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One-Year Continuation Rates of CSUN Freshmen Planning Majors Housed in Different Colleges (Fall 2000-05 entry cohorts)

by

Bettina J. Huber

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This brief report examines the one-year continuation rates of the first time freshmen entering Cal State Northridge during the 2000-2005 period. The tables and figures summarized below delineate differences in the continuation rates of freshmen with plans to major in disciplines housed in various colleges. In addition, several freshmen entry characteristics are examined, with an eye towards explaining differences in the college-specific continuation rates identified. The analysis suggests that two entry characteristics explain much of the variance in the continuation rates: the average high school GPAs of entering students and the percentage of freshmen needing remediation in mathematics at entry.

Table 1 summarizes the one-year continuation rates of freshmen in selected Fall cohorts who, at entry, were planning majors in different CSUN colleges. The last row of the table displays the average continuation rates by college for the three most recent entry cohorts (Fall 2003, 2004, and 2005). The variation in the year-specific rates shown is modest, ranging from 70% for 2005 Health and Human Development majors to 83% for 2001 Humanities majors. The variation in the three-year averages is still more limited, encompassing only six and a half percentage points. Nonetheless, three groupings are discernable, as is evident from the table below.

Average FTF Continuation Rates by College

Average Continuation Rate	College
79% - 80%	Science and Mathematics Humanities
78%	Undeclared Arts, Media, and Communication Business and Economics
74% - 75%	Engineering and Computer Science Social and Behavioral Sciences Health and Human Development

Although the annual continuation rates of colleges in contiguous groups overlap, those in the first and third groupings defined on the preceding page do not. During the three most recent years for which rates are shown, the continuation rates of colleges in the first grouping have not fallen below 77%, while those for the colleges in the third grouping have not exceeded 77%.

The observed differences in college-specific continuation rates are likely to stem from variation of two kinds: departmental practices for dealing with new freshmen, over which colleges exercise considerable control; and students' entry characteristics, over which they have only limited control. Before examining the first, therefore, it is instructive to investigate the effect of the second.

Table 2 distinguishes the one-year continuation rates of freshmen differing on five entry characteristics: the need for remediation in English or mathematics, high school GPAs, SAT scores, and participation in the EOP program. The rates differ modestly by the need for remediation at entry and participation in the EOP program. Although the continuation rates of students with relatively low composite SAT scores appear to differ, those for students with higher scores (i.e., 926 or higher) do not, thereby restricting the importance of this factor. Students' high school GPAs differentiate the continuation rates of recent freshmen cohorts most clearly, with students whose GPAs do not exceed 2.75 displaying the lowest average continuation rate shown in Table 2 (70%) and students with GPAs of 3.51 or higher displaying the highest rate shown (88%).

The findings summarized in Table 2 suggest that average college-specific continuation rates are most likely to differ by high school GPA, but may also differ by the need for remediation. Although Table 2 shows modest differences by EOP status as well, the number of freshmen involved in the program is too small to account for college-specific differences in continuation rates. Table 3 shows the percentage of students needing remediation at entry by college, while Table 4 shows these same students' average high school GPAs. Both tables list relevant figures for the most recent entry cohorts and averages for the three-year period under consideration. The

college figures shown are arranged in terms of their average one-year continuation rates in an effort to highlight the relationship between the rates and the variable in question. Figures 1-5 take the analysis one step further by coupling average college values on one of the three independent variables with their respective average continuation rates.

Taken together, the top half of Table 3 and Figure 1 indicate that the percentage of students needing remediation in English at entry is not closely related to college-specific one-year continuation rates.[1] In large part, this may be due to lack of variation in the remediation percentages. If one ignores the one unusually low college-specific remediation rate for English (AMC), the lowest and highest differ by only 12 percentage points.

At first glance, the percentage of students needing remediation in mathematics also appears unrelated to the college-specific one-year continuation rates (see the bottom half of Table 3 and Figure 2). This is not due to lack of variation in the percentage of students needing remediation in mathematics at entry: with the exception of one college with an unusually low rate (CECS), it ranges from 44% to 67%.

