MacArthur/Spencer Series Number 9

STATE SUPPORT OF HIGHER EDUCATION: FROM EXPANSION TO STEADY STATE TO DECLINE, 1969 TO 1989
Including an Illinois Case Study

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March 1989

This series of monographs is dedicated to Professor Lucy Jen Huang Hickrod, late of the Sociology Department of Illinois State University. Death has forever taken Professor Huang Hickrod from intellectual labors, but she remains an inspiration to her husband, her family and her many friends. *Sic transit Gloria Mundi.*

INTRODUCTION

State support of higher education is one of the most salient educational policy concerns of the 1980s. As Kerr noted, unlike the 1960s and 1970s when the federal government served as a major initiator of policy for higher education, the states have become the major policy initiators for higher education in the 1980s.[1] The federal government still is a key partner in supporting higher education through student aid, grants for research and development, and categorical programs. However, it is the states which have plenary authority for education. States are the primary source of monetary support for the public sector, and, by means of state scholarship programs, states provide substantial assistance to private or independent colleges and universities.

This period has a number of prominent features which illustrate the states' functioning as important policy initiators in higher education. First, governors are now major actors in determining higher education policy at the state level. Although higher education often has provided an attractive campaign issue for governors, currently governors are going beyond political rhetoric to substance. Examples include gubernatorial involvement in linking higher education to economic development, in forming partnerships between higher education and business, and in assessing student outcomes. A second noticeable feature of this period is the prominence of the dual concerns of state leaders and others about higher education access and quality. Access issues relate to the admission of minority students, the availability of state scholarship programs, and the enrollment of greater numbers of non-traditional students in higher education. Quality concerns are reflected in revising admissions standards for high school graduates, in assessing student learning and outcomes, and in improving faculty productivity. A third feature of the current period is the presence of state-level blue-ribbon commissions, often formulated by governors, to examine the structure and process of statewide higher education governance. While governors have become much more active in appointing such study groups, it is becoming clear that structural reform is neither as effective nor as permanent as making more fundamental changes in substantive areas such as finance, academic programs, and student aid. State fiscal support of higher education is the focus of this analysis.

States have provided financial support to higher education in many important ways. For example, capital financing mechanisms have enabled physical plants to be constructed, improved, and expanded. Now, there are serious concerns about the deterioration of higher education facilities, and some states are initiating innovative approaches to equipment and plant improvement, such as the Equipment Financing Project in Virginia.[2] State scholarship and loan programs have provided the primary means for implementing the policy goals of increased student access and choice. While a disproportionate share in the financing of such programs has tended to be concentrated in a small group of states, the growing concern of the states is evident in their increased support of state scholarship programs. Still another major area of concern is adequate funding of the operating budgets of colleges and universities. State tax appropriations are the major source of revenue for campus operating budgets in the public sector. In the private sector, state tax appropriations are a sizeable revenue source in scholarship and loan programs in many, but not all, of the states. Because tuition costs are greater in the private institutions, it is common for a substantial share of state scholarship funds to go to students attending private colleges and universities; however, a majority of state scholarship awards go to students attending public colleges and universities. The goal of this study is to examine trends in state higher education funding over a 20-year period from 1969 to 1989.

METHODOLOGY

This analysis is based on state tax appropriations for the operating budgets of colleges and universities in the 50 states for the two decades from 1969 to 1989. This time period was chosen to capture the end of the halcyon growth years of the 1960s, the initial fiscal difficulties experienced by some states and institutions in the mid-1970s, and the more recent period characterized by rescissions, resurgence, steady-state and decline.

GRAPEVINE Data Base. The data base used in this analysis is from Grapevine, the monthly research report of state tax appropriations for the operating expenses of colleges and universities. Begun by M.M. Chambers in 1958, Grapevine is published by the Center for Higher Education at Illinois State University with Edward Hines as Editor and Gwen Pruyne as Managing Editor. State tax appropriations data are provided by a national network of state higher education finance officers and other officials in the 50 states. Originally intended as a newsletter sent to state officials and campus leaders, Grapevine grew rapidly to become a communications link among state and higher education budget officials. Data for the current legislative year are published initially in monthly issues of Grapevine; the data appear in summary form in an October issue of The Chronicle of Higher Education; and, finally, are published in complete form as a monograph by the National Association of State Universities and Land-Grant Colleges. Beginning in 1986, special efforts were made to incorporate revisions to the data, reflecting decisions made either by governors or legislatures after the initial legislative decision about higher education appropriations. An accurate historical data base now is available going back to 1976. For the years prior to 1976, this analysis utilized primary Grapevine data with selected revisions incorporated as they were available.

Described as having "longitudinal integrity,"[3] the principal characteristics of Grapevine are timeliness, comprehensiveness, and accuracy. Grapevine is a timely source of information because the data are published as soon as possible after the initial legislative decisions are made. The data are comprehensive because they reflect total state tax effort for higher education, encompassing all types of institutions including public two-year and four-year colleges and universities, state tax funds for the private sector, and state scholarship and loan programs. Grapevine data are not manipulated or altered; they are an accurate representation of legislative intent for higher education as reflected in state tax appropriations decisions.

There are limitations to the use of tax appropriations as a measure of state effort for higher education. State tax appropriations are only one source of revenue for higher education, albeit the largest revenue source in public colleges and universities and an important revenue source in private colleges. Any thorough analysis of revenue would need to include other sources such as local taxes, student tuition and non-tax sources such as lotteries and transfers. Another limitation is that Grapevine data are used in the form provided by the states. While some degree of comparability across states is attempted by using consistent definitions of data categories, the variability in definitions and budgeting practices in the states tend to limit comparability. State fiscal effort for higher education is influenced by many factors, including the stage of development of a higher education system and the particular fiscal circumstances in a state at any given point in time. Cross-sectional analyses are especially suspect when comparing states on a single measure such as effort for higher education. Comparisons utilizing rankings suffer from some degree of reductionism and simplification. This limitation has been mitigated in this analysis by using a 20-year period and by using multiple measures, including percentages of gain rather than only total appropriations. Yet, it must be recognized that this measure of state effort is a single input measure, which may or may not be related to the quality of products produced by higher education or to other indicators of productivity. Put another way, the study assumed that dollars spent are a valid indicator of the level of goods and

services provided; e.g., those states that spend more provide a higher level of education to their citizens. The question of the most economically efficient use of these expenditures is not addressed.

Objectives of the Analysis. There were four specific objectives in this analysis, and they are enumerated below:

1. To examine aggregate state tax appropriations for higher education annually from 1969 to 1989 in the 50 states.

2. To analyze state tax appropriations in each state on a per capita basis, utilizing Census data.

3. To compare state tax appropriations per capita in current dollars and in constant dollars, utilizing a regional cost-of-living index, for two points in time: 1977-1978 and 1987-1988.
   Note: These two points in time were chosen because the regional cost-of-living indexes were available for these two years only.

4. To analyze measures of elasticity, using log regression and percentage increases in per capita personal income and per capita state tax appropriations for higher education, for the 1969-1979 decade, the 1979-1989 decade, and the twenty years as a whole.

Grapevine makes use of two-year percentage gains in order to even out idiosyncratic changes which might occur in any one year. Single-year percentage gains were used in this analysis in order to compare percentage gains in state tax appropriations with single-year gains in the Higher Education Price Index (HEPI), and to focus more precisely on specific years in which significant changes in state support were identified.

ANALYSIS

National Patterns

The decade of the 1970s stands in marked contrast to the decade of the 1980s, as demonstrated in Table 1. The 1970s were the so-called "halcyon days" in higher education and were characterized by remarkable growth. First, new public campuses sprang up in both two-year and four-year sectors, especially during the 1960s, although the most outstanding growth pattern occurred in community colleges. There was a period when a new community college opened weekly.[4] Student enrollment experienced what was described as "rapid acceleration."[5] There was the climate of expansion and opportunity on most college and university campuses. Reduction, rescission, retrenchment, and reallocation were unknown concepts in the higher education lexicon.

Table 1* shows a nationwide annual gain of more than 22 percent in appropriations for higher education for 1969-70, and this rate was typical of most states in that era. That annual growth rate was nearly four times that of inflation, as measured by annual percentage increases in HEPI. It quickly fell to the teens during all years of the 1970s except 1977 when the national percentage gain for higher education was 9.7 percent. Single-digit annual percentage gains for higher education became the norm in the 1980s, as Table 1 clearly demonstrates.

*Tables and graphs are in the Appendix.

The 1980s have been characterized by fiscal stringency and annual percentage gains which are closer to increases in inflation (HEPI). Indeed, for the initial three years of the 1980s (1981, 1982, 1983), higher education gains were less than increases in HEPI in two of the three years. It was not until 1986 that the percentage gain for higher education was double that of HEPI. In 1987, the higher education gain was less than one percentage point above HEPI; in 1988, it was 2.2 points above HEPI, and in 1989 the higher education gain was 1.8 percentage points above HEPI. The 4.8 percent gain for higher education reported in 1987 was the lowest since Grapevine began thirty years ago.

Over the 20-year period, there was an annual mean gain of 10.4 percent for the nation, as shown in Table 1. This rate of percentage gain was nearly four percentage points above the mean percentage gain for HEPI (6.7%) for the same period. In 1969-1970, slightly over $5 billion was appropriated by state governments to higher education. This figure rose over threefold ($15.5 billion) by 1978, and that amount more than doubled to $36.2 billion by 1989, representing a sevenfold increase in 20 years.

Regional Patterns

National trends are of interest, but examination of discrete trends involving specific geographical regions is more enlightening. Table 2 displays regional trend data for the 20-year period. This table considers the number of times (and percent) that percentage gains were either greater than or less than the percentage gain of the previous year. As a general guideline, at the national level, there were decreases in percentage gains 53 percent of the time (10 of 19 years); the same percentage gain 16 percent of the time (3 of 19 years); and increases only 32 percent of the time (6 of 19 years). The trend in each region can be compared to this national measure. The nine regions of the country are a modification of the eight standard regions used in the Survey of Current Business. In the Southeast two regions were created by grouping the five states along the Atlantic seaboard (Southeast Atlantic) and the seven states inland (Southeast Central). Both Alaska and Hawaii are included in the Far West Region.

Reviewing these nine geographic regions, it is clear that there are relative "losers" and "winners." Losers, that is regions having experienced more decreases than increases in percentage gains over the previous year than were found nationally, include the Rocky Mountain Region, and the Great Lakes Region. During the 20-year period, decreases in percentage gains were found in 74 percent of the time in the five-state Rocky Mountain Region while decreases were experienced 58 percent of the time among the five Great Lakes states.

