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Intrastate Variation in Community College Revenues: The Role of Local Financing

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Abstract

This study examines several questions about the impact of local funding on community college finance equity. Community college systems in half of the United States have a structure similar to K-12 finance systems, in that they rely on local governments for funding. From a critical ideological perspective, it is hypothesized that local funding in community colleges creates revenue disparities that disadvantage low-income students and students of color, as has been shown to be the case in K-12 schooling through finance litigation. Analyzing finance data for a subsample of the national IPEDS survey, the study demonstrates that significant intrastate revenue disparities do exist. However, states with local funding do not have a greater range of revenue disparities than those with no local role. In addition, revenue deviations in local control states are not more strongly correlated with measures of community wealth than revenue deviations in states with no local control. Local funding states do have higher levels of per student revenues, suggesting that local control can have a positive effect by increasing overall levels of public financing for community colleges.

Community colleges are the gateway to higher education for large numbers of students, including many who have low socio-economic status in the United States. The period of tremendous community college growth in the 1960s-70s contributed to an increase in participation by students who had traditionally been underrepresented in higher education. Community colleges were built and financed in a manner to increase access. Colleges were located geographically to enable attendance by day-time commuters. Financial resources were distributed by funding formulas based on the number of students enrolled. Tuition charges were low or non-existent. For these reasons, the community college system is often understood as an important site for progressive movement towards social and economic equality. The 1980s brought a new era in which public institutions were not only expected to serve the public good but to do so in an efficient manner. Drawing on private sector management concepts, legislators and policy makers sought to finance community colleges in ways that promoted administrative efficiencies, market-oriented entrepreneurship, and academic productivity.

The rhetoric of public college funding shifted in the 1980s and 90s from a focus on equity to one on efficiency. Various efforts such as performance funding and private fundraising incentives were initiated to supplement or supplant per student formula funding. Formula funding typically provides equal shares of public resources to students in different colleges, with "power-equalizing" adjustments or categorical aid providing additional funds for students with greater educational needs. In contrast, efficiency measures tend to emphasize private-sector managerial practices and market-based revenue generation (Burke & Serban, 1998; J. S. Levin, 2001). In the context of this diminished focus on "fair share" funding, it is important to examine the equity of

resource distribution in state community college finance systems. This study describes contemporary sources of community college revenues and variation in per capita revenue at colleges within state systems. Based on a critical ideological perspective (Creswell, 1998), it examines the hypothesis that per capita revenue disparities are inequitable in ways that disadvantage students of color and low socio-economic status.

Conceptual Framework

The distribution of financial resources to community colleges within a state is conceptualized as determined by rational and political factors. Rational factors include per capita funding and cost adjustments for urbanization and economies of scale. These rational systems are understood to be modified by "politically mobilized and well-connected groups," who garner a greater share of resources through political means (Timar, 1994, p. 144). These political forces can have equitable effects, as in the creation of categorical aid for students with high educational need, or inequitable effects, as in the flow of funds to wealthy suburbs. The conceptualization of equitable funding is based on the scholarship of school finance (Monk, 1990; Odden & Picus, 2000; Verstegen, 1998; Wong, 1994) and community college finance equity (Breneman & Nelson, 1981; Garms, 1981). Recent research by Hoxby (2001), Metzler (2003), and Timar (2003) shows that court-ordered finance reform is often an ineffective tool to counter finance inequities. Their studies indicate that rational resource allocation systems are undermined by political lobbying and individual choices in educational markets. The study also draws on work by Volk, Slaughter, and Thomas (2001), who have applied rational/political and critical/political theories to examine the distribution of state appropriations to the departments of a research university.

A comparative history of community college and K-12 school financing informs a critical view of intra-state resource disparities in community college systems. Community colleges share governance, finance, and academic characteristics with secondary schools. These characteristics may make community college finance systems vulnerable to the same kind of resource inequities that have been repeatedly challenged by equity advocates since *Serrano v. Priest* was decided by the California Supreme Court in 1971.