Given the small number of observations under study, one atypical data point can obscure a relationship between the remainder. And, as Figures 2 and 3 indicate, this is the case here. If one excludes the CECS values from consideration (see Figure 3), a relatively close inverse relationship becomes evident between the college-specific continuation rates and the percentage of students needing remediation in mathematics at entry.[2] More specifically, the data points in Figure 3 suggest that the one-year continuation rates of four colleges (i.e., HUM, AMC, CBAE, CSBS) are more or less what one would expect in the light of the percentage of their freshmen needing

[1] As the R^2 value in Figure 1 indicates, the percentage of entering freshmen needing remediation in English explains only 5% of the variation in the college-specific continuation rates.

[2] A comparison of the R^2 values in Figures 2 and 3 indicates that eliminating the CECS data point from consideration gives rise to an almost eightfold increase in the variance explained (from 6% to 46%).

remediation in mathematics at entry, while the continuation rates of the three others are unexpectedly low or high. In particular, the continuation rates of the Humanities and Undeclared groupings are noteworthy, given the relatively high percentage of freshmen in each needing remediation at entry.

The relationship between the average high school GPAs of freshmen planning to major in different disciplines and the college-specific continuation rates is also stronger than it at first appears. Table 4 and Figure 4 indicate that a fairly clear relationship is discernable from the outset: the average high school GPA of entering students tends to increase along with the average one-year continuation rate of various colleges. If one excludes the atypical data point in Figure 4 (i.e., the Undeclared grouping), the relationship becomes considerably stronger, as is evident from Figure 5.[3] In fact, all but one of the colleges under consideration displays a one-year continuation rate that is quite close to what one would expect, given the average high school GPA of each one's entering freshmen.

In sum, two factors appear to be closely related to Colleges; ability to retain their entering freshmen majors: students' high school GPAs and their need for remediation in mathematics. Since CSUN cannot do much to change the former, attention should probably focus on improving students proficiency in mathematics at entry, perhaps through an intensive summer program just prior to their formal matriculation at the university. The findings summarized above also suggest that entry into the university without a declared major subjects students to practices that foster their persistence. A closer look at these retention practices, as well as at initiatives directed at freshmen planning to major in the Humanities or Science and Mathematics might yield best practices that other colleges could fruitfully emulate.

[3] Once again, elimination of the outlier leads to a marked increase in the variance explained (from 12% to 62%; see the R^2 values in Figures 4 and 5).

Table 1. One-Year Continuation Rates of First Time Freshmen Entering CSUN by College and Fall Entry Term (2000-05)

Fall Entry Term		Science & Mathematics	Humanities	Undeclared	Arts, Media & Commun	Business & Econ.	Engineer & Comp Sci	Social & Behav Sciences	Health & Human Develop
2000	One-year continuation rate	82.1%	81.6%	75.2%	74.1%	79.8%	75.6%	78.7%	72.7%
	Size of entry cohort	173	185	910	320	481	295	249	209
	Enrolled at beginning of third term	142	151	684	237	384	223	196	152
2001	One-year continuation rate	81.7%	83.3%	75.5%	70.6%	71.5%	76.5%	80.1%	75.4%
	Size of entry cohort	202	209	1,050	429	548	302	317	224
	Enrolled at beginning of third term	165	174	793	303	392	231	254	169
2002	One-year continuation rate	80.7%	80.0%	79.5%	79.8%	73.5%	73.9%	78.5%	70.9%
	Size of entry cohort	202	290	1,178	521	581	264	349	265
	Enrolled at beginning of third term	163	232	936	416	427	195	274	188
2003	One-year continuation rate	79.0%	80.7%	79.6%	82.3%	78.5%	73.5%	73.8%	74.8%
	Size of entry cohort	238	296	987	463	623	257	439	286
	Enrolled at beginning of third term	188	239	786	381	489	189	324	214
2004	One-year continuation rate	79.1%	76.9%	78.3%	77.7%	76.7%	76.8%	75.8%	75.6%
	Size of entry cohort	201	186	871	364	536	220	318	262
	Enrolled at beginning of third term	159	143	682	283	411	169	241	198
2005	One-year continuation rate	82.4%	79.8%	76.8%	73.8%	77.4%	75.7%	75.2%	70.4%
(prelim.)	Size of entry cohort	278	258	961	519	656	247	432	331
	Enrolled at beginning of third term	229	206	738	383	508	187	325	233
	Three-Year Average	80.2%	79.2%	78.2%	77.9%	77.5%	75.4%	74.9%	73.6%
	Three-year average for all first time freshmen: **77.3%**								