In the case of the Rocky Mountain Region, for instance, three of the five states (Colorado, Idaho, Montana) experienced a number of years of single-digit annual percentage gains for higher education throughout the 20-year period. These periods of time included the early 1970s, the late 1970s, and more recently in the 1980s. Both Idaho and Montana experienced negative gains for higher education in the 1980s. In the Great Lakes Region, Illinois, Indiana, Michigan, and Wisconsin had multiple years of single-digit gains in both the 1970s and 1980s, with Illinois and Michigan having experienced negative gains in the 1980s. Of the five Great Lakes states, Ohio has been in the strongest position with comparatively stronger percentage gains in the late 1970s followed by two years during the 1980s of annual percentage gains in the middle teens.

States which could be described as "winners" for this 20-year period are in the Southwest, the Far West, New England and the Plains Regions. There were increases in percentage gain over the previous year 47 percent of the time in both the Southwest and Far West Regions.

In both the New England and Plains Regions, there also were percentage increases over the previous year 47 percent of the time, but these two regions experienced slightly larger decreases (53%) than did either the Southwest or Far West Regions (47%).

In the Southwest and Far West, some states experienced difficulty early in the 1970s, such as single-digit percentage gains in Texas, Hawaii, and Oregon. These lower percentage gains, however, were more than compensated by consistently strong percentage gains in the teens experienced much of the time by Arizona, New Mexico, Oklahoma, California, and Nevada. A number of these states had difficulty in the 1980s because of dependence on oil (Texas, Oklahoma, New Mexico) and lumber-related industries (Oregon). Overall, the two regions fared comparatively somewhat better than other regions with four of these 10 states showing annual percentage gains in the teens even in the most recent two years (FY1988 and FY1989). In the the New England and Plains Regions, different patterns emerge. The New England states experienced difficulty supporting higher education in the mid 1970s but had an economic resurgence in the 1980s. This was especially true in Massachusetts, Maine, and New Hampshire which led the nation in percentage gains for higher education in both FY1987 and FY1988. The seven, largely "farm states" in the Plains Region experienced some serious difficulty in selected years throughout the period, but, overall, these states showed more strength in supporting higher education than sometimes is attributed to them. Negative gains have been experienced during some years in the 1980s by all of the Plains States except for Minnesota, which had a zero gain in FY1983. Iowa, Kansas, Missouri, and Nebraska, each gained nearly 20 percentage points during the most recent two-year period (FY1987-FY1989). In the Plains Region, however, there does not appear to be a regional resurgence, such as occurred in New England. Rather, selected states in the Plains Region are supporting higher education more strongly than economic conditions might warrant.

Per Capita Appropriations

Per capita personal income was chosen as a measure of state fiscal capacity because the data were available for the 20-year period used in this analysis. Had this analysis been cross-sectional rather than longitudinal, a more sophisticated measure of state fiscal capacity might have been chosen. Examples of the latter include the "Representative Tax System," which uses a nationally-uniform set of tax rates applied to a common set of tax bases in the states, and the "Representative Revenue System," which includes nontax revenues such as user charges, developed by the Advisory Commission on Intergovernmental Relations.[6]

State tax appropriations data on a per capita basis were calculated using the U.S. Census Bureau's estimate of the civilian population for each year. As shown in Table 3, in gain over the 20-year period, the national mean state tax appropriations per capita went from $25 in 1968-69 to $149 in 1988-89, representing a sixfold increase. In 1968-69, the lowest amount was in Massachusetts (New Hampshire and New Jersey were nearly as low) at only $12 per capita, rising twelvefold to $148 in 1988-89. The largest per capita amounts in current dollars appropriated to higher education by a state government in 1968-69 occurred in Hawaii and Washington; each appropriated nearly $41 per capita to higher education. In 1988-89, the largest amount was in Alaska at nearly $314 per capita; there were four states which appropriated more than $200 per capita to higher education (Hawaii, Minnesota, North Carolina, Wyoming). The smallest increases over the 20 years took place in Oregon and in South Dakota with fourfold increases, and the largest increase was in Massachusetts with a twelvefold increase. Alabama had an elevenfold increase and South Carolina had a tenfold increase.

When using per capita figures, there is a natural skew of the data toward larger figures in states having a dominant public sector in higher education; similarly, figures tend to be smaller in states having many private colleges and universities. One tends to find a larger number of private institutions in the Northeast and a larger number of public campuses in

selected states in the West. The New England states are an example of the former, and Hawaii, Nevada, New Mexico, North Dakota, Utah, and Wyoming have less than five private colleges and universities each.[7]

Tables 3 and 4 display per capita appropriations data with the 50 states grouped in nine geographic regions. The difference between the figures reported for a state on the two tables is attributed to inflation because Table 3 uses current dollars and Table 4 uses constant dollars (adjusted by HEPI). Of interest is whether there were any states which, in constant dollars, reported an absolute decline in higher education support from 1968-69 to 1988-89. Montana comes closest to an absolute decline, with an increase from $33 to nearly $35 over the 20-year period, although Montana reached nearly $42 per capita in constant dollars in 1982-83. There was only a $3 per capita gain over the 20-years in Vermont, Louisiana, and Oregon; a $4 per capita gain in West Virginia; a $5 per capita gain in New Hampshire and in South Dakota; a $6 per capita gain in Illinois and Missouri; and a $7 per capita gain in Pennsylvania. There were twofold-to-threefold increases in most other states with Massachusetts and Alabama leading the way with more than threefold increases in constant dollars per capita over the 20 years.

Four states were selected for graphic display of the current and constant per capita appropriations data. These four are among the 11 "megastates," each appropriating more than a billion dollars annually to higher education (California, Illinois, New York, and Texas). In FY1989, these four states appropriated $11.8 billion for higher education, which was 33% of the $36.2 billion appropriated nationally. These four states can be compared using per capita gains in current dollars and per capita gains in constant dollars. In current dollars, California has the largest gain ($149), followed by New York ($148), Texas ($111), and Illinois ($94). In per capita in constant dollars from 1969 to 1989, New York was first at $21, followed by California ($18), Texas ($14), and Illinois ($6).

Two striking observations can be made from these four graphs and from the per capita appropriations data in Table 3 in current dollars and Table 4 in constant dollars. In current dollars per capita, represented by the top lines in the graphs, there have been some impressive surges upward. By observing per capita appropriations in current dollars graphed against time, many states trace a sigmoid or classic "growth" curve. That is, they begin with a relatively slow growth or steady-state pattern in the early seventies, move to modest growth in the mid to late seventies, and conclude with declines in the eighties. This sigmoid pattern occurred in California, Illinois and Texas; only in New York has there been a consistent increase in per capita gains in current dollars.

The second clear observation from these graphs is that there have been minuscule or modest constant dollar gains in state higher education support over these 20 years. The constant dollar increases represented by the bottom lines in the graphs reflect either steady-state or decline. In the early 1970s, there was a steady-state period followed by gains in constant dollars. Since the turn of the decade to the 1980s, there have been declines in most states including those not shown in these graphs. In New York, there has been a consistent gain, albeit a modest gain since 1980, in constant dollars. The dominant metaphor used to describe this condition is "steady-state." This metaphor was derived by comparing the present time period which was labeled as one of "growth." Since 1980, the metaphor to be used is one of "decline." This observation is supported well by observing per capita appropriations graphed against time.

Regional Cost-of-Living Adjustments

Examination of current and constant dollar appropriations begins to reveal trends over this 20-year period. Thus far in this analysis, constant dollar appropriations were calculated using HEPI which was applied uniformly to current dollar appropriations. A regional cost-of-living index was developed by McMahon and Melton in 1978 and updated by McMahon in 1988. These indices were used to determine a regional cost-of-living figure for each state for the two points in time, 1978 and 1988. The 1988 index was computed using a 1980 measure of per capita income, the 1980 value of a standard house, and the percentage change in the population from 1980 through 1987 for each state. In 1988, McMahon observed:

> These results indicate that there is a 53 percent variation in the cost of living among states. The higher cost of living states continue to be in the East. In these places higher incomes and higher housing costs are both a factor. The lower cost of living states are those in the South where warmer weather and less population density reduces housing costs. The Midwestern and North Central states remain in the middle.[8]

Tables 5 shows current dollar appropriations per capita, state rankings, and rank changes for the two points in time, 1978 and 1988. Table 6 incorporates the McMahon Regional Cost-of-Living Index and displays adjusted per capita appropriations, state rankings, and rank changes for the two points in time. Rank orders are commonly used in state comparisons for ease of interpretation of large amounts of data. Among the limitations of using rank orders, however, is the fact that they give no indication of the magnitude of the distance between positions, thus masking the effect of states which "cluster" around a specific numerical value. Table 7 is a summary of Tables 5 and 6 and highlights those states which experienced either double-digit losses or double-digit gains for current per capita appropriations and for per capita appropriations adjusted by the McMahon Index. Ten states had double-digit losses between the two years using current per capita appropriations. Five of those 10 states (Nevada, Idaho, Illinois, Arizona, Texas) improved to single-digit losses or better by using the regional cost-of-living index. For example, Arizona went from -10 to +4 using McMahon. There were seven states with double-digit gains between the two points in time using current dollars and adjusted dollars. The differences between the two groupings were due to New Jersey, whose rank change fell from 15 to 2, and Kentucky, whose rank change went from 9 to 16 between those two years, indicating a proportionately higher cost-of-living in New Jersey and a proportionately lower cost-of-living in Kentucky.

Elasticity Measures

This analysis has identified regional variations in state support of higher education with numerous examples of states shifting their rank order positions either upward or downward over time. One element missing thus far is the question of shifts in higher education support relative to what? A response to this question is to compare changes in per capita personal income with percentage changes in per capita higher education appropriations. A percentage change in per capita personal income is a reflection of a change in a state's wealth over time. Changes over time in per capita appropriations to higher education are one way to demonstrate changes in a state's funding priorities. By comparing the two entities, a measure of relative fiscal effort for higher education is obtained. As the available resources change in a given state, is there a comparable change in support? If so, then the ratio is "unity," expressed as 1.0. This would indicate that a state's support of higher education changed proportionately with a change in personal income. A ratio of less than 1.0 indicates that higher education was not supported proportionately to income change, and a ratio greater than 1.0 indicates that higher education received a share proportionately larger than a gain in available resources.

Table 8 shows the elasticity measurements for the two decades, 1969-1979 and 1979-1989, and the 20-year period, 1969-1989. The most outstanding feature of this table is the comparison of the elasticities between the two decades, 1969-1979 and 1979-1989. The elasticities were significantly higher for the earlier decade, indicating strong state support of higher education during the 1960s and some of the 1970s, an era when state higher education systems were expanding in student enrollment and the number and size of campuses. The table indicates that South Carolina and Alabama had elasticities of over 2.0, well above the national mean of 1.4. Fourteen states had elasticities greater than 1.5. The decade of the 1980s showed a much different picture. In this decade, one state (Wyoming) had an elasticity above 2.0. Massachusetts had an elasticity greater than 1.5, and 13 other states had elasticities of 1.0 or greater.

