

Examining the impact of adopting a compressed calendar on college wide FTES, course success and student persistence

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Since the Fall of 1998, over 50 California Community College have adopted a compressed calendar format for their college's standard semester course offerings. A total of 53 colleges adopted either a 16 or 17 week version of a compressed calendar over the period 1998 to 2014 with 48 of them moving to the 16 week variety. The corresponding figures for California community college districts over that period are 32 adopting some version of a compressed calendar with 30 of those districts moving to a 16 week compressed calendar.

The Contra Costa Community College District Research Office conducted an investigation into the role compressed calendars have on California Community Colleges by gathering data on full-time enrolled students (FTES), course success, and term-to-term retention rates from the California Community Colleges Chancellor's Office website. The research methodology used in this analysis builds on the research conducted by San Joaquin Delta College in 2008, which itself was a system-wide study which found that the move to a compressed calendar tended to be associated with noticeable increases in both student success and persistence rates and no significant impact on college wide FTES.

The key research questions explored in this CCCCD investigation include:

- 1) Was the transition to a compressed calendar associated with a change in college FTES?
- 2) Was the transition to a compressed calendar associated with a rise or fall in course success rates?
- 3) Was the transition to a compressed calendar associated with a change in the rate of student retention?

A list provided from the Chancellor's Office was used to identify the colleges that were on compressed calendars which included information indicating the first academic year each college began their adoption of the compressed calendars. Data from the Chancellor's Office Data Mart were obtained from colleges if they met two predetermined qualifications: (a) were semester-based and (b) FTES, success, and retention data were available. After screening the colleges, 48 California Community Colleges met both criteria. FTES, success, and retention rate data were subsequently obtained for each of the colleges (note that the San Joaquin Delta study examined data from only 33 colleges). Similar data was collected on colleges not making any change to the course calendars to serve as a control group for the analysis. A total of 44 colleges met the two criteria for entrance into the control group.

Of the colleges making a transition to a shortened calendar, many of them made the transition to a shortened semester between 2001 and 2002, however, a significant number of colleges made their transition during the subsequent twelve years. All 48 community colleges examined in this study

shortened their semesters to 16 weeks and all provided students with summer sessions. Of the 48 colleges, 41 colleges also included winter intersessions.

Methodology

Independent Means t-tests were used to determine whether there were differences before and after the colleges made the change to shortened semesters. A three year average was used for each metric, calculated for the three years immediately prior to the conversion and the three years immediately following the conversion. These three year averages were calculated for FTES, course success rates and persistence rates at each of the examined colleges and the before and after averages were compared using the independent Means t-test.

In choosing the time periods for the colleges in the control group, adjustments were made, where possible to group colleges into geographic clusters and common time periods to be used in the analysis were assigned for each of those clusters. For example, several colleges in the Bay Area made the switch to a compressed calendar in 2001/02. Therefore, other college in the Bay Area not making the switch to compressed calendar and placed in the control group were assigned the same time period for the analysis. This accommodation wasn't possible for every college, in which case we chose a time period in common with most of the colleges in the treatment group.

Summary of Findings

No significant impact on overall FTES

Colleges having made the switch to compressed colleges experienced a 3.9% increase in the post three year average FTES value while the benchmark control group of colleges experienced a 3.2% increase. This difference between the growth median FTES for the compressed calendar groups and that of the control group was not found to be statistically significant at the 90% confidence level.

Modest impact on residential FTES

Because the FTES figures reported by the Chancellor's office include smoothing factors that capture, among others, district borrowing and don't differentiate between residential and non-residential FTES, a second layer analysis was conducted on residential FTES obtain from the 320 data reports submitted to the state's Chancellors Office. A constraint when using this data is that college level data is not available, so the level of analysis is limited to the District level of operation.

Examining this district level data we find that residential FTES for district's adopting a switch to a compressed calendar experienced an increase of increased by 4.1% while district's in cohort group saw residential FTES increase by 2.9%. A difference of means test on the rates of change revealed that this difference between the two groups was significant at the 90% confidence level.

While the difference didn't meet the higher 99% confidence achieved in the other tests (see below), this level of confidence is strong enough to suggest that the district's adopting to switch to a compressed-calendar format experienced an above expected rise in residential FTES associated with the making the calendar switch.

Statistically significant improvement in course success rates

Students in colleges switching to a compressed calendar collectively experienced an increase in overall course success rates from 65.2% to 66.5%, an improvement of 1.3 percentage points. This difference does represent a statistically significant improvement in course success rates at the rigorous 99% confidence level. By comparison the control group experienced a modest decline in the same success rates, dropping from 67.0% to 66.4%.

Statistically significant improvement in student persistence rates

To examine persistence rates we chose to use the nearest Fall-to-Spring period associated with before and after switch time period. So for a college making the switch to a compressed calendar in Fall 2008, the pre-switch persistence rates were calculated for Fall '07 to Spring '08 and the two previous fall-to-spring periods to obtain the three year average.

Students in colleges switching to a compressed calendar experienced a 1.2 percentage point increase in their Fall-to-Spring persistence rates, a rise from 81.0% to 82.2% associated with the time period of the switch. As it was for course success, this difference does represent a statistically significant improvement in student persistence at the 99% confidence level. By comparison the control group experienced a modest increase in persistence rates, rising 0.4 percentage points, from 81.3% to 81.7%. This increase in the persistence rate for the control group was not found to be statistically significant at either the 99% or 95% confidence level.

Conclusion

Based on this analysis, the evidence suggests that moving to a compressed 16 week calendar is associated with statistically significant increases in both course success rates and term-to-term persistence rates. The impact on course success rates was particular strong, given that the colleges in the control group experienced a modest decline in success rates. The increase in student persistence associated with switching to a compressed calendar was sufficiently above that of the control group to indicate that the difference was statistically significant and suggesting that a switch to a compress calendar is associated with a rise in student persistence.

The examination of the evidence explaining the association of compressed calendar colleges with growth in overall FTES revealed a higher growth in overall FTES for those colleges over that of the control group, but not a statistically significant level. However, when similar analysis was performed on the trends in *residential FTES* at the district level, the findings did show a statistically significant rise in residential FTES for districts switching to a compressed calendar over the benchmark control group.

Data Tables

Table 1. Means and t-test Results: Course Success and Retention Rates, Before & After Changing to a 16-Week Semester: **Treatment Group**

Variable	Mean	t-test	Prob. Significant
Course Success			
Before change	65.2%		
After change	66.5%	-2.66	.008 **
Student Retention			
Before change	81.0%		
After change	82.2%	-2.74	.009 **

Note ** $p < .01$

Table 2. Means and t-test Results: Course Success and Retention Rates: **Control Group**

Variable	Mean	t-test	Prob. Significant
Course Success			
Before change	67.0%		
After change	66.4%	-1.49	.159
Student Retention			
Before change	81.3%		
After change	81.7%	-1.50	.198

Note: neither t-test was significant at either the 99% or 95% confidence level.