Source: Retention database maintained by the Office of Institutional Research; CSUN

Table 2. One-Year Continuation Rates of First Time Freshmen Entering During the 2003-05 Period by Selected Entry Characteristics and Fall Entry Term

Characteristic	Fall 2003 Entrants		Fall 2004 Entrants		Fall 2005 Entrants		Three Year Average
	Contin. Rate	Entry Cohort	Contin. Rate	Entry Cohort	Contin. Rate	Entry Cohort	
All First Time Freshmen	78.4	3,610	77.2	2,979	76.3	3,720	77.3
Remediation in English at Entry							
Needed	76.9	2,312	75.1	1,876	72.6	2,292	74.9
Not needed	81.0	1,298	81.0	1,103	82.3	1,428	81.4
Remediation in Mathematics at Entry							
Needed	75.8	2,014	73.5	1,644	71.5	1,952	73.6
Not needed	81.6	1,596	81.9	1,335	81.7	1,768	81.7
High School GPA							
2.75 or less	71.6	802	69.2	608	68.8	706	69.9
2.76 - 3.00	75.3	912	70.9	712	70.0	1,006	72.1
3.01 - 3.50	79.7	1,285	81.3	1,130	79.4	1,371	80.1
3.51 - 4.00	89.0	600	87.2	491	86.6	613	87.6
Composite SAT Scores							
810 or lower	71.7	774	71.8	577	70.3	671	71.3
811 - 925	79.3	784	77.2	615	75.4	703	77.3
926 - 1040	80.0	789	82.2	679	82.0	776	81.4
1041 or higher	79.2	836	81.9	709	82.2	866	81.1
EOP Program							
Participant	80.3	466	78.4	462	80.5	512	79.7
No participation	78.1	3,144	77.0	2,517	75.7	3,208	76.9

Source: Retention database maintained by the Office of Institutional Research; CSUN

Table 3. Percentage of First Time Freshmen Needing Remediation in English or Mathematics at CSUN Entry by College and Fall Entry Term (2003-05)

Fall Entry Term	Proficiency at Entry	Science & Mathematics	Humanities	Undeclared	Arts, Media & Commun	Business & Econ.	Engineer & Comp Sci	Social & Behav Sciences	Health & Human Develop
	English								
2003	percent needing remediation	68.9	58.1	71.9	45.1	62.6	59.1	66.3	75.9
	(number in entry cohort)	(238)	(296)	(987)	(463)	(623)	(257)	(439)	(286)
2004	percent needing remediation	61.2	65.1	69.6	42.9	67.7	63.6	59.1	64.9
	(number in entry cohort)	(201)	(186)	(871)	(364)	(536)	(220)	(318)	(262)
2005	percent needing remediation	61.4	50.4	69.5	46.3	64.2	65.9	62.7	64.2
	(number in entry cohort)	(277)	(258)	(964)	(521)	(659)	(246)	(432)	(332)
	Three-year Average	63.8	57.8	70.3	44.8	64.8	62.9	62.7	68.3
	Mathematics								
2003	percent needing remediation	45.4	63.2	63.5	45.1	47.2	30.4	68.1	70.3
	(number in entry cohort)	(238)	(296)	(987)	(463)	(623)	(257)	(439)	(286)
2004	percent needing remediation	42.3	65.1	60.8	48.9	50.9	30.9	69.2	60.7
	(number in entry cohort)	(201)	(186)	(871)	(364)	(536)	(220)	(318)	(262)
2005	percent needing remediation	44.8	50.0	58.2	50.9	47.8	30.5	63.9	59.6
	(number in entry cohort)	(277)	(258)	(964)	(521)	(659)	(246)	(432)	(332)
	Three-year Average	44.1	59.4	60.9	48.3	48.6	30.6	67.1	63.5