Once again, it is questionable to continue to use the term, "steady state," when the measurement being taken is income elasticity of appropriations per capita. When this measurement is used, the two decades under analysis are in clear contrast. The decade 1969-1979 was still one of development by state governments in higher education. An elasticity of 1.386 for the nation at large indicates that a priority was still being placed upon investment in higher education; e.g., the percentage increase in higher education appropriations per capita was greater than the percentage increase in income per capita. By contrast, the decade 1979-1989 shows a value of only .872, indicating a decided decline in the propensity to spend available income for higher education. In fact, this decline in some states is so marked that it is not inappropriate to speak of a decade of development followed by a decade of decline. California, Delaware, Georgia, Iowa, Kansas, Maryland, Nebraska, Oklahoma, Rhode Island, South Carolina, Texas, and Utah seem to be cases in point. Each declined in rank more than 10 places between decades.

Explanations for Changes in Support

Based on these data, some inferences may be made about higher education support in the states. Obviously, changes in support levels reflect public policy priorities by lawmakers. The willingness of legislators to increase appropriations levels may indicate either a basic understanding by lawmakers of the needs of higher education or it may reflect how well higher education presented its case in the legislature. Examination of the needs of higher education and the efficacy of the case made in the state legislature are beyond the purview of this analysis. What is possible here is to infer from these data the extent to which revenue availability emerges as a critical variable in levels of state support of higher education.

Each year, state tax appropriations data published in Grapevine enable comments to be made regarding trends in state support for higher education.[9] By drawing upon those annual commentaries and the data presented in this analysis, observations can be made about trends in state higher education support during these two decades.

Regional Variations. In the 1970s, there were two principal reasons for lower levels of state support of higher education. Some regions, such as the Northeast and the industrial Upper Midwest, began to suffer in the sector known as the "smokestack industries." These industries were unable to reinvest in capitalization and equipment replacement, competition from foreign industries intensified, and protracted labor problems in some areas led to plant relocation to the South, thus causing what was termed the "rust belt versus the sun belt" phenomenon. In other parts of the nation, economic problems were encountered. The Northwest suffered because of the decreased demand for lumber-related products, and selected farm states or mineral-dependent states had problems with the amount and flow of incoming revenue. These, among other factors, caused difficulties for state governments to support functions such as education.

In the 1980s, economic resurgence occurred in the Northeast, and higher education has fared better in New England and in some (but not all) of the Northeastern states. At the same time, economic difficulty was encountered in the South Central Region when oil prices became increasingly volatile. Texas, Louisiana, Oklahoma, and New Mexico were unable to sustain support for services at levels attained in the late 1970s.

A greater amount of economic growth and fiscal strength on the Atlantic and Pacific Coasts, in combination with relatively weaker economic and fiscal conditions inland, caused Hodgkinson to describe a bifurcated condition of coastal growth and a "mid-continental economic trough," a term not entirely lost on the demographers as these state tax appropriations data document.[10] There are regional variations in state support of higher education, but exceptions can be found in each region.

The Availability of Revenue. Revenue availability is a key determinant in the ability of state governments to support higher education. If revenue is not available, lawmakers are unable to raise the taxes necessary to support public services. Unlike an earlier period when a willingness to raise taxes was a primary determinant in revenue availability for higher education, the current period is more uncertain. Taxes cannot be raised if the underlying economy is weak.

Table 9 makes the point clearly. The data for this table come from an annual survey by the Fiscal Affairs Staff of the National Conference of State Legislatures and from state tax appropriations data published in Grapevine. The column labeled "general fund increase" indicates the amount of increase available in a state's general tax funds from FY1988 to FY1989; this figure provides an indication of the availability of revenue. The column labeled "state appropriations increase" indicates the percentage increase in total state appropriations which was made by that state from FY1988 to FY1989. This column provides an indication not of revenue availability, but, rather, of willingness to appropriate–the willingness of a state to spend available resources on state services in general. The Higher Education Increase column shows the percentage gains in higher education appropriations in FY1989 over FY1987. Thus, Table 9 pertains to three key areas of concern: revenue availability, willingness to appropriate, and higher education support.

Examples of these three factors are found in the states selected for Table 9. Hawaii showed a small percentage increase in its general fund (0.4%), yet it was able to provide a 24 percent two-year gain for higher education. Similar efforts were made in Mississippi, Maine, and Maryland. When revenue becomes available, willingness of lawmakers to appropriate it to selected functions is critical. Some of the states in the top group are those where higher education and economic development have been explicitly linked by state leaders. Examples include New Jersey, Connecticut, and Maryland. At the other end of the continuum, Table 9 shows the bottom group in percentage gains in higher education support. General fund increases were very low or even negative in most of these states. Notable exceptions were Arkansas and Illinois where there were moderate increases in state appropriations generally, but higher education did not share in those available increases.

It appears that, in recent years, state governments are less willing to provide general support to higher education. The trend is toward funding specified functions within higher education, such as community colleges or student aid. For example, nationally, in FY1989, there was a 12 percent two-year gain for all higher education. For the same year, community colleges in 40 of the states made a 15 percent two-year gain. Based upon available data, it appears that student financial aid made a 20 percent gain over the same two years. Perhaps the support for community colleges indicates legislators' willingness to fund job training, economic development, and college-business partnerships. Increased funding of student aid may be predicated upon increases in tuition and fees.[11] Throughout the 1980s, percentage

increases in student tuition were larger than increases in state appropriations in general. This has caused tuition to become regarded as a revenue source as much as a price to students.[12] In the short term, tuition is being looked to as a means of providing what has not been forthcoming from state governments. The longer-term consequences of this trend have serious implications for student access and educational opportunity in higher education.

A CASE STUDY OF ILLINOIS HIGHER EDUCATION

These data provide a backdrop for more specifically examining a single state. Over the past 20 years, Illinois' record of support to higher education can only be described as inadequate and getting worse.

The data related to one-year percentage gains in appropriations from Tables 1 and 2 are summarized in Table 10. From 1969-70 through 1988-89, the five-state Great Lakes Region did not "perform" as well as did the nation. The Great Lakes states had one-year percentage gains for higher education which were lower than national percentage gains 80 percent of the time (16 out of 20 years). In addition, Illinois' rate of gain was less than the Great Lakes Region 60 percent of the time (12 out of 20 years). Little wonder, then, that Illinois outperformed the nation only six years out of 20 (30%).

Historically, in magnitude of dollars appropriated to higher education, Illinois has ranked third nationally, exceeded only by California and New York. In FY1976, Texas surpassed Illinois in the total dollars appropriated to higher education, and has remained ahead of Illinois ever since. Texas and Illinois, however, are roughly equal in size and capacity. Texas has 41 more public colleges and universities than does Illinois (100 v. 59), but Illinois has more private schools (104 v. 63) and enrolls 150,000 students in private colleges, compared to 90,000 enrolled in private colleges in Texas.[13] In bachelor's degrees granted, however, the two states are similar: Texas conferred 58,000 bachelor's degrees compared to 46,000 in Illinois. At both master's and doctoral levels, the two states are virtually identical. For the most recent two years (FY1988 and FY1989), Florida surpassed Illinois in the total amount of state taxes appropriated to higher education. Michigan, North Carolina, and Ohio are within $100 million of Illinois' $1.399 billion appropriated in FY1989. At the current rate of gain, these three states could be expected to surpass Illinois within a year or two. Pennsylvania at $1.27 billion in FY1989 is not far behind. The picture emerging for Illinois higher education is one of increasing inadequacy and loss of comparative position with peer states.

Of the major states, each of which appropriates more than a billion dollars annually to higher education, Texas and Ohio are most similar to Illinois in the size and composition of their respective total higher education systems. In appropriations per capita, Texas surpassed Illinois and has been ahead of Illinois since the mid-1970s. Ohio surpassed Illinois in FY1983 and has remained ahead of Illinois in five of the seven years since.

In current dollars per capita Illinois now appropriates less money ($121) than any of the other states in the Great Lakes Region (Indiana, Michigan, Ohio, and Wisconsin). In FY1979, Wisconsin appropriated more than $100 per capita per year to higher education. At that time, Illinois appropriated only $78 per capita. Wisconsin has led the Region in effort for higher education every year since FY1979. Illinois now is in last place in the Region.

In constant dollars per capita in the Great Lakes Region, Illinois is in last place. Each year from FY1974 through FY1984, Wisconsin has appropriated more than $40 per capita in constant dollars for higher education. On the same measure for the same period, Illinois appropriated as little as $31 and no more than $36 in per capita in constant dollars. Currently, Illinois is in last place at $32 per capita in constant dollars. The only states currently

appropriating less than Illinois in constant dollars per capita are New Hampshire ($18), Vermont ($26), Pennsylvania ($28), Minnesota ($29), and South Dakota ($29). Joining Illinois in appropriating $32 per capita in constant dollars are Arkansas and Nevada.

In per capita appropriations to higher education in current dollars, Illinois' position nationally fell 13 ranks from 30th in FY1978 to 43rd in FY1988. Using the McMahon regional cost-of-living index, Illinois' position fell seven ranks from 36th to 43rd. This modest improvement in change in ranks was due to Illinois' proportionately higher cost-of-living. However, in both current dollars and regional cost-of-living dollars, Illinois currently ranks in the bottom quintile of all states.

In the elasticity measurements, Illinois ranked 44th in the early decade (1969-1979) with an elasticity index of 1.097. During the 1970s, for every dollar of growth in personal income, Illinois appropriated nearly $1.10 to higher education. In the current decade, Illinois' elasticity index fell to .808 indicating that for every dollar of growth in personal income, Illinois appropriated only about 81 cents to higher education. These elasticities indicate that during the 1980s, state support for higher education in Illinois grew only 81% as rapidly as growth in personal income.

Within the State of Illinois, higher education appears to be losing ground to other state services. Table 9 showed that from FY1988 to FY1989, the general fund in Illinois grew three percent; there was an increase in general appropriations of over 12 percent, but higher education garnered only one-half of one percent increase.

These data demonstrate unequivocally that the level of funding of higher education in the State of Illinois is inadequate. Illinois is not keeping up a level of financial commitment to higher education at a time when, in an increasing number of other states, higher education is looked to for stimulation of economic development, the capacity to retrain workers and improve worker manpower, and contribution to the economy of the state and the well-being of the citizenry.