As in K-12 finance, 26 states have local government financing of community colleges (*State Funding*, 2000). *Serrano*, and many other state high court cases that followed, found that dependence on local school taxes creates an inequitable finance system in which the resources provided to students depends on neighborhood wealth. The remedy to achieve wealth or "fiscal neutrality" involved a greater role of state governments to redistribute resources among school districts. Similarly, the broad trend since the earliest days when community colleges were extensions of secondary schools has been towards increasing state and declining local support. This trend, according to a recent report by the Community College Policy Center of the Education Commission of the States (*State Funding*, 2000), was motivated by "concerns about the significant variations in the ability of small communities to support local colleges." The authors observed that these variations can lead to significant differences in tuition rates within a system: "Dramatic differences in property tax valuations across a state can lead to large disparities in tuition rates between wealthier communities and poorer districts, because poorer districts may be forced to raise tuition and fees to meet their basic budgets" (*State Funding*, 2000, p. 10). Thus, the state role is viewed as promoting equitable resource distribution.

Figure 1 illustrates a conceptualization of seven major community college financing mechanisms along an equity-efficiency continuum and a historic time line of their prominence as a source of funds. The diagram suggests the complexity of community college finance today. Funds flow from the federal, state, and local levels. Since the 1960s, new efficiency-minded mechanisms have been grafted on top of traditional funding formulas. The depiction of a continuum illustrates that mechanisms designed to promote efficiency are not completely incompatible with equity goals (Dowd, 2003). State per student funding is conceptualized as equitable when applied in conjunction with categorical aid. The provision of greater shares of resources to students with greater need supports the principle of "vertical equity" (Monk, 1990; Odden & Picus, 2000). Similarly, system-wide tuition and fee charges are considered equitable when offset by means-tested financial aid that reduces charges for low-income students. Local funding is expected to introduce inequitable disparities as wealthier communities provide greater resources to their colleges. The equity effects of grants and special programs depend on the specific program. State or federal legislative "earmark" or "pork barrel" projects are likely to flow to communities with legislative power rather than to those with greatest need. On the other hand, during the building era of community colleges, federal funds subsidized construction and promoted access by increasing the number of colleges. Today, TRIO and GEAR UP funds for student advising promote access by providing information and support to first generation college students.

Performance funding, with its emphasis on administrative and academic productivity, is conceptualized as promoting efficiency rather than equity. Performance accountability plans that promote entrepreneurship are likely to create inequities if each

campus does not have access to valuable markets and corporate clients. However, to the extent performance accountability plans actually do promote high quality educational programs, they will have positive equity effects by providing access to a better education for all students in a community college system. As Levin points out in reference to secondary schooling, poorer students are more likely to suffer administrative inefficiencies (H. L. Levin, 1994). Though the actual amount of performance accountability funds have been minimal, accountability rhetoric has received considerable legislative attention and even small amounts may affect college operations (Dougherty, 2002). Finally, private fundraising is conceptualized as an inequitable source of funding, as colleges in wealthier areas have a greater capacity to cultivate relationships with corporate and private donors. While a critical perspective suggests fundraising inequities will be observed by differences in race and class, the proximity of colleges to centers of business and industry is also an important factor determining opportunities for fundraising.

This study examines a subsample of national college finance data to describe the extent of revenue disparities in state community college systems and examine the effects of local versus state governmental financing on those disparities. It focuses narrowly on local and state appropriations to colleges, which are among the largest sources of revenues, while recognizing that these finance mechanisms are part of the complex finance system described above. Based on a critical perspective, the study starts with the hypothesis that revenue disparities in local and state appropriations disadvantage students of color and low socio-economic status. Local financing is conceptualized as a form of

political power that is expected to create resource inequities by enabling wealthier communities to direct funds to their local college rather than to the state system. The following questions are evaluated:

1. How much do college revenues per student vary within state systems?
2. Does local share funding increase the amount of revenues per student?
3. Does local share funding increase the intrastate variation of revenues per student?
4. Does local share funding increase the intrastate variation of tuition and fees?
5. Does local share funding direct resources away from students of color and low-income students?

Data and Methods

A subsample of data from the national 2000-2001 Integrated Postsecondary Education Data System (IPEDS) Finance survey is analyzed. IPEDS is a census survey of higher education institutions in the United States. The sample is limited to those categorized in IPEDS as two-year public colleges that are not technical colleges (omitting those in the U.S. territories).[1] Since the focus is on variation in revenues to colleges within a state, the states reporting financial data on fewer than five community colleges are excluded, omitting 15 states.[2] The remaining sample includes 715 community colleges with non-missing data in 35 states.

