Correlations between Summer Session Enrollments and Economic Fluctuations

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Introduction

There has been considerable debate and speculation about what, if any, correlations there are between fluctuations in the U.S. economy and enrollments in university summer schools. In good economic times it seems that summer session enrollments are weak; in bad economic times the inverse seems to be the case. The reasoning is that bad economic times limit available summer jobs, so students have more incentives to go to summer school or, negatively put, less incentive to look for a job. If a correlation were to exist, it would give summer session directors the ability to make informed predictions about enrollments.

The ability to predict—at least to some extent—the likelihood that summer session enrollments will increase or decrease is critically important to every summer session director. Enrollments drive almost all aspects of the summer session: number of classes offered; number of faculty employed; number of dorm beds occupied; amount of marketing done; and, of course, the bottom line. If a summer session directors are able to predict that enrollments will increase, they can make smart investments in course development, launch new programs, and hone marketing strategies. Conversely, if they know that enrollments will decline, they can take proactive measures to minimize financial risk,

notify faculty in advance that fewer courses will be offered, and work with campus administrative offices to adjust to the decline in enrollment. As in all other parts of life, predictability is a stress reducer.

In an effort to determine if institutions ultimately rest on empirical foundations, I examined national economic fluctuations over a thirty-two year period and compared them to fluctuations in enrollments at 28 universities. The 28 institutions listed below in Table I are institutions for which enrollment data were available and reported (more or less) consistently from 1970-2002.

The remainder of this paper is an explanation of the research and its implications. Before proceeding, however, a disclaimer is in order. The data is interesting but it is not conclusive. More research is needed with greater refinement by individual states and regions. Economic periods are rather long, and the state of the national economy is often in contrast to economic situations in individual regions or states. For example, during the second half of the 1990s the national economy was booming, while the regional economy of the northeast was sluggish. The relationship between economic fluctuations and summer session enrollments is much more complex than the data indicate at first blush. This varies by type of institution, so the picture becomes murky quickly. I say more about this at the end of this essay, but it's important to keep in mind from the outset that what is presented here is a rather broad-stroke look at economic changes and summer enrollment ebbs and flows. Reliable conclusions can be drawn only after considerably more research.

It is also important to note that correlation does not guarantee causation. Hence, even though there are correlations between certain economic fluctuations and enrollment changes, we do not have sufficient data to definitively state that the economic fluctuations *caused* the enrollment changes.

The Study

Since I am not an economist, I hired an Illinois graduate student in economics, Sarah Jackson, to help me identify economic trends. I am indebted to the Theresa Neil Memorial Research Fund and the associated sponsorship of the Association of University Summer Sessions (AUSS), North American Association of Summer Sessions (NAASS), the North Central Conference on Summer Schools (NCCSS) and the Western Association of Summer Session Administrators (WASSA) for funding this research. I am particularly indebted to Les Coyne and his staff at Indiana University for providing three decades of summer session enrollment data to serve as the foundational material for calculating enrollment trends.

To identify economic trends we used the seasonally adjusted annual

gross domestic product (GDP) in billions of chained 2000 U.S. dollars.[1] The GDP is the total value of goods and services produced by a nation. It is a broad measure, and we used the GDP as the primary economic indicator because it is the most important current measure of U.S. economic performance. We used the GDP measure instead of the GNP (gross national product) because the GDP includes all goods and services produced within the borders of the U.S. regardless of who owns them, while GNP includes all goods and services produced by U.S. citizens, regardless of where they are produced. In other words, the GDP measures the total dollar value of goods and services by everyone living within the U.S., whereas the GNP is a measure of income of U.S. citizens at home or abroad and excludes income of non-U.S. citizens working in the U.S. In brief, the GDP is a cleaner economic measure than the GNP.

We also used the gross state product (GSP) in millions of current dollars. The GSP measures the economic performance of a state analogously to the GDP at the national level. Since the GSP was only available for 1997-2001, the correlations using the state-level data are based only on those years. The national-level correlations are based on data from 1970-2002.

Table I shows the correlations between the growth rate in the GDP and the growth rate in the summer school attendance of each school.