CONCLUSIONS

It is beyond the purview of this study to explore all of the reasons for this failure to invest in higher education in the United States during the decade 1979-1989, compared to the previous decade. Nor can the simple statistical analyses used here reveal the determinants of this decline. As noted in previous Center publication, several interpretations are possible. It could simply reflect a downturn in investment in the entire public sector. Perhaps this was occasioned by a prior downturn in both the economy and state revenues in many of these states. Perhaps the increased income went into the private sector and not into the public sector such as health, welfare, transportation, or corrections. In some states, the decision may have been to put more funds into K-12 education rather than into higher education. All the elasticities tell one is that the investment was either made, e.g., some priority was given to higher education and, in that case, the coefficients are over 1.00; or that the investments were not made and, in that case, the coefficients are lower than 1.00.

With specific regard to Illinois, it can be said that the performance is lack-luster. The record is not as bad in some respects as in some other states. The income elasticity did fall from 1.097 to .808, but, since a great many other states declined as well, the rank on this measurement actually improved from 44th position (1969-1979) to 32nd position (1979-1989). Illinois' problem in higher education is not so much one of lack of fiscal effort as one of loss of standing relative to other major industrial states. On both adjusted and unadjusted appropriations per capita, Illinois ends up in 43rd position, having fallen seven ranks on one index and 13

ranks on the other. It is very difficult to reconcile this low ranking with pronouncements from some political leaders in the state concerning the alleged priority that educational spending is supposed to have been given in the last decade. It is also difficult to reconcile such standings with claims that higher education is an important means for economic growth in the state. Nothing in these data supports such assertions.

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APPENDIX A

Table 1

PERCENTAGES OF ONE-YEAR GAINS IN APPROPRIATIONS FOR OPERATING EXPENSES OF HIGHER EDUCATION, COMPARED WITH ONE-YEAR GAINS IN THE HIGHER EDUCATION PRICE INDEX
1970-1989

Year	One-yr gains Appropriations (%)	One-yr gains HEPI (%)
1970	22.6	6.0
1971	12.2	6.0
1972	10.6	6.0
1973	10.4	5.0
1974	16.2	7.0
1975	14.1	9.0
1976	12.8	7.0
1977	9.7	7.0
1978	10.6	7.0
1979	10.9	8.0
1980	12.4	10.0
1981	9.3	11.0
1982	10.1	10.0
1983	5.6	6.0
1984	5.9	5.0
1985	10.1	7.0
1986	8.0	4.0
1987	4.8	4.0
1988	6.2	4.0
1989	5.8	4.0
Mean	10.4	6.7
Median	13.7	7.5

Table 2

CHANGES IN ONE-YEAR GAINS OVER THE PREVIOUS YEAR, BY CENSUS REGION
1969 to 1989

Region	Decrease over Previous year #	%	Remained the Same #	%	Increase over Previous year #	%
National (50 states)	10/19	53	3/19	16	6/19	32
New England (6 states)	10/19	53	0	0	9/19	47
Mideast (5 states)	10/19	53	2/19	11	7/19	37
Great Lakes (5 states)	11/19	58	2/19	11	6/19	32
Southeast Atlantic (5 states)	11/19	58	0	0	8/19	42
Southeast Central (7 states)	10/19	53	1/19	5	8/19	42
Plains (7 states)	10/19	53	0	0	9/19	47
Rocky Mountain (5 states)	14/19	74	0	0	5/19	26
Southwest (4 states)	9/19	47	1/19	5	9/19	47
Far West (6 states)	9/19	47	1/19	5	9/19	47
Mean	10/19	53	1/19	5	8/19	42
Median	11.5/19	61	1.5/19	11	7/19	37
Mode	10/19	53	0	0	9/19	47

Table 3. Appropriations of State Tax Funds for Higher Education, Per Capita, in Current Dollars, by Regions, FY1969-FY1989

	1968-69	1969-70	1970-71	1971-72	1972-73	1973-74	1974-75	1975-76	1976-77	1977-78	1978-79	1979-80	1980-81	1981-82	1982-83	1983-84	1984-85	1985-86	1986-87	1987-88	1988-89
New England																					
Connecticut	20.29	26.47	31.80	36.38	37.06	38.99	44.42	47.14	52.77	66.57	68.43	80.37	83.66	80.60	87.17	97.00	105.10	116.66	121.71	129.88	145.56
Maine	17.98	26.14	27.35	29.70	32.13	37.57	42.85	39.91	42.36	45.13	52.49	57.09	59.46	63.47	67.48	71.83	87.92	108.41	108.83	120.56	136.84
Massachusetts	12.15	14.99	20.23	22.60	26.70	30.59	34.57	41.26	43.34	47.27	54.54	55.90	63.53	71.44	78.47	111.50	122.94	140.54	140.54	153.46	148.32
New Hampshire	13.85	14.48	14.35	15.88	17.16	21.30	27.96	27.94	27.81	32.44	34.22	37.11	42.71	37.66	43.36	44.69	51.71	56.36	56.36	65.14	68.55
Rhode Island	22.68	30.46	32.59	31.19	36.14	44.49	51.40	69.87	71.97	70.95	76.38	84.31	90.01	95.55	102.36	110.82	115.38	121.78	122.12	131.40	140.77
Vermont	24.58	30.41	32.51	34.25	35.70	39.01	42.85	42.76	48.28	54.82	55.57	61.78	66.23	73.04	77.88	79.51	84.18	87.44	86.14	92.40	98.28
Mideast																					
Delaware	25.72	30.90	35.81	40.23	44.71	57.59	74.01	77.60	75.93	83.90	91.38	109.64	121.17	128.60	129.65	141.33	150.59	156.88	156.88	160.09	166.95
Maryland	20.32	23.48	30.07	34.77	38.73	41.82	51.34	62.66	64.20	70.73	78.14	88.56	91.53	101.49	102.37	113.64	123.90	131.24	131.24	137.72	153.31
New Jersey	13.25	17.61	21.21	25.17	32.21	35.13	36.67	43.10	44.43	50.57	54.64	59.22	63.11	67.27	71.77	78.73	113.16	119.17	118.51	133.45	147.22
New York	26.48	34.28	40.65	43.81	45.20	54.44	69.49	69.04	71.82	79.30	86.96	93.18	105.68	114.19	123.74	133.59	143.74	153.23	156.05	165.26	174.48
Pennsylvania	22.43	26.89	26.05	29.19	33.36	42.20	52.66	55.78	57.01	59.32	62.87	63.26	69.56	73.37	75.91	82.90	89.46	93.66	93.35	98.93	106.30
Great Lakes																					
Illinois	27.10	36.46	42.44	42.21	45.89	48.86	57.94	61.10	65.92	72.55	78.00	85.90	87.30	89.80	96.58	103.20	114.58	121.00	121.12	115.29	120.83
Indiana	27.86	29.70	33.14	38.02	39.52	41.75	55.52	60.67	66.47	72.12	76.52	85.12	87.88	88.75	91.76	99.74	110.61	120.27	120.47	128.03	136.61
Michigan	29.55	34.39	38.31	42.04	46.06	50.95	61.30	64.86	72.54	80.40	87.97	88.67	91.65	93.96	97.36	111.05	126.44	135.35	135.01	142.50	145.44
Ohio	16.34	22.51	24.28	26.58	28.27	32.12	42.11	46.68	51.56	56.50	62.26	67.09	64.68	78.50	81.91	88.96	101.08	112.60	112.60	117.67	122.45
Wisconsin	35.30	37.80	40.64	50.33	56.94	67.11	73.24	79.04	86.66	93.20	100.15	106.26	113.05	116.00	125.23	130.10	137.58	139.62	139.62	147.43	153.67
Southeast Alantic																					
Florida	23.07	29.22	33.69	32.92	38.11	41.61	51.36	52.10	58.14	63.39	70.99	79.62	82.37	89.95	91.66	97.02	103.83	113.39	113.47	117.19	122.63
Georgia	24.53	27.07	31.56	33.90	36.24	43.78	49.78	53.91	60.95	68.69	75.75	84.42	91.31	95.84	101.06	108.09	115.28	120.92	120.92	124.41	130.55
North Carolina	22.56	34.60	33.83	42.20	41.52	52.58	70.04	74.84	84.27	94.45	104.03	117.85	125.44	133.28	143.73	160.70	178.11	190.77	190.77	202.76	207.33
South Carolina	17.10	22.57	29.09	31.01	37.83	51.14	78.58	74.61	79.76	92.17	102.54	117.49	115.79	118.04	122.15	140.99	156.34	158.03	153.14	154.28	168.35
Virginia	23.12	25.28	28.64	31.78	37.82	41.47	58.35	63.63	86.70	82.92	86.26	96.08	101.75	113.53	112.66	131.40	140.30	162.57	162.68	158.26	174.98
Southeast Central																					
Alabama	16.98	21.06	21.40	30.17	31.68	49.43	60.19	74.41	84.86	101.44	100.78	113.43	107.39	103.93	103.91	127.75	157.87	139.36	183.52	164.14	186.87
Arkansas	23.17	24.77	27.85	25.86	27.39	34.96	50.29	54.32	59.82	65.45	77.61	86.04	80.50	86.28	85.64	107.43	127.93	116.35	115.22	119.87	119.93
Kentucky	25.57	29.64	29.30	32.57	36.56	38.37	55.89	59.04	63.42	78.92	85.74	87.20	97.04	99.29	108.60	110.87	117.39	124.35	124.35	133.96	139.08
Louisiana	27.22	27.26	32.82	37.19	38.71	41.57	53.31	56.71	63.13	71.14	83.21	99.14	106.17	116.48	115.04	126.11	129.21	121.74	112.26	110.01	108.28
Mississippi	21.56	23.42	31.86	36.46	41.32	47.44	64.88	65.66	79.26	91.65	97.23	107.57	119.23	117.09	134.54	127.25	154.91	126.24	125.86	137.16	162.19
Tennessee	18.63	22.19	24.59	27.89	30.98	35.89	41.74	47.97	54.72	65.24	73.03	77.23	77.77	81.15	83.33	101.92	116.67	128.29	129.91	132.48	138.80
West Virginia	28.12	31.54	33.17	38.61	43.17	45.09	57.61	63.48	69.36	79.68	85.31	90.43	96.53	96.94	101.85	112.05	119.39	124.53	124.93	123.78	133.17
Plains																					
Iowa	30.36	37.23	37.89	41.90	43.82	50.38	68.44	77.59	85.11	94.73	104.84	114.49	117.37	131.46	127.75	135.20	132.48	140.39	140.42	154.84	169.02
Kansas	30.73	35.45	36.52	37.37	41.12	48.03	68.34	76.66	81.76	95.54	101.72	109.69	117.92	130.94	126.96	142.57	144.84	144.69	134.38	146.82	154.41
Minnesota	27.62	33.70	37.24	42.56	44.79	59.16	64.07	82.43	96.06	98.96	114.97	117.72	126.31	127.24	147.77	151.31	173.75	178.28	186.70	193.56	202.89
Missouri	24.11	27.25	27.86	31.37	33.81	37.77	44.99	49.71	54.45	59.33	64.39	72.58	71.74	72.47	73.49	81.13	90.96	95.06	95.06	99.37	107.90
Nebraska	22.39	32.58	32.17	34.20	37.14	44.21	65.37	79.11	84.48	90.03	96.45	105.56	119.23	120.23	121.81	134.52	134.93	136.44	135.11	142.66	158.99
North Dakota	32.18	37.62	37.08	42.79	43.47	50.05	78.31	74.71	95.24	93.78	116.04	115.16	166.29	164.95	161.55	162.52	184.34	184.89	179.01	173.89	175.70
South Dakota	25.75	27.37	31.60	32.27	33.48	38.20	52.76	56.20	59.90	66.05	72.28	74.30	75.55	77.99	76.14	84.05	88.66	104.31	102.87	102.98	109.12
Rocky Mountain																					
Colorado	31.94	39.41	48.01	47.18	47.08	55.22	75.29	81.38	85.52	90.61	92.46	95.23	105.85	118.05	119.66	123.90	129.54	132.77	132.77	134.99	144.17
Idaho	28.89	41.88	42.63	44.78	47.04	50.42	77.63	85.45	92.75	97.78	95.23	104.03	100.75	108.47	103.60	112.03	122.45	126.16	126.16	138.86	145.28
Montana	35.18	38.49	41.01	42.61	42.36	49.92	62.62	62.97	69.39	72.34	77.06	84.61	106.39	120.14	128.88	132.22	131.93	125.51	123.10	128.33	130.13
Utah	31.82	37.77	41.16	44.42	48.93	55.36	75.15	85.35	96.40	104.14	111.23	117.67	119.19	129.36	126.72	140.33	151.61	157.05	149.20	154.49	154.53
Wyoming	33.50	44.19	43.15	52.78	51.89	64.47	95.00	98.43	109.96	115.87	121.85	156.68	175.53	197.56	196.39	197.61	217.71	220.96	226.11	225.22	234.19
Southwest																					
Arizona	31.05	36.96	43.96	48.54	53.04	61.15	76.51	83.09	94.96	95.02	98.86	114.47	112.88	115.43	116.25	128.50	142.88	151.87	142.58	148.21	160.83
New Mexico	30.74	35.52	39.54	42.03	46.17	48.59	67.05	71.53	81.96	96.18	103.74	115.48	131.96	138.62	137.23	159.81	166.83	162.98	174.96	176.91	179.20
Oklahoma	20.66	23.27	26.53	29.86	30.33	35.15	47.63	56.14	62.64	69.94	79.45	93.77	107.61	129.00	121.16	112.63	130.52	118.01	117.44	116.87	126.89
Texas	23.17	30.36	29.84	35.58	38.57	40.76	69.83	75.07	84.12	81.23	101.09	109.48	133.89	137.85	149.38	151.81	139.12	132.00	121.26	133.76	133.78
Far West																					
Alaska	34.32	39.19	53.80	59.82	66.00	68.02	170.05	184.17	167.57	176.27	179.88	201.68	305.73	356.37	340.30	336.02	495.29	415.84	418.39	310.00	313.78
California	31.94	37.51	40.16	41.47	48.36	54.61	74.8	86.38	91.15	106.55	126.24	139.19	140.64	135.35	128.19	153.08	166.20	175.06	172.96	178.16	181.16
Hawaii	40.24	54.26	68.87	72.30	75.77	66.08	105.12	114.89	123.61	127.11	134.55	147.95	160.37	188.70	181.92	193.82	212.68	221.29	221.29	239.80	253.22
Nevada	25.23	30.22	30.59	34.08	36.30	44.61	66.88	71.55	74.63	79.17	86.21	88.47	82.40	85.12	85.93	88.18	104.90	110.72	110.72	116.88	120.41
Oregon	34.37	41.91	44.92	46.92	47.78	54.13	70.41	77.21	85.11	85.86	102.11	99.11	95.95	90.73	102.12	105.82	116.80	125.09	125.09	129.70	132.60
Washington	40.16	55.93	55.38	55.26	54.78	71.09	90.50	87.43	105.27	103.95	123.93	119.13	120.53	118.05	132.26	133.54	137.25	140.15	144.53	151.05	158.54
U.S.	24.98	30.63	33.78	36.92	40.34	46.41	59.97	65.21	71.36	78.67	87.48	97.53	101.5	112.39	115.25	124.22	138.23	140.81	140.65	142.28	148.51

