% and 3.5%.

The wide ranges in gender and ethnicity percentages warranted further analysis. Results of the multiple-factor analysis of variance (ANOVA) are provided in Appendix 2. Significant differences between public two-year, degree granting colleges were identified in regard to gender and all classifications of ethnicity. Significance was 1.5% for gender. Significance levels for ethnicity were 0.1% for white non-Hispanic, 0.2% for black non-Hispanic, 0.1% for Hispanic, 0.1% for Asian/Pacific Islander, 0.1% for Native American/Native Alaskan, 0.1% for unknown, and 0.1% for non-resident alien. All significance levels fell well below the 5.0% threshold.

Post hoc analysis is provided in Appendix 3 and utilized a significance level of 5.0%. Suburban and rural public two-year, degree granting institutions differed in student gender. Suburban institutions indicated a higher percentage of male enrollments than their rural counterparts. The rural colleges posted greater percentages of female enrollments.

Examination of student ethnicity indicated that town and rural colleges enrolled higher percentages of white non-Hispanic students than their sister institutions in city and suburban areas. City colleges served higher percentages of black enrollments than their town counterparts. City and suburban institutions were closely linked and indicated higher percentages of Hispanic, Asian/Pacific Islander, unknown, and non-resident alien enrollments than town and rural colleges. Rural institutions posted higher percentages of Native American/Native Alaskan enrollments than city and suburban colleges.

Perhaps the most startling demographic differences occur in the percentages of Hispanic enrollments in city and suburban colleges when compared to town and rural institutions. The former enrollments more than doubled the latter.

Conclusions and Recommendations for Further Research

Community college enrollments clearly differ in gender and ethnicity when examined in light of degrees of urbanization. Colleges with higher degrees of urbanization track closely together in contrast to those with lesser degrees of urbanization. Questions arise as to why urbanized colleges have greater percentages of Hispanic and black students than non-urbanized counterparts. Why does the percentage of Hispanic enrollment in city and suburban colleges more than double that in town and rural institutions? What issues are driving these enrollment trends? Do population demographics differ so widely between urban and rural areas that such has affected college enrollments? Are other issues causing the enrollment percentages to diverge? Do urbanized institutions more adequately meet the needs of Hispanic students? Do non-urbanized institutions lack the educational resources required to adequately serve their Hispanic populations? The questions are endless.

Given disparities in minority enrollments, policy and decision makers must recognize the importance of public community colleges in providing minority access to higher education. Failure to address access will only serve to further exclude already excluded segments of the population. Additional research is called for to more adequately examine issues related to minority enrollments in higher education. The following national studies of public two-year, degree-granting colleges are suggested.

1. Population demographics should be examined in relation to degrees of urbanization. Do differences in population ethnicities exist between and among the four major classifications of urbanization? How closely do college student ethnicities parallel the demographics of their service areas?
2. Faculty demographics should be reviewed in regard to the degree of urbanization of public two-year, degree granting colleges. Do differences exist in regard to faculty demographics by degree or urbanization? Do faculty demographics track or diverge from student demographics? Are adequate faculty role models provided to attract and retain minority students?
3. Primary revenue streams of student tuition, ad valorem property taxes, and state funding should be examined in relation to student ethnicity and institutional degree of urbanization. Do differences exist between and among primary revenue streams in light of student demographics and the institutional degree of urbanization?
4. Student enrollment patterns should be examined by ethnicity and by the degree of institutional urbanization. Are minority students more likely to enroll on a part-time or full-time basis? Do these enrollment patterns differ between and among the four major classifications of urbanization?

Additional areas of research are also suggested in regard to all two-year degree granting institutions whether public or not. Questions arise as to the status of the private educational sector. The following studies are suggested.

1. Student demographics of gender and ethnicity should be examined for public as well as private institutions. Do differences exist between and among public, private-not-for-profit, and private-for-profit

two-year degree granting colleges? Do private-not-for-profit colleges experience shifts in student demographics based on the institutional degree of urbanization? Do student demographics at private-for-profit institutions parallel their public and private-not-for-profit counterparts based on the institutional degree of urbanization?

2. Faculty demographics should be reviewed against the degree of urbanization of the indicated classifications of institutions. Do differences exist in faculty demographics by degree or urbanization? Are adequate role models provided? Do faculty demographics track or diverge from student demographics?

3. Student enrollment patterns should be examined in light of gender, ethnicity, and degree of urbanization for private-not-for-profit and private-for-profit two-year, degree-granting colleges. Do these demographics differ from those of public institutions?