Source: Retention database maintained by the Office of Institutional Research; CSUN

Table 4. Average High School GPA Scores by College and Fall Entry Term (2003-05)

Fall Entry Term		Science & Mathematics	Humanities	Undeclared	Arts, Media & Commun	Business & Econ.	Engineer & Comp Sci	Social & Behav Sciences	Health & Human Develop
2003	Mean	3.18	3.18	2.97	3.13	3.12	3.15	3.07	3.11
	Median	3.15	3.12	2.95	3.09	3.06	3.12	3.03	3.04
	Interquartile range	2.9 - 3.5	2.9 - 3.5	2.7 - 3.3	2.9 - 3.4	2.8 - 3.4	3.8 - 3.5	2.8 - 3.3	2.8 - 3.4
	(no. in entry cohort)	(238)	(296)	(986)	(458)	(621)	(257)	(438)	(284)
2004	Mean	3.20	3.17	2.99	3.20	3.13	3.12	3.10	3.17
	Median	3.16	3.19	3.00	3.15	3.10	3.11	3.07	3.13
	Interquartile range	2.9 - 3.5	2.9 - 3.4	2.7 - 3.3	2.9 - 3.5	2.8 - 3.4	2.8 - 3.4	2.8 - 3.4	2.9 - 3.4
	(no. in entry cohort)	(199)	(185)	(865)	(360)	(525)	(215)	(314)	(257)
2005	Mean	3.22	3.19	3.03	3.11	3.13	3.12	3.07	3.14
	Median	3.18	3.13	3.00	3.08	3.08	3.07	3.00	3.08
	Interquartile range	2.9 - 3.6	2.9 - 3.5	2.8 - 3.3	2.8 - 3.4	2.9 - 3.4	2.8 - 3.4	2.8 - 3.3	2.9 - 3.4
	(no. in entry cohort)	(276)	(258)	(964)	(513)	(650)	(242)	(431)	(331)
	Three-year Average (median)	3.16	3.15	2.98	3.11	3.08	3.10	3.03	3.08

Source: Retention database maintained by the Office of Institutional Research; CSUN

Figure 1. Colleges' One-Year Continuation Rates by Need for Remediation at Entry in English