Table 4. Appropriations of State Tax Funds for Higher Education, Per Capita, Adjusted by HEPI, by Regions, FY1969-FY1989

	1968-69	1969-70	1970-71	1971-72	1972-73	1973-74	1974-75	1975-76	1976-77	1977-78	1978-79	1979-80	1980-81	1981-82	1982-83	1983-84	1884-85	1985-86	1986-87	1987-88	1988-89
New England																					
Connecticut	19.14	21.88	24.65	26.75	25.91	25.48	26.76	26.63	27.92	33.12	31.53	33.77	31.69	27.79	28.21	29.85	30.29	32.14	33.16	35.01	38.82
Maine	16.96	21.60	21.20	21.84	22.47	24.56	25.81	22.55	22.41	22.45	24.19	23.99	22.52	21.89	21.84	22.10	25.34	29.87	29.65	32.49	36.49
Massachusetts	11.46	12.39	15.68	16.62	18.67	19.99	20.83	23.31	22.93	23.52	25.13	23.49	24.06	24.63	25.39	34.31	35.43	38.72	38.29	41.36	39.55
New Hampshire	13.07	11.97	11.13	11.68	12.00	13.92	16.84	15.79	14.71	16.14	15.77	15.59	16.18	12.99	14.03	13.75	14.90	15.53	15.36	17.56	18.28
Rhode Island	21.40	25.17	25.26	22.93	25.27	29.08	30.96	39.47	38.08	35.30	35.20	35.42	34.09	32.95	33.13	34.10	33.25	33.55	33.28	35.42	37.54
Vermont	23.19	25.13	25.20	25.18	24.96	25.50	25.81	24.16	25.54	27.27	25.61	25.96	25.09	25.19	25.20	24.46	24.26	24.09	23.47	24.91	26.21
Mideast																					
Delaware	24.26	25.54	27.76	29.58	31.27	37.64	44.58	43.84	40.17	41.74	42.11	46.07	45.90	44.34	41.96	43.49	43.40	43.22	42.75	43.15	44.52
Maryland	19.17	19.40	23.31	25.57	27.09	27.33	30.93	35.40	33.97	35.19	36.01	37.21	34.67	35.00	33.13	34.97	35.71	36.15	35.76	37.12	40.88
New Jersey	12.50	14.55	16.44	18.51	22.53	22.96	22.09	24.35	24.57	25.16	25.18	24.88	23.91	23.20	23.23	24.22	32.61	32.83	32.29	35.97	39.26
New York	24.98	28.33	31.51	32.21	31.61	35.58	41.86	39.01	38.00	39.45	40.07	39.15	40.03	39.38	40.05	41.10	41.42	42.21	42.52	44.54	46.53
Pennsylvania	21.16	22.22	20.19	21.46	23.33	27.58	31.72	31.51	30.16	29.51	28.97	26.58	26.35	25.30	24.57	25.51	25.78	25.80	25.43	26.67	28.35
Great Lakes																					
Illinois	25.57	30.13	32.90	31.04	32.09	31.94	34.90	34.52	34.88	36.09	35.94	36.09	33.07	30.97	31.26	31.75	33.02	33.33	33.00	31.07	32.22
Indiana	26.28	24.55	25.69	27.95	27.64	27.29	33.45	34.28	35.17	35.88	35.26	35.76	33.29	30.60	29.70	30.69	31.88	33.13	32.83	34.51	36.43
Michigan	27.87	28.42	29.70	30.91	32.21	33.30	36.93	36.64	38.38	40.00	40.54	37.26	34.72	32.40	31.51	34.17	36.44	37.29	36.79	38.41	38.78
Ohio	15.42	18.60	18.82	19.55	19.77	20.99	25.37	26.37	27.28	28.11	28.69	28.19	24.50	27.07	26.51	27.37	29.13	31.02	30.68	31.72	32.65
Wisconsin	33.30	31.24	31.50	37.01	39.82	43.86	44.12	44.66	45.85	46.37	46.15	44.65	42.82	40.00	40.53	40.03	39.65	38.46	38.04	39.74	40.98
Southeast Alantic																					
Florida	21.76	24.15	26.12	24.20	26.65	27.19	30.94	29.44	30.76	31.54	32.71	33.45	31.20	31.02	29.66	29.85	29.92	31.24	30.92	31.59	32.70
Georgia	23.14	22.37	24.47	24.93	25.34	28.61	29.99	30.46	32.25	34.17	34.91	35.47	34.59	33.05	32.71	33.26	33.22	33.31	32.95	33.53	34.81
North Carolina	21.29	28.60	26.22	31.03	29.04	34.36	42.19	42.28	44.59	46.99	47.94	49.52	47.52	45.96	46.51	49.45	51.33	52.55	51.98	54.65	55.29
South Carolina	16.13	18.66	22.55	22.80	26.45	33.43	47.34	42.15	42.20	45.86	47.25	49.37	43.86	40.70	39.53	43.38	45.05	43.53	41.73	41.59	44.89
Virginia	21.81	20.89	22.20	23.37	26.45	27.11	35.15	35.95	45.87	41.25	39.75	40.37	38.54	39.15	36.46	40.43	40.43	44.79	44.33	42.66	46.66
Southeast Central																					
Alabama	16.01	17.40	16.59	22.18	22.16	32.31	36.26	42.04	44.90	50.47	46.44	47.66	40.68	35.84	33.63	39.31	45.50	38.39	43.10	44.24	49.83
Arkansas	21.85	20.47	21.59	19.01	19.15	22.85	30.30	30.69	31.65	32.56	35.76	36.15	30.49	29.75	27.72	33.06	36.87	32.05	31.39	32.31	31.98
Kentucky	24.12	24.50	22.71	23.95	25.57	25.08	33.67	33.36	33.56	39.26	39.51	36.64	36.76	34.24	35.15	34.11	33.83	34.26	33.88	36.11	37.09
Louisiana	25.68	22.53	25.45	27.35	27.07	27.17	32.11	32.04	33.40	35.39	38.35	41.66	40.22	40.17	37.23	38.80	37.24	33.54	30.59	29.65	28.87
Mississippi	20.34	19.35	24.70	26.81	28.89	31.01	39.08	37.10	41.94	45.60	44.81	45.20	45.16	40.38	43.54	39.15	44.64	34.78	34.29	36.97	43.25
Tennessee	17.57	18.34	19.06	20.51	21.66	23.46	25.14	27.10	28.95	32.46	33.65	32.44	29.46	27.98	26.97	31.36	33.62	35.34	35.40	35.71	37.01
West Virginia	26.52	26.07	25.72	28.39	30.19	29.47	34.70	35.86	36.70	39.64	39.31	38.00	36.56	33.43	32.96	34.48	34.41	34.31	34.04	33.36	35.51
Plains																					
Iowa	28.64	30.76	29.37	30.81	30.64	32.92	41.23	43.84	45.03	47.13	48.31	48.11	44.46	45.33	41.34	41.60	38.18	38.67	38.26	41.74	45.07
Kansas	28.99	29.30	28.31	27.48	28.75	31.39	41.17	43.31	43.26	47.53	46.88	46.09	44.67	45.15	41.09	43.87	41.74	39.86	36.61	39.57	41.18
Minnesota	26.06	27.85	28.87	31.29	31.32	38.67	38.60	46.57	50.83	49.23	52.98	49.46	47.84	43.88	47.82	46.56	50.07	49.11	50.87	52.17	54.10
Missouri	22.74	22.52	21.59	23.07	23.65	24.68	27.10	28.08	28.81	29.52	29.67	30.50	27.17	24.99	23.78	24.96	26.21	26.19	25.90	26.78	28.77
Nebraska	21.12	26.93	24.94	25.15	25.97	28.90	39.38	44.69	44.70	44.79	44.45	44.35	45.16	41.46	39.42	41.39	38.88	37.59	36.82	38.45	42.40
North Dakota	30.36	31.09	28.74	31.46	30.40	32.71	47.17	43.34	50.39	46.66	53.47	48.39	62.99	56.88	52.28	50.01	53.12	50.93	48.78	46.87	46.85
South Dakota	24.30	22.62	24.49	23.72	23.42	24.97	31.78	31.75	31.69	32.86	33.31	31.22	28.62	26.89	24.64	25.86	25.55	28.74	28.03	27.76	29.10
Rocky Mountain																					
Colorado	30.13	32.57	37.22	34.69	32.92	36.09	45.36	45.98	45.25	45.08	42.61	40.01	40.09	40.71	38.72	38.12	37.33	36.58	36.18	36.39	38.45
Idaho	27.26	34.61	33.05	32.93	32.89	32.95	46.77	48.28	49.07	48.65	43.88	43.71	38.16	37.40	33.53	34.47	35.29	34.75	34.37	37.43	38.74
Montana	33.19	31.81	31.79	31.33	29.62	32.63	37.72	35.58	36.71	35.99	35.51	35.55	40.30	41.43	41.71	40.68	38.02	34.58	33.54	34.59	34.70
Utah	30.02	31.22	31.91	32.67	34.21	36.18	45.27	48.22	51.01	51.81	51.26	49.44	45.15	44.61	41.01	43.18	43.69	43.26	40.65	41.64	41.21
Wyoming	31.61	36.52	33.45	38.81	36.28	42.14	57.23	51.09	58.18	57.65	56.15	65.83	66.49	68.12	63.56	60.80	62.74	60.87	61.61	60.71	62.45
Southwest																					
Arizona	29.30	30.55	34.08	35.69	37.09	39.97	46.09	46.94	50.24	47.27	45.56	48.10	42.76	39.80	37.62	39.54	41.18	41.84	38.85	39.95	42.89
New Mexico	29.00	29.36	30.65	30.90	32.28	31.76	40.39	40.41	43.37	47.85	47.81	48.52	49.98	47.80	44.41	49.17	48.08	44.90	47.67	47.68	47.79
Oklahoma	19.49	19.23	20.57	21.95	21.21	22.98	28.69	31.72	33.14	34.80	36.61	39.40	40.76	44.48	39.21	34.66	37.61	32.51	32.00	31.50	33.84
Texas	21.85	25.09	23.14	26.16	26.97	26.64	42.07	42.41	44.51	40.41	46.59	46.00	50.72	47.53	48.34	46.71	40.09	36.36	33.04	36.05	35.67
Far West																					
Alaska	32.38	32.39	41.70	43.98	46.15	44.46	102.44	104.05	88.66	87.70	82.89	84.74	115.81	122.89	110.13	103.39	142.73	114.56	114.00	83.56	83.67
California	30.13	31.00	31.13	30.49	33.82	35.69	45.06	48.80	48.23	53.01	58.18	58.48	53.27	46.67	41.49	47.10	47.90	48.23	47.13	48.02	48.31
Hawaii	37.96	44.84	53.39	53.16	52.98	43.19	63.33	64.91	65.40	63.24	62.00	62.16	60.75	0.00	58.87	59.64	61.29	60.96	60.30	64.64	67.52
Nevada	23.80	24.98	23.71	25.06	25.39	29.16	40.29	40.42	39.49	39.39	39.73	37.17	31.21	29.35	27.81	27.13	30.23	30.50	30.17	31.50	32.11
Oregon	32.42	34.64	34.82	34.50	33.42	35.38	42.42	43.62	45.03	42.72	47.06	41.64	36.34	31.29	33.05	32.56	33.66	34.46	34.09	34.96	35.36
Washington	37.88	46.23	42.93	40.63	38.31	46.44	54.52	49.40	55.76	51.72	57.11	50.05	45.66	40.71	42.80	41.09	39.55	38.61	39.38	40.71	42.28
HEPI Index	1.06	1.21	1.29	1.36	1.43	1.53	1.66	1.77	1.89	2.01	2.17	2.38	2.64	2.9	3.09	3.25	3.47	3.63	3.67	3.71	3.75

