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STATE SUPPORT OF HIGHER EDUCATION: FROM EXPANSION TO STEADY STATE TO DECLINE, 1969 TO 1989*

Funded by the John D. and Catherine T. MacArthur and the Lyle Spencer Foundations of Chicago, Illinois, a five-year agenda of research in educational finance at all levels (K-12 and higher education) is presently being conducted at Illinois State University. The most recent publication in the series deals with state support of higher education and a portion of that monograph (now in press) is presented here.

The analysis is based on GRAPEVINE data for two decades, 1969 to 1989. There are limitations to the use of tax appropriations as a measure of state effort for higher education because 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 the private sector. 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. 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. 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. That is, those states that spend more provide a higher level of education to their citizens.

Regional Cost-of-Living Adjustments

Examination of current and constant dollar appropriations begins to reveal trends over this 20-year period. 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 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.

*A copy of the complete report, Number 9 in the MacArthur/Spencer series, may be obtained from: The Center for the Study of Educational Finance, 331 DeGarmo Hall, Illinois State University, Normal, IL 61761.

Table 1

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

States	1977-78		1987-88		1978 to 1988 Rank Change
	APPROPRIATIONS PER CAPITA	1977-78 RANK	APPROPRIATIONS PER CAPITA	1987-88 RANK	
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

Tables 1 shows current dollar appropriations per capita, state rankings and rank changes for the two points in time, 1978 and 1988. Table 2 incorporates the McMahon Regional Cost-of-Living Index and shows adjusted per capita appropriations, state rankings and rank changes for the two points in time.

The adjacent display summarizes the two tables to show those states which experienced either double-digit losses in rank or double-digit gains in rank. Ten states had double-digit losses between the two years using current per capita appropriations. Eight of those 10 states (Arizona, Idaho, Illinois, Nevada, Oregon, South Dakota, Texas, West Virginia) improved by using the regional cost-of-living index. 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.

----- LOSERS -----		----- GAINERS -----	
Current Dollars		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	-11		
Arizona	-10		
Texas	-10		
Adjusted by McMahon		Adjusted by McMahon	
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

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 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 personal income.

Tables 3 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 with the addition of new and larger institutions. Fifteen states had elasticities greater than 1.5. The decade of the 1980s showed a much different picture of the states. In this decade, one state (Wyoming) had an elasticity above 2.0. Massachusetts had an elasticity greater than 1.5, and 14 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 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. Arizona, 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. 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. 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. 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. The elasticities, however, do indicate 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.

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

States	1969-1979		1979-1989		1969-1989	
	Elasticity	Rank	Elasticity	Rank	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	

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