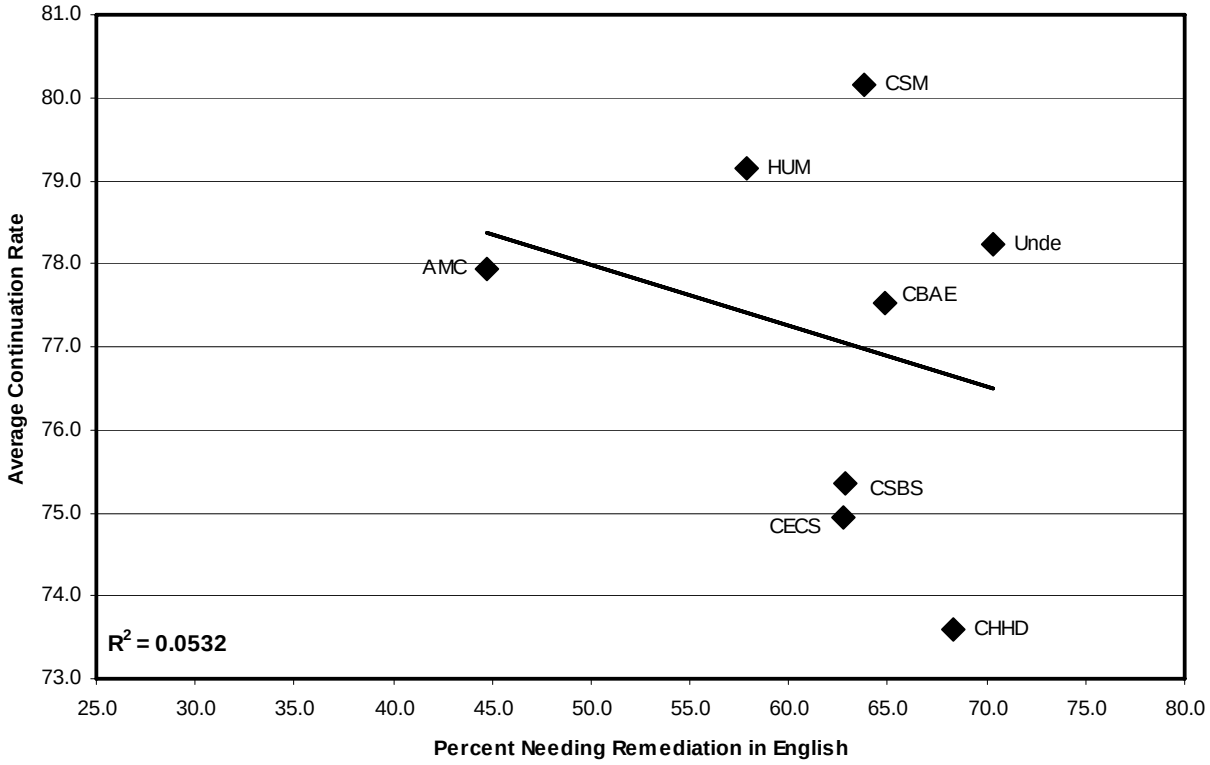

Figure 2. College One-Year Continuation Rates by Need for Remediation at Entry in Mathematics