Descriptive statistics summarize the proportion of revenue coming to colleges from state, local, and other sources. To compare revenue across colleges with different enrollments, they are divided by the full-time equivalent (FTE) student count, creating a measure of revenue per capita.[3] The primary focus is on the level of appropriations from

state and local governments. Therefore, the primary dependent variable of interest measures local and state appropriations per FTE. Colleges are categorized in five local funding share categories based on the ratio of local appropriations to state appropriations. Based on the distribution of colleges in these five categories, states are designated as primarily local-share funded or state-funded. Variation in local and state appropriations is measured by deviation from the median value for each state. The standardized expression of this deviation represents the distance of each college from the state median value in a metric that can be compared across states.[4]

Community racial characteristics are measured by the proportion of White, Black, Hispanic enrolled for credit at each college. The proportion of full-time students at each college who receive federal grant aid, a variable included in the IPEDS 2000-2001 data, is used as a measure of community wealth. College enrollment size is measured by the twelve-month unduplicated enrollment count. Urbanization is indicated by a variable ranking the college's geographic area in eight ordinal categories, ranging from urban to rural. The relationships between variables are analyzed using graphs and descriptive statistics.

Limitations

There are several important limitations of the research design. First, and as with all national studies of community colleges, the study does not directly account for state-level differences in community college mission, status, governance, history, and finance structure. For this reason, revenue disparities are measured at the state level and descriptive statistics summarizing revenue deviations are presented by state. Second, the use of measures of enrolled student characteristics (e.g. percentage of Hispanic students

or percentage of students receiving federal grant aid) does not function fully as a proxy for community racial and income characteristics. Groups that disproportionately enroll on a part-time basis, enroll in non-credit courses, or who do not enroll at all are underrepresented. Colleges with higher tuition and fees will have a greater percentage of students qualify for financial aid, even if they do not serve more low-income students. Even variation in the percentage of students receiving aid at colleges in the same state does not represent variation in community wealth because some states have significant variation in tuition and fees. Measures of community demographic and socioeconomic status characteristics from the U.S. Census would be preferable and should be explored in future analyses, if data can be successfully matched to community college service areas.

The use of the percentage of full-time students receiving federal financial aid (AID) as a measure of community wealth was evaluated using Census data from New York State and Massachusetts. Colleges were matched to the county or counties in which they are located. Using logarithmic transformations to correct for skewed distributions, the Pearson correlation in New York State (n=32) between AID and the community wealth measures of percentage children in poverty ("POV") and median income is strong at .766 and -.758 respectively. (The two wealth measures have a correlation of -.809.) The correlation in Massachusetts (n=15) between AID and POV is moderate at .614, while the correlation with income is weak at -.329. (The wealth measures have a correlation of -.854.) This analysis demonstrates that receipt of federal grant aid is a reasonable but imperfect measure of community wealth, with the appropriateness of its use perhaps varying by state and community demographic characteristics and by the range of tuition and fees within a state.

Several components of the community college finance system that are conceptualized as affecting equity are not directly measured. These include state categorical aid not allocated through appropriations, state financial aid, performance funding, federal grants, and private fundraising. Philanthropic donations to community colleges are typically made to college foundations, which are separate non-profit entities. Funds held by these foundations are not reported in IPEDS.

Finally, additional measures of legislative power, such as the number of legislators representing the college, their tenure in the legislative body, and their membership on legislative committees with budget oversight, would be desirable to control for the influence of individual legislators. This information is not available in IPEDS, but it would be possible to conduct state case studies and to incorporate this information from public legislative databases. The results of this study provide the basis for purposeful sampling of information-rich state cases, such as those with high or low intrastate revenue variation and different levels of local funding share.

Results

In this sample of U.S. community colleges, state appropriations are the largest source of all revenues with a mean share of 38%. Tuition and fees contribute 20% and federal grants and contracts 13%. Including colleges with zero local share, local appropriations average 13%. The local share contingent on non-zero local funding increases to 21% and the state share is reduced to 33%. Auxiliary revenues contribute 6% and state grants contribute 5%. Other sources of revenue such as private gifts and local grants contribute 3% or less, on average.