Table 5

RANK CHANGES BETWEEN TWO POINTS IN TIME, OF THE STATES IN APPROPRIATIONS PER CAPITA FOR HIGHER EDUCATION

States	1977-78 APPROPRIATIONS PER CAPITA	1977-78 RANK	1987-88 APPROPRIATIONS PER CAPITA	1987-88 RANK	1978 to 1988 Rank Change
Alabama	83.42	15	139.73	22	- 7
Alaska	165.97	1	299.34	1	0
Arizona	87.64	9	145.28	19	-10
Arkansas	58.22	41	116.88	41	0
California	87.91	8	171.64	8	0
Colorado	81.64	16	133.80	27	-11
Connecticut	61.22	37	128.99	33	4
Delaware	75.67	23	157.36	10	13
Florida	56.53	43	113.60	44	- 1
Georgia	59.66	40	122.05	37	3
Hawaii	121.55	2	235.15	2	0
Idaho	85.35	10	139.41	23	-13
Illinois	65.87	30	114.97	43	-13
Indiana	62.77	34	127.41	35	- 1
Iowa	84.50	12	155.77	11	1
Kansas	80.47	19	145.87	18	1
Kentucky	62.29	35	134.03	26	9
Louisiana	60.95	38	115.34	42	- 4
Maine	42.04	49	119.13	38	11
Maryland	65.55	31	135.54	25	6
Massachusetts	44.03	48	152.91	14	34
Michigan	71.93	26	142.72	21	5
Minnesota	94.65	6	192.10	5	1
Mississippi	77.49	22	137.92	24	- 2
Missouri	53.51	45	98.65	47	- 2
Montana	66.99	28	129.92	32	- 4
Nebraska	83.62	14	143.02	20	- 6
Nevada	68.25	27	111.77	45	-18
New Hampshire	31.67	50	63.29	50	0
New Jersey	55.16	44	132.08	29	15
New Mexico	78.81	20	174.43	7	13
New York	73.19	25	164.77	9	16
North Carolina	83.68	13	200.23	4	9
North Dakota	94.67	5	175.85	6	- 1
Ohio	51.36	46	117.32	40	6
Oklahoma	60.94	39	118.05	39	0
Oregon	80.85	17	128.46	34	-17
Pennsylvania	56.83	42	98.53	48	- 6
Rhode Island	66.77	29	129.94	31	- 2
South Carolina	78.27	21	152.12	15	6
South Dakota	63.16	33	104.43	46	-13
Tennessee	61.41	36	131.67	30	6
Texas	80.51	18	132.93	28	-10
Utah	90.05	7	153.11	13	- 6
Vermont	47.19	47	91.22	49	- 2
Virginia	63.86	32	155.12	12	20
Washington	100.25	4	148.52	16	-12
West Virginia	74.19	24	124.70	36	-12
Wisconsin	85.29	11	146.75	17	- 6
Wyoming	100.90	3	233.04	3	0

Table 6

RANK CHANGES BETWEEN TWO POINTS IN TIME, OF THE STATES IN APPROPRIATIONS PER CAPITA FOR HIGHER EDUCATION: ADJUSTED BY THE MCMAHON INDEX

States	1977-78 APPROPRIATIONS PER CAPITA	1977-78 RANK	1987-88 APPROPRIATIONS PER CAPITA	1987-88 RANK	1978 to 1988 Rank Change
Alabama	90.08	4	160.80	10	- 6
Alaska	*	*	*	*	*
Arizona	83.15	13	165.09	9	4
Arkansas	64.04	28	137.83	27	1
California	76.71	20	155.76	12	8
Colorado	76.37	21	131.70	33	-12
Connecticut	47.90	43	104.27	44	- 1
Delaware	64.07	26	154.73	13	13
Florida	57.68	38	125.38	37	1
Georgia	62.02	32	135.61	28	4
Hawaii	*	*	*	*	*
Idaho	83.27	11	156.65	11	0
Illinois	60.15	36	106.75	43	- 7
Indiana	61.30	34	131.89	32	2
Iowa	83.17	12	151.97	16	- 4
Kansas	80.71	16	148.85	18	- 2
Kentucky	61.92	33	150.26	17	16
Louisiana	63.62	29	132.88	31	- 2
Maine	42.08	46	126.74	36	10
Maryland	54.44	40	123.89	38	2
Massachusetts	38.46	47	134.13	30	17
Michigan	67.16	22	139.65	25	- 3
Minnesota	88.30	6	183.48	5	1
Mississippi	85.06	8	169.02	8	0
Missouri	52.15	41	101.91	45	- 4
Montana	65.16	25	141.84	24	1
Nebraska	82.55	14	142.59	23	- 9
Nevada	60.08	37	115.11	40	- 3
New Hampshire	27.95	48	62.11	48	0
New Jersey	44.49	44	110.90	42	2
New Mexico	77.95	18	208.65	3	15
New York	62.34	31	148.84	19	12
North Carolina	89.12	5	223.47	2	3
North Dakota	91.47	3	185.89	4	- 1
Ohio	48.27	42	116.51	39	3
Oklahoma	66.82	23	135.23	29	- 6
Oregon	77.51	19	129.11	34	-15
Pennsylvania	56.15	39	98.24	46	- 7
Rhode Island	60.65	35	128.27	35	0
South Carolina	83.27	10	179.18	7	3
South Dakota	63.35	30	112.41	41	-11
Tennessee	65.89	24	146.46	20	4
Texas	86.57	7	152.62	15	- 8
Utah	83.69	9	180.55	6	3
Vermont	43.86	45	96.13	47	- 2
Virginia	64.05	27	153.28	14	13
Washington	92.31	2	146.32	21	-19
West Virginia	81.88	15	139.49	26	-11
Wisconsin	80.46	17	145.15	22	- 5
Wyoming	96.65	1	243.25	1	0