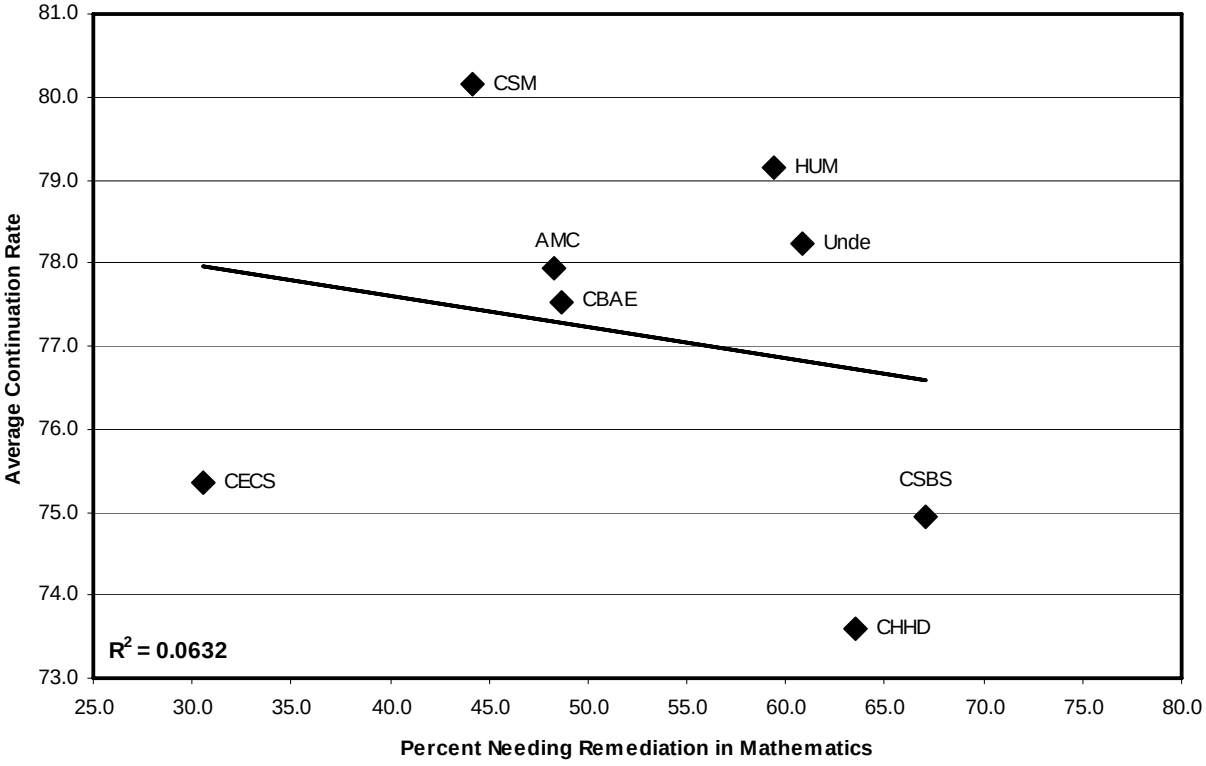

Figure 3. College One-Year Continuation Rates by Need for Remediation at Entry in Mathematics (Engineering & Computer Science excluded from regression)