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Appendix 1

Demographic Percentage of Enrollment for Public Two-Year, Degree-Granting Community Colleges

Demographic	Classification	N	Mean	Std. Deviation	Minimum	Maximum
Male	City	306	41.3%	8.1%	12.6%	90.4%
	Suburban	186	41.9%	7.0%	24.7%	72.9%
	Town	248	40.5%	9.9%	20.8%	84.3%
	Rural	303	39.5%	9.7%	19.3%	89.8%
	Total	1,043	40.7%	8.9%	12.6%	90.4%
Female	City	306	58.7%	8.1%	9.6%	87.4%
	Suburban	186	58.1%	7.0%	27.1%	75.3%
	Town	248	59.5%	9.9%	15.7%	79.2%
	Rural	303	60.5%	9.7%	10.2%	80.7%

	Total	1,043	59.3%	8.9%	9.6%	87.4%
White	City	306	55.5%	25.1%	0.0%	95.8%
Non-Hispanic	Suburban	186	60.8%	22.8%	0.0%	95.5%
	Town	248	73.6%	20.3%	0.0%	98.6%
	Rural	303	69.3%	23.0%	0.6%	99.2%
	Total	1,043	64.8%	21.1%	0.0%	99.2%
Black	City	306	16.3%	17.8%	0.0%	94.6%
Non-Hispanic	Suburban	186	12.8%	14.1%	0.0%	77.6%
	Town	248	10.9%	14.6%	0.0%	92.8%
	Rural	303	13.7%	17.2%	0.0%	95.1%
	Total	1,043	13.6%	16.4%	0.0%	95.1%
Hispanic	City	306	14.2%	18.1%	0.0%	100.0%
	Suburban	186	11.9%	15.9%	0.0%	100.0%
	Town	248	6.3%	11.3%	0.0%	82.7%
	Rural	303	5.1%	10.0%	0.0%	86.9%
	Total	1,043	9.3%	14.8%	0.0%	100.0%
Asian/ Pacific Islander	City	306	6.0%	10.6%	0.0%	100.0%
	Suburban	186	6.3%	9.7%	0.0%	77.1%

	Town	248	2.1%	9.8%	0.0%	100.0%
	Rural	303	1.8%	5.5%	0.0%	67.0%
	Total	1,043	3.9%	9.25	0.0%	100.0%
Native American	City	306	1.2%	5.8%	0.0%	100.0%
Native Alaskan	Suburban	186	0.7%	0.8%	0.0%	9.7%
	Town	248	3.1%	10.3%	0.0%	90.6%
	Rural	303	6.2%	19.5%	0.0%	99.1%
	Total	1,043	3.0%	12.3%	0.0%	100.0%

Appendix 1 Continued

Demographic Percentage of Enrollment for Public Two-Year, Degree-Granting Community Colleges

Demographic	Classification	N	Mean	Std. Deviation	Minimum	Maximum
Unknown	City	306	5.5%	6.1%	0.0%	40.4%
	Suburban	186	6.2%	8.6%	0.0%	100.0%
	Town	248	3.5%	5.5%	0.0%	35.0%
	Rural	303	3.5%	5.9%	0.0%	60.2%
	Total	1,043	4.6%	6.5%	0.0%	100.0%
Non-Resident	City	306	1.3%	2.3%	0.0%	15.2%
Alien	Suburban	186	1.2%	1.7%	0.0%	8.9%

Town	248	0.5%	1.2%	0.0%	14.1%
Rural	303	0.4%	0.8%	0.0%	7.6%
Total	1,043	0.8%	1.7%	0.0%	15.2%

Appendix 2

ANOVA for Demographic Percentage of Enrollment for Public Two-Year, Degree-Granting Community Colleges

Demographic	Classification	Sum of Squares	df	Mean Squares	F	Sig.
Gender	Between Groups	0.083	3	0.028	3.492	.015
	Within Groups	8.197	1039	0.008		
	Total	8.280	1042			
White	Between Groups	5.461	3	1.820	34.325	.001
	Within Groups	55.101	1039	0.053		
	Total	60.562	1042			
Black	Between Groups	0.405	3	0.135	5.089	.002
	Within Groups	27.589	1039	0.027		
	Total	27.994	1042			
Hispanic	Between Groups	1.625	3	0.542	26.510	.001
	Within Groups					
	Total					

	Within Groups	21.233	1039	0.020		
	Total	22.858	1042			
Asian	Between Groups	0.449	3	0.150	18.408	.001
Pacific Islander	Within Groups	8.454	1039	0.008		
	Total	8.903	1042			
Native American	Between Groups	0.510	3	0.170	11.637	.001
Native Alaskan	Within Groups	15.166	1039	0.015		
	Total	15.675	1042			
Unknown	Between Groups	0.145	3	0.048	11.670	.001
	Within Groups	4.304	1039	0.004		
	Total	4.449	1042			
Non-Resident	Between Groups	0.017	3	0.006	21.314	.001
Alien	Within Groups	0.272	1039	0.001		
	Total	0.288	1042			

Appendix 3

Post Hoc Analysis for Demographic Percentage of Enrollment for Public Two-Year, Degree-Granting