Table 7

DOUBLE DIGIT "LOSERS" AND "GAINERS" IN RANK ORDER IN APPROPRIATIONS PER CAPITA, USING CURRENT DOLLARS AND ADJUSTED DOLLARS, FOR TWO POINTS IN TIME, 1977-78 AND 1987-88

Losers		Gainers	
	Current Dollars		
Nevada	-18	Massachusetts	34
Oregon	-17	Virginia	20
Idaho	-13	New York	16
Illinois	-13	New Jersey	15
South Dakota	-13	New Mexico	13
Washington	-12	Delaware	13
West Virginia	-12	Maine	11
Colorado	-10		
Arizona	-10		
Texas	-10		
	Adjusted by the McMahon Index		
Washington	-19	Massachusetts	17
Oregon	-15	Kentucky	16
Colorado	-12	New Mexico	15
South Dakota	-11	Virginia	13
West Virginia	-11	Delaware	13
		New York	12
		Maine	10

Table 8

ELASTICITY MEASURE COMPARISON OF THE STATES
LOG/REGRESSION
FOR THREE PERIODS: 1969-1979, 1979-1989, 1969-1989

States	1969-1979 Elasticity	Rank	1979-1989 Elasticity	Rank	1969-1989 Elasticity	Rank
Alabama	2.078	1	1.094	9	1.404	2
Alaska	1.734	4	1.460	5	1.550	1
Arizona	1.330	25	0.715	38	0.955	38
Arkansas	1.260	31	0.910	20	1.130	20
California	1.615	9	0.671	44	1.110	22
Colorado	1.160	40	0.824	29	0.850	46
Connecticut	1.380	22	0.922	19	1.006	35
Delaware	1.700	5	0.692	39	1.246	9
Florida	1.185	36	0.815	30	0.971	37
Georgia	1.300	27	0.688	40	1.031	32
Hawaii	1.434	19	1.038	11	1.145	17
Idaho	1.279	28	0.907	22	0.952	39
Illinois	1.097	44	0.808	32	0.928	41
Indiana	1.230	34	1.024	13	1.057	30
Iowa	1.344	24	0.674	42	1.107	23
Kansas	1.388	21	0.603	47	1.087	25
Kentucky	1.327	26	0.909	21	1.138	18
Louisiana	1.161	39	0.354	49	1.060	28
Maine	1.036	46	1.476	3	1.009	33
Maryland	1.578	11	0.887	24	1.133	19
Massachusetts	1.825	3	1.621	2	1.372	3
Michigan	1.260	30	1.111	8	1.043	31
Minnesota	1.586	10	1.034	12	1.185	14
Mississippi	0.764	49	0.566	48	0.813	48
Missouri	1.214	35	0.812	31	0.922	42
Montana	0.934	47	0.767	33	1.001	36
Nebraska	1.683	6	0.649	45	1.203	13
Nevada	1.457	18	0.901	23	1.007	34
New Hampshire	1.167	38	0.877	27	0.881	45
New Jersey	1.672	7	1.468	4	1.219	11
New Mexico	1.258	32	0.984	17	1.178	15
New York	1.577	12	1.018	15	1.087	24
North Carolina	1.623	8	1.018	16	1.309	6
North Dakota	1.154	41	0.733	36	1.207	12
Ohio	1.525	13	1.373	6	1.266	7
Oklahoma	1.401	20	0.674	41	1.253	8
Oregon	1.097	45	0.858	28	0.843	47
Pennsylvania	1.345	23	0.963	18	0.939	40
Rhode Island	1.510	15	0.879	26	1.067	26
South Carolina	1.918	2	0.749	34	1.343	4
South Dakota	1.133	42	0.886	25	0.914	43
Tennessee	1.468	17	1.242	7	1.246	10
Texas	1.522	14	0.236	50	1.168	16
Utah	1.484	16	0.737	35	1.116	21
Vermont	0.923	48	0.674	43	0.794	49
Virginia	0.567	50	1.039	10	1.059	29
Washington	1.109	43	0.645	46	0.794	50
West Virginia	1.177	37	1.024	14	1.066	27
Wisconsin	1.264	29	0.718	37	0.910	44
Wyoming	1.243	33	2.166	1	1.314	5
U.S.	1.386		0.872		1.131	

Table 9

REVENUE AVAILABILITY, APPROPRIATIONS INCREASES, AND EFFORT FOR HIGHER EDUCATION

TOP NINE TWO-YEAR GAINERS				BOTTOM TEN TWO-YEAR GAINERS			
States	General Fund Increase[1]	State Approp Increase[1]	Higher Education Increase[2]	States	General Fund Increase[1]	State Approp Increase[1]	Higher Education Increase[2]
	1-year %	1-year %	2-year %		1-year %	1-year %	2-year %
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Mississippi	7.7	11.3	30.5	Massachusetts	*	*	6.4
New Hampshire	3.7	3.9	29.5	Utah	4.7	4.5	6.2
Maine	7.1	14.6	29.2	Arkansas	3.8	15.5	5.9
New Jersey	8.7	10.3	26.4	West Virginia	2.8	2.6	4.5
Hawaii	0.4	5.6	24.2	Montana	-1.9	1.6	4.0
Alabama	*	*	22.7	Illinois	3.0	12.6	0.5
Maryland	5.9	10.5	22.0	Wyoming	-2.0	-18.2	0.5
Connecticut	12.2	11.7	21.5	North Dakota	0.0	0.0	-2.0
Arizona	11.3	12.3	20.8	Louisiana	3.3	-4.4	-3.3
				Alaska	-16.6	-0.7	-21.0
Mean in FY89	7.3	9.1	25.2	Mean in FY89	- 0.3	1.5	0.2
Mean in FY88	7.2	7.7	23.0	Mean in FY88	5.1	0.8	-5.3
Mean in FY87	5.6		26.1	Mean in FY87	- 2.1		-0.4

*Not reported

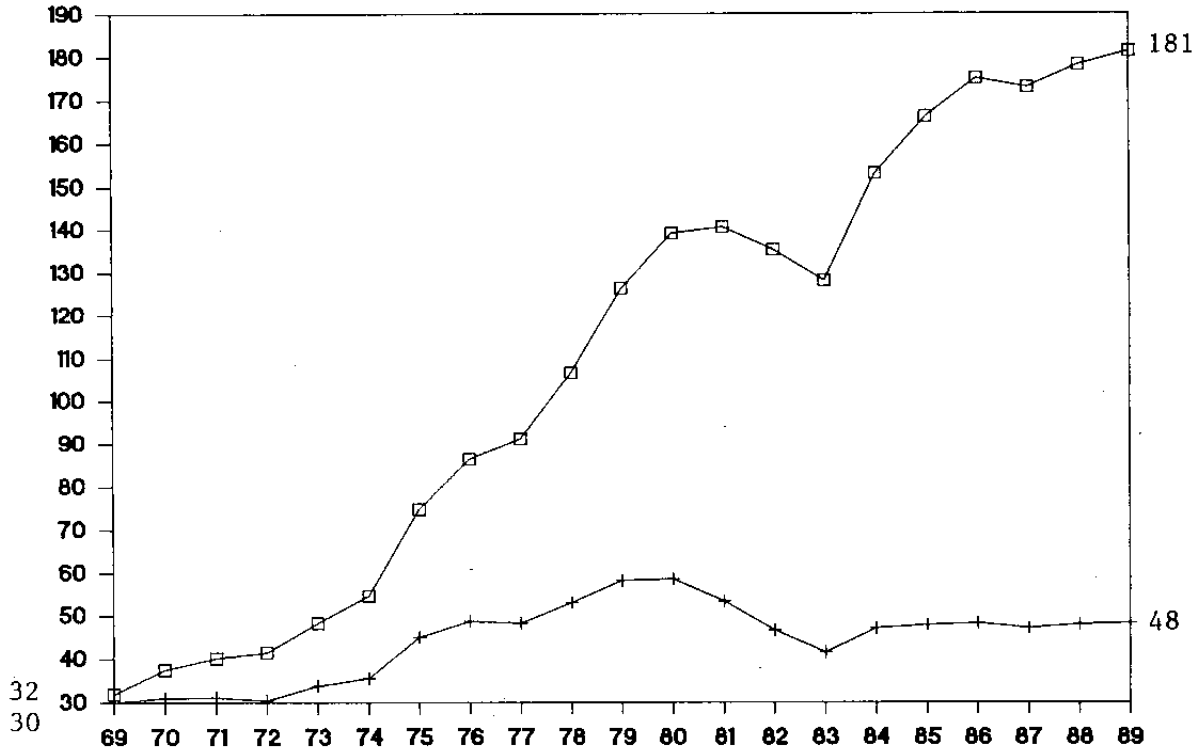
Sources: [1]Gold, Steven D., Corina L. Eckl and Martha A. Fabricius. State Budget Action in 1988.
[2]Grapevine

Table 10

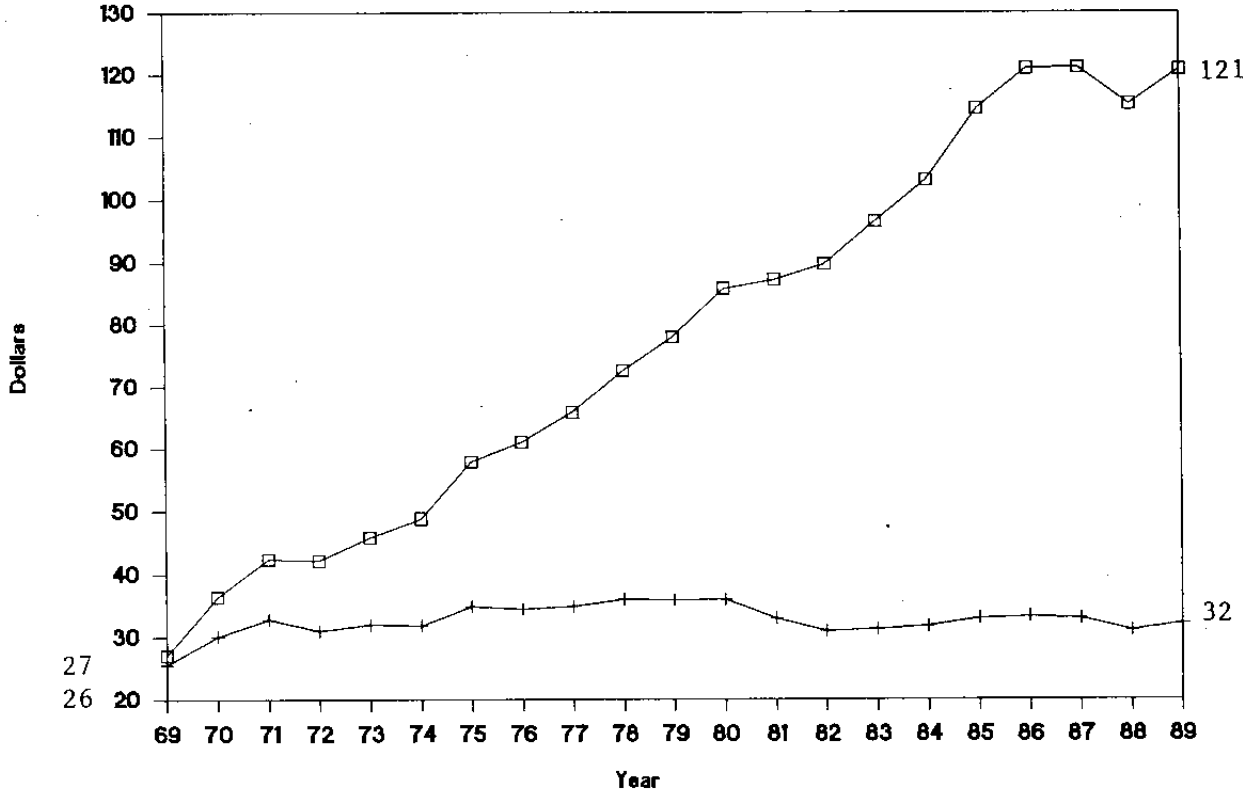
ONE-YEAR PERCENTAGE GAINS IN APPROPRIATIONS FOR OPERATING EXPENSES OF HIGHER EDUCATION, NATIONWIDE, GREAT LAKES REGION AND ILLLINOIS, 1970 - 1989

Year	National	Great Lakes	Illinois
1970	22.6	20.5	35
1971	12.2	12.0	17
1972	10.6	12.1	0
1973	10.4	8.7	9
1974	16.2	11.1	7
1975	14.1	11.1	13
1976	12.8	9.7	3
1977	9.7	8.9	9
1978	10.6	8.4	6
1979	10.9	10.6	14
1980	12.4	8.1	4
1981	9.3	7.0	13
1982	10.1	5.3	4
1983	5.6	4.4	1
1984	5.9	6.7	6
1985	10.1	7.7	7
1986	8.0	11.4	11
1987	4.8	6.5	6
1988	6.2	3.8	-4
1989	5.8	4.8	5

CALIFORNIA



ILLINOIS



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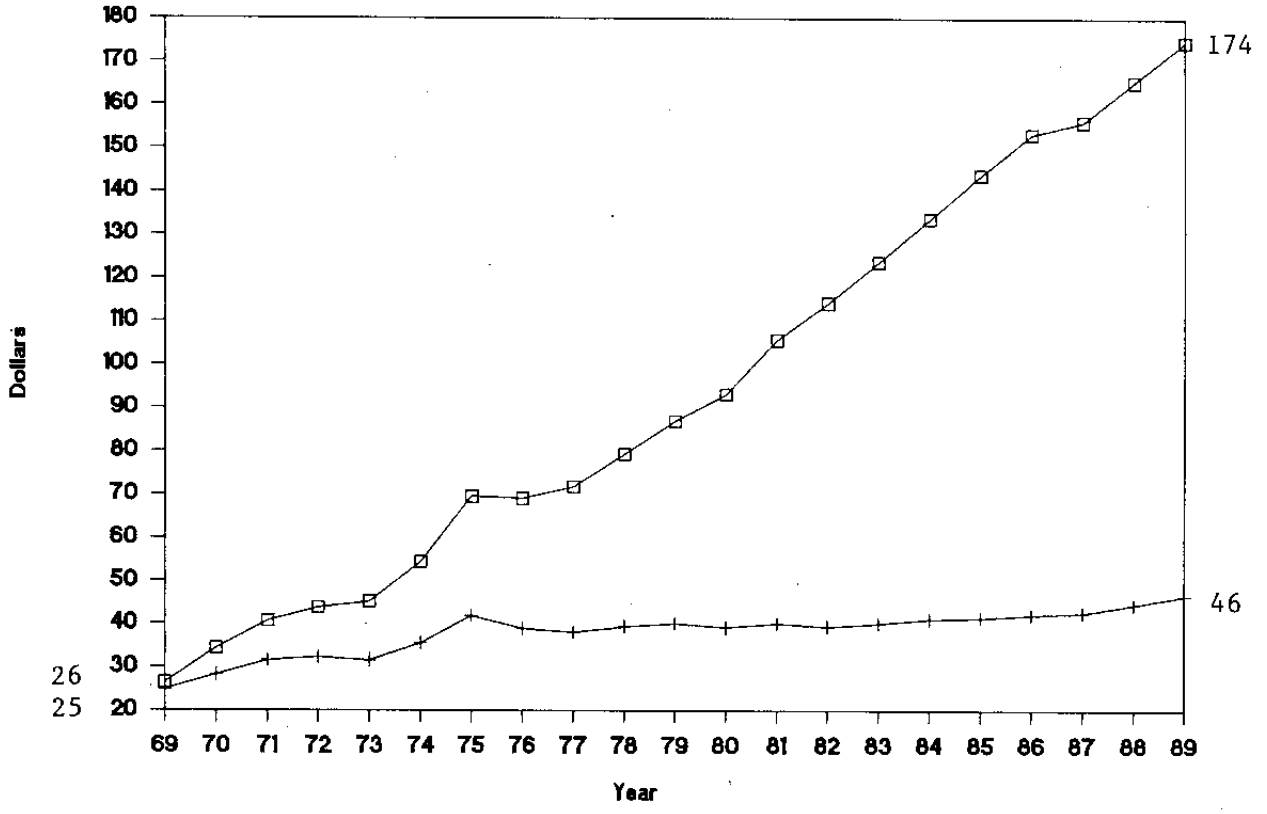

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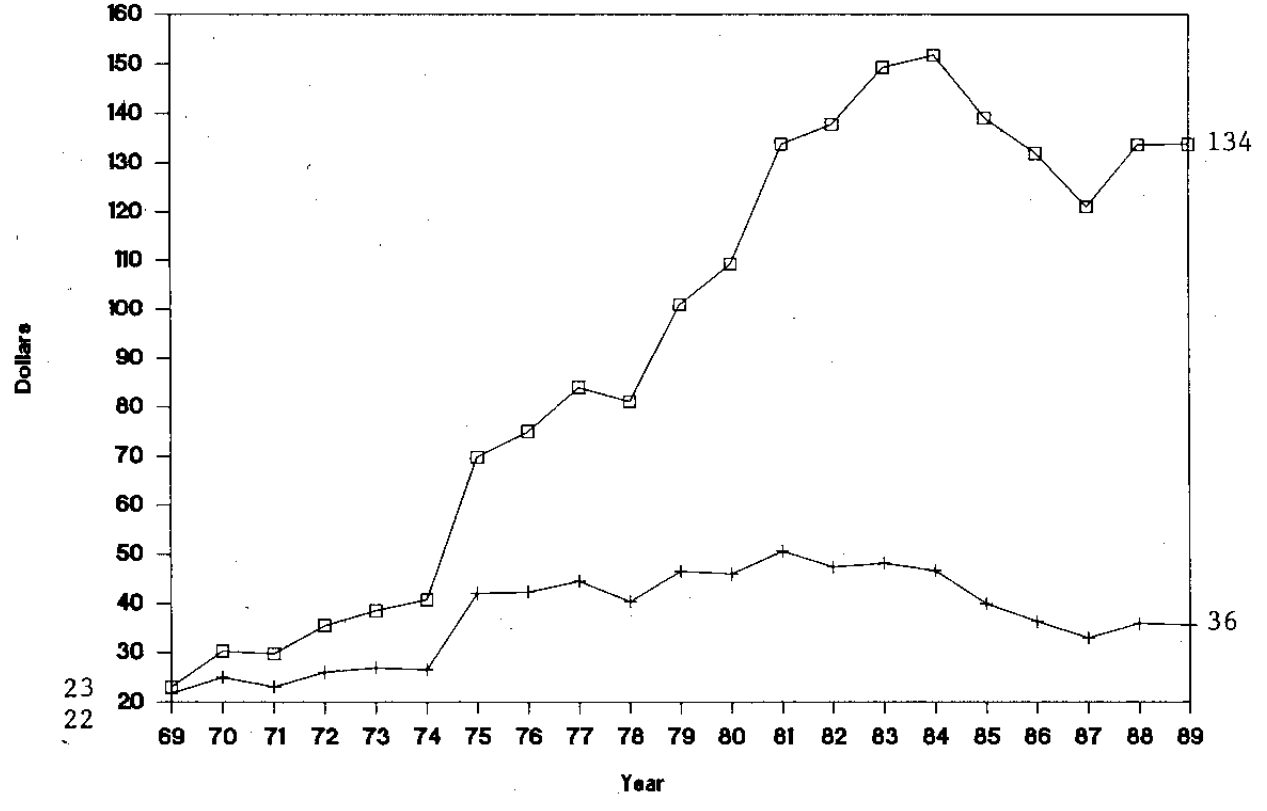

APPENDIX B

CALCULATIONS OF ELASTICITY MEASURES

I) **Two Points Method:**

Elasticity measures were calculated using the two points in time method for higher education appropriations per capita and income per capita for three time periods:

1. 1969-1979
2. 1979-1989
3. 1969-1989

The percentage change in appropriations per capita was divided by the percentage change in per capita income to derive the elasticity measure. Rank orders were assigned (1=highest, 50=lowest) for each of the three time divisions.

PROGRAM: LOTUS 123

II) **Log/Regression Method:**

Appropriations per capita and income per capita data were transformed into the logs (natural log (base e) of x) for each of the fifty states for each year in the time series (1969-1989). Elasticity measures were calculated with regression analysis using the log transformation for appropriations per capita as the dependent variable and the log transformation for income per capita as the independent variable for each of the three time periods noted above. Rank orders were assigned (1=highest, 50=lowest) for each of the three time divisions.

PROGRAM: LOTUS 123, SYSTAT