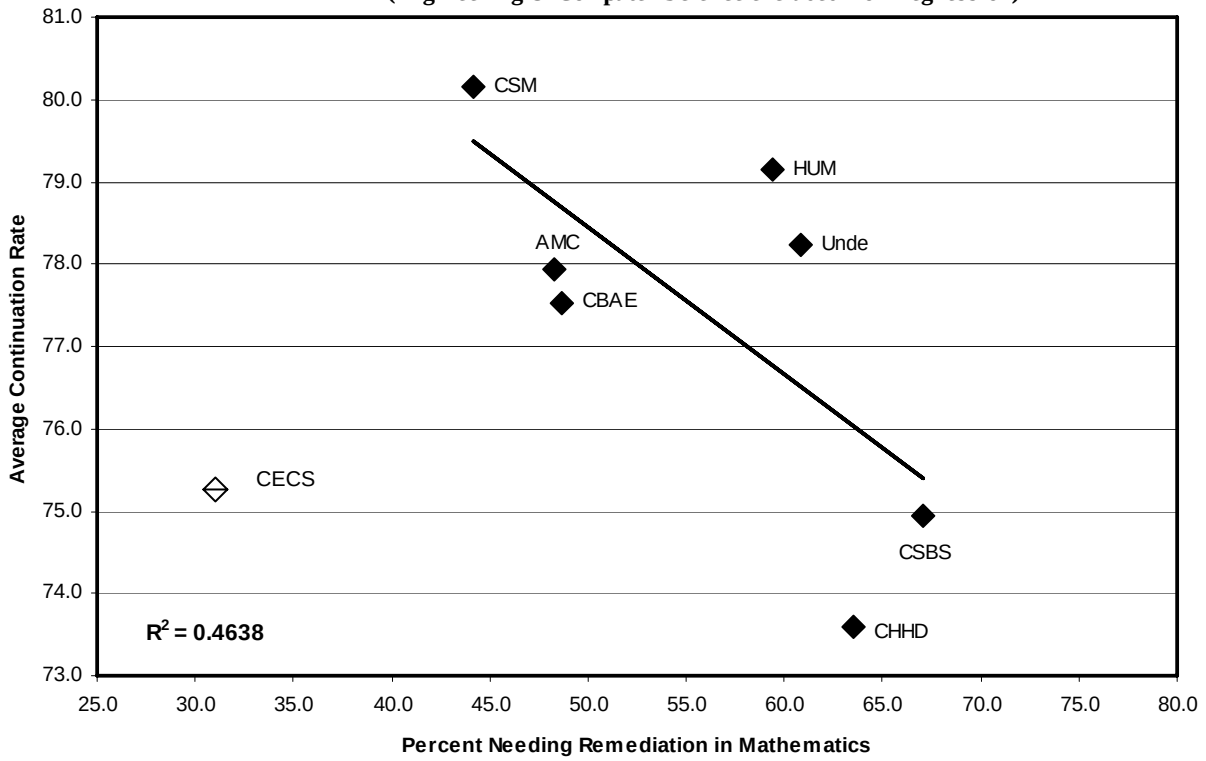

Figure 4. College One-Year Continuation Rates by Median High School GPA

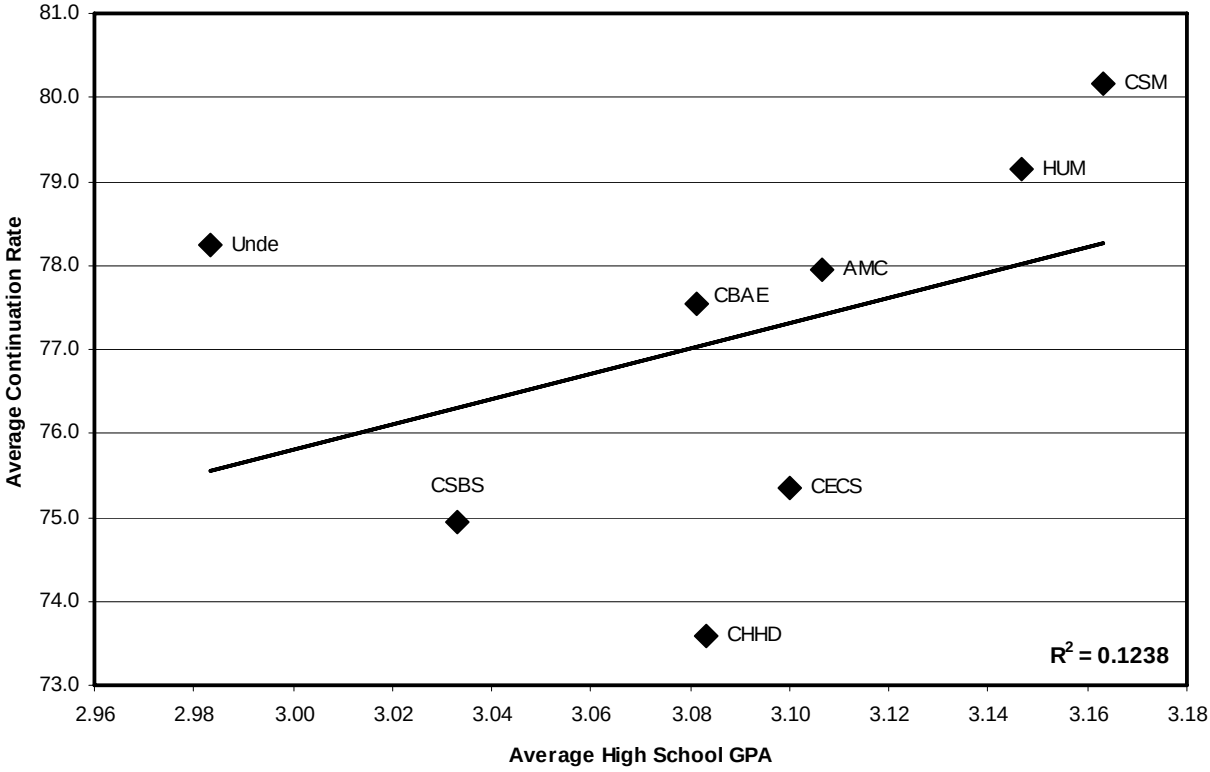

Figure 5. College One-Year Continuation Rates by Median High School GPA
(Undeclared grouping excluded from regression)