The mean value of total revenues per FTE is $10,200, with a standard deviation of $4,264. The mean value of state and local appropriations per FTE is $5,154, with a standard deviation of $2,457. Table 1 shows these values by state and reveals a great deal of variation in the level of resources both within and across states. Table 2 shows the mean and standard deviation of state and local appropriations per FTE by state. Ten states in the sample report no local appropriations. Several states, for example Alabama, have a very small mean local appropriation with a relatively large standard deviation. This occurs when reported local funding differs within a state, with the majority of colleges showing zero local funding and others reporting positive values. Table 2 demonstrates the considerable variation in the local funding role across the states. In addition, the level of variation in state appropriations per FTE is considerable, reflecting different levels of public finance commitment to community college systems.

Table 3 reports the extent to which the FTE funding received by colleges from local and state appropriations deviates from their state mean (DEV). In addition to reporting the minimum, maximum, and range of values, the table indicates the interquartile range (IQR) and 90^{th} percentile values because the values at the extremes are affected by the greater funding levels provided by many states to colleges with special missions and by special status colleges. The decision to omit such unique colleges from a comparison of community college revenue shares should be made on a state-by-state basis, and that step has not been undertaken here. Therefore, the IQR and the 90^{th} percentile values are the preferred measures of revenue variations in this sample, where the deviations tend to have a positive skew. (There is only one extreme case with a negative value.)

The IQR values again reveal significant deviation in appropriations per FTE, from relatively modest differences of $315 per FTE in Tennessee to potentially troubling differences of over $1500 in fifteen states. Table 3 documents the degree of revenue disparities but does not inform understanding of the equity of these disparities, a task which is taken up below.

After observing histograms of the distribution of the IQR and 90th percentile deviation values for each state (not shown), states were categorized as having a high IQR ($1500 or above) or having a high 90th percentile value ($2,000 or above). California, which was located at the middle of the distribution (at values of $1,487 and $2,035, respectively), was treated as a unique case due to the large number of colleges there and the state's unusually low tuition. This process highlighted six states with high revenue deviations: Arizona, Colorado, Florida, Michigan, North Carolina, and Texas. Whereas four of these states are primarily state funded (AR, CO, FL, NC) and two have a significant local funding role (MI, TX), these states represent a potentially information-rich sample for a case study of the role of local and state funding mechanisms on finance equity. Through similar steps, states with low deviations may be identified for an analysis of the equity of equal funding shares.

Tables 1 through 3 answer the first question of the study and demonstrate that revenues per student range quite considerably across states and within states. To evaluate the next question, five categories of local funding share were created based on the ratio of local appropriations to state appropriations. These categories, which were created based on the distribution of ratios, encompass local share funding ratios of 0-.01 (n=268), .02-.50 (n=199), .51-1.0 (n=121), 1.01-2.0 (n=70), 2.1 and above (n=47). Colleges within the same state may appear in a different local funding share category, because the ratios differ by college. Table 4 shows the distribution of colleges within the local share categories by state. In some states, such as Colorado, Connecticut, and Florida, colleges consistently report no local funding. Other states, such as Alabama and Arizona, are dominantly state funded, but also have a small number of unusual cases reporting a small local share. In states with a local funding role, such as Arizona, California, and Illinois, colleges are distributed across the funding share categories, most likely due to variation in the local funding effort relative to uniform state funding levels.

Figure 2 and Table 5 provide an answer to **Question 2**: Does increased local share funding increase the amount of local and state appropriations per FTE (as opposed to representing a zero-sum trade-off with state appropriations)? The boxplots of Figure 1 illustrate that colleges in the zero local share category have the lowest median appropriations, which at $4,254 is roughly $550 to $1300 less per FTE than the median value of any of the local share categories. With an interquartile range equivalent to or less than the other categories, the 75th percentile value in zero share states is always less than the 75th percentile in the other categories, and in some comparisons is closer to the median value in states with local spending. No college with a local funding share has per

FTE appropriations less than the lowest values in the zero share category. Figure 3 and Table 6 repeat these analyses using a measure of revenues per FTE from all sources, excluding tuition and fees. The same pattern of relationships emerges, with the exception that the zero share category has a