Community Colleges

Demographic	Classification	Classification	Mean Difference	Std. Error	Significance
Gender	City	Suburban	-0.006	0.007	.929
		Town	0.008	0.008	.915
		Rural	0.018	0.007	.082
	Suburban	City	0.006	0.007	.929
		Town	0.014	0.008	.423
		Rural	0.024	0.008	.009
	Town	City	-0.008	0.008	.915
		Suburban	-0.014	0.008	.423
		Rural	0.010	0.008	.773
Rural	City	-0.018	0.007	.082	
	Suburban	-0.024	0.008	.009	
	Town	-0.010	0.008	.773	
White	City	Suburban	-0.053	0.022	.095
Non-Hispanic		Town	-0.181	0.019	.001
		Rural	-0.138	0.020	.001
	Suburban	City	0.053	0.022	.095

		Town	-0.128	0.021	.001
		Rural	-0.085	0.021	.001
	Town	City	0.181	0.019	.001
		Suburban	0.128	0.021	.001
		Rural	0.043	0.018	.120
	Rural	City	0.138	0.020	.001
		Suburban	0.085	0.021	.001
		Town	-0.043	0.018	.120
Black	City	Suburban	0.034	0.015	.107
Non-Hispanic		Town	0.053	0.014	.001
		Rural	0.026	0.014	.333
	Suburban	City	-0.034	0.015	.107
		Town	0.019	0.014	.671
		Rural	-0.008	0.014	.994
	Town	City	-0.053	0.014	.001
		Suburban	-0.019	0.014	.671
		Rural	-0.027	0.014	.243
	Rural	City	-0.026	0.014	.333
		Suburban	0.008	0.014	.994

Town	0.027	0.014	.243
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Appendix 3 Continued

Post Hoc Analysis for Demographic Percentage of Enrollment for Public Two-Year, Degree-Granting Community Colleges

Demographic	Classification	Classification	Mean Difference	Std. Error	Significance	
Hispanic	City	Suburban	0.023	0.016	.589	
		Town	0.079	0.013	.001	
		Rural	0.091	0.012	.001	
	Suburban	City	City	-0.023	0.016	.589
			Town	0.056	0.014	.001
			Rural	0.068	0.013	.001
		Town	City	-0.079	0.013	.001
			Suburban	-0.056	0.014	.001
			Rural	0.012	0.009	.747
	Rural	City	-0.091	0.012	.001	
		Suburban	-0.068	0.013	.001	
		Town	-0.012	0.009	.747	
Asian	City	Suburban	-0.004	0.010	.999	
Pacific Islander		Town	0.039	.0009	.001	

		Rural	0.041	0.007	.001
	Suburban	City	0.004	0.010	.999
		Town	0.042	0.009	.001
		Rural	0.045	0.008	.001
	Town	City	-0.039	0.009	.001
		Suburban	-0.042	0.009	.001
		Rural	0.003	0.007	.999
	Rural	City	-0.041	0.007	.001
		Suburban	-0.045	0.008	.001
		Town	-0.003	0.007	.999
Native	City	Suburban	0.006	0.003	.455
American		Town	-0.019	0.007	0.68
Native		Rural	-0.050	0.012	.001
Alaskan	Suburban	City	-0.006	0.003	.455
		Town	-0.024	0.007	.002
		Rural	-0.055	0.011	.001
	Town	City	0.019	0.007	.068
		Suburban	0.024	0.007	.002

		Rural	-0.031	0.013	.094
	Rural	City	0.050	0.012	.001
		Suburban	0.055	0.011	.001
		Town	0.032	0.013	.094

Appendix 3 Continued

Post Hoc Analysis for Demographic Percentage of Enrollment for Public Two-Year, Degree-Granting Community Colleges

Demographic	Classification	Classification	Mean Difference	Std. Error	Significance
Ethnicity	City	Suburban	-0.007	0.007	.883
Unknown		Town	0.020	0.005	.001
		Rural	0.020	0.005	.001
	Suburban	City	0.007	0.007	.883
		Town	0.028	0.007	.001
		Rural	0.028	0.007	.001
	Town	City	-0.020	0.005	.001
		Suburban	-0.028	0.007	.001
		Rural	0.001	0.005	1.000
	Rural	City	-0.020	0.005	.001
		Suburban	-0.028	0.007	.001

		Town	-0.001	0.005	1.000
Non-Resident	City	Suburban	0.001	0.002	.999
Alien		Town	0.008	0.002	.001
		Rural	0.009	0.001	.001
	Suburban	City	-0.001	0.002	.999
		Town	0.007	0.001	.001
		Rural	0.008	0.001	.001
	Town	City	-0.008	0.002	.001
		Suburban	-0.007	0.001	.001
		Rural	0.001	0.001	.707
	Rural	City	-0.009	0.001	.001
		Suburban	-0.008	0.001	.001
		Town	-0.001	0.001	.707

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