Table I
Correlations Between Real GDP and Summer Session Enrollments

University of Arizona Summer Enrollment	-0.0520	University of Hawaii-Manoa Summer Enrollment	-0.2672	University of Mississippi Summer Enrollment	-0.0517	Rutgers University Summer Enrollment	-0.2296
University of California-Berkeley Summer Enrollment	-0.1359	University of Illinois-Urbana Summer Enrollment	-0.2156	University of Nebraska-Lincoln Summer Enrollment	-0.3839	Syracuse University Summer Enrollment	0.0142
University of California-Los Angeles Summer Enrollment	-0.0933	Indiana University Summer Enrollment	-0.3446	University of Nevada-Reno Summer Enrollment	-0.1558	Tulane University Summer Enrollment	-0.0669
University of Colorado-Boulder Summer Enrollment	-0.3509	University of Maine Summer Enrollment	0.1396	University of North Carolina Summer Enrollment	-0.4189	University of Vermont Summer Enrollment	-0.0641
Cornell University Summer Enrollment	0.0757	University of Maryland-College Park Summer Enrollment	0.3897	Northwestern University Summer Enrollment	0.1038	University of Virginia Summer Enrollment	-0.0830
Duke University Summer Enrollment	0.2693	University of Miami Summer Enrollment	-0.3500	University of Notre Dame Summer Enrollment	0.3496	University of Washington-Seattle Summer Enrollment	0.2108
George Washington University Summer Enrollment	0.2944	University of Minnesota Summer Enrollment	-0.1698	University of Oregon Summer Enrollment	0.0639	University of Wisconsin-Madison Summer Enrollment	-0.1470

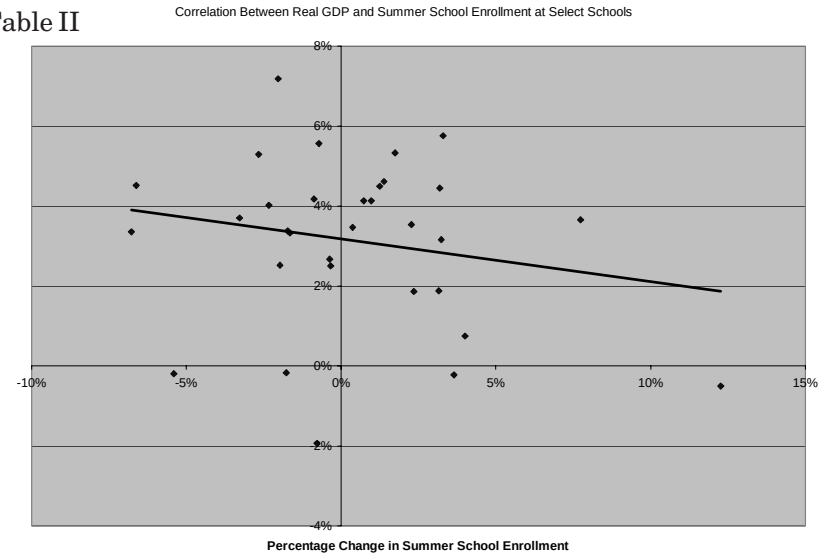
Eighteen of the 28 schools above had a weak negative GDP-enrollment relationship, indicating possible evidence of a weak inverse relationship between a school's summer attendance and the U.S. economy. This correlation seems to support our hypothesis that when the economy is weak, summer enrollments go up; when the economy is strong, summer enrollments are weak.

Twenty schools on this list are state institutions. Of those schools, 16 had negative GDP-enrollment correlations, and only 4 had positive correlations. When the correlations of all 20 schools are added and then divided by 20, the average correlation is -0.118.

The 8 private schools on the list had primarily positive correlations: 6 positive, 2 negative. The average GDP-summer enrollment correlation for privates is 0.0863.

Of the 28 institutions that provided enrollment data for the period 1970-2002, most missed one or more years during that time. Only 8 schools provided data without interruption: UCLA; Colorado-Boulder; Illinois-Urbana-Champaign; Indiana; Minnesota; Virginia; Washington-Seattle; and, Wisconsin-Madison. Hence, the graph in Table II depicting the relationship between enrollment changes and GDP fluctuations includes only those 8 institutions to avoid skewing the results.2 Since all of the 8 institutions represented in this graph are state schools, the relationship between national economic fluctuations measured by the GDP and state school summer enrollments is clear. Of the 8 schools depicted, only the University of Washington at Seattle had a positive correlation.

Table II



Private institutions tend to be less affected by economic fluctuations. Of the 8 private institutions in the 28 schools surveyed above, only Tulane University and the University of Miami had negative correlations. The rest enjoyed positive summer enrollment growth despite fluctuations in the GDP. Tables III and IV showing GDP-enrollment relationships at Cornell and Illinois are representative of the majority of private and public GDP-enrollment correlations.

Table III

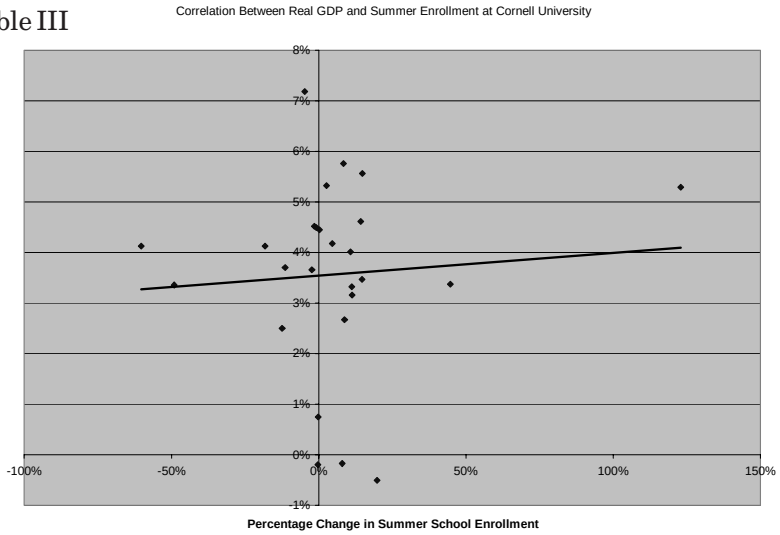


Table IV

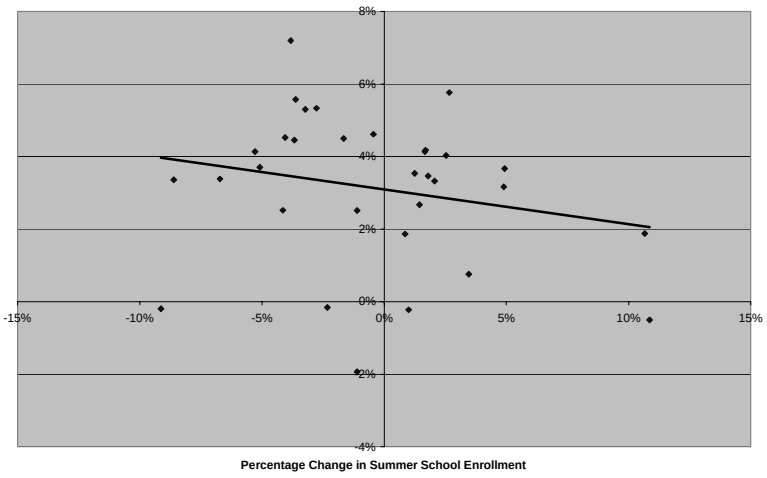


Table V below shows the correlations between gross state products and summer enrollments. Interestingly, only 13 schools of the 28 studied had negative inverse correlations between the GSP and summer enrollments. Of those, 10 are public and 3 are private. Since GSP data is available only from 1997-2001, and GDP trends need to be viewed on a longer time scale, it is not informative to compare summer enrollment changes between changes in GSP and changes in GDP.

Table V
Correlations Between GSP and Summer Enrollments

University of Arizona Summer Enrollment	0.0334	University of Hawaii-Manoa Summer Enrollment	0.1100	University of Mississippi Summer Enrollment	0.0313	Rutgers University Summer Enrollment	-0.2033
University of California-Berkeley Summer Enrollment	0.0930	University of Illinois-Urbana Summer Enrollment	-0.2190	University of Nebraska-Lincoln Summer Enrollment	0.1382	Syracuse University Summer Enrollment	0.1864
University of California-Los Angeles Summer Enrollment	0.2004	Indiana University Summer Enrollment	-0.2458	University of Nevada-Reno Summer Enrollment	-0.2991	Tulane University Summer Enrollment	-0.0234
University of Colorado-Boulder Summer Enrollment	-0.3652	University of Maine Summer Enrollment	0.2361	University of North Carolina Summer Enrollment	-0.3861	University of Vermont Summer Enrollment	-0.1222
Cornell University Summer Enrollment	-0.2192	University of Maryland-College Park Summer Enrollment	0.5589	Northwestern University Summer Enrollment	0.1777	University of Virginia Summer Enrollment	0.1784
Duke University Summer Enrollment	0.1502	University of Miami Summer Enrollment	-0.1685	University of Notre Dame Summer Enrollment	0.2390	University of Washington-Seattle Summer Enrollment	0.2706
George Washington University Summer Enrollment	0.2078	University of Minnesota Summer Enrollment	-0.2701	University of Oregon Summer Enrollment	-0.0253	University of Wisconsin-Madison Summer Enrollment	-0.1410

Using the GSP, 13 of our 28 schools had a weak negative relationship, indicating possible evidence of a weak inverse relationship between the summer enrollment at those schools and the economies of those states.

At UCLA, for instance, there was a positive correlation between GSP and enrollments, meaning that despite good economic times in California, UCLA summer enrollments didn't suffer. At Colorado-Boulder, however, the situation was just the opposite and more similar to the inverse negative correlations we found between most state schools and variations in the GDP.

Table VI

Correlation Between Real GSP and Summer School Enrollment at University of California-Los Angeles

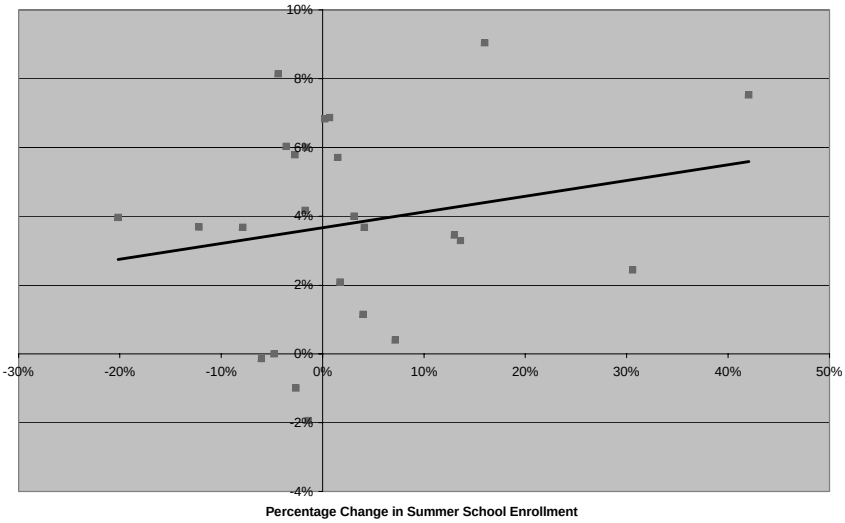
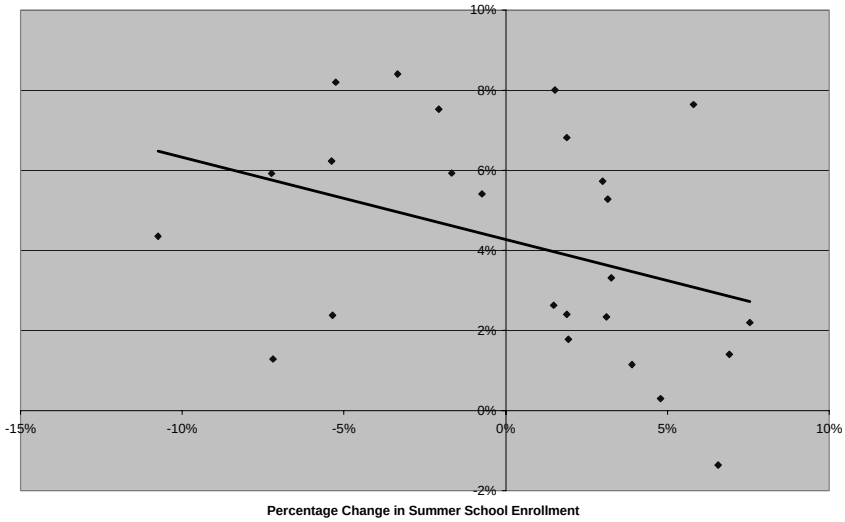


Table VII

Correlation Between Real GSP and Summer School Enrollment at University of Colorado-Boulder



Conclusions, Conjectures, and Guesses

The data above suggest that fluctuations in summer session enrollments tend to correspond to economic fluctuations. However, much more work needs to be done to analyze additional factors that affect summer enrollments to show a causal connection to make the case conclusively. For instance, most of the schools that did not have a negative correlation are private universities. Given that tuition at the above privates is considerably higher than at most of the aforementioned publics, it is reasonable to hypothesize that family affluence has a mitigating effect on the relationship between economic fluctuations and summer enrollments. Students who come from wealthy families often have a different set of summer options from students who come from middle or lower income families. The former tend to travel more in the summer than the latter, they seek unusual academic and recreational summer opportunities, and they generally work fewer summer hours. In addition, elite private schools like those above have higher percentages of out-of-state students, so regional economic fluctuations will not affect them as much as they will affect public universities with high percentages of in-state students.

It is also important to note that the data used in this study come from research-intensive universities that, on average, draw greater percentages of out-of-state students than other schools. For example, 28% of the undergraduates at the University of Minnesota come from out of state, and 35% of Indiana University undergraduates are residents of states other than Indiana. At the elite privates, the out-of-state numbers are even higher. Hence, state and regional economic differences are likely to affect the schools in this study differently (probably less) than, for instance, typical state schools whose in-state student percentages are 90% or greater.

We must also keep in mind that, despite the relationships between summer session enrollments and economic oscillations, programming, marketing, faculty interest, and institutional culture appear also to have far more profound impacts on summer enrollments.

The pragmatic value of the research in this paper for summer session directors is that they now have a little more predictive power when planning the next summer session. All other things being equal, a regional or national economic downturn is more likely to boost summer enrollments than to hamper them. Exclusive private schools will tend to be affected less by economic ups and downs than state schools, but both should keep an eye on the national and regional economies.

Further Opportunities for Research

For those interested in drilling deeper into the things that impact summer session enrollments, much room remains. Studies that expand on the institutional list in this research and examine whether summer sessions at different kinds of schools (regional publics, regional privates, etc.) react differently to varying types of economic fluctuations would help color in the picture sketched above. In addition, other studies that examine the myriad influencing factors on summer session enrollments would add significantly to the information available about the primary influences on summer session enrollments. A more complete understanding of these issues would provide a very important and useful tool for summer session deans and directors as they prepare for successive summers.

Notes

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[1] The amounts are given in 2000 dollars because that is how the government currently publishes them. "Chained" refers to the standard process by which the government converts all the amounts to 2000 dollars.

[2] For example, summer enrollment data is not available for the University of Arizona in 1987. Given that Arizona averaged about 10,000 students per summer in the mid 80's, charting the schools and omitting that institution would skew the graph. Similarly, data is not available for Duke in 1979, but enrollment at Duke in the late 1970s was only around 2,500 students in the summer session. Hence, it would not be possible to simply reduce the number of years reported to, say 15, and cut out the years where one or more schools didn't report, because the individual institutional summer enrollments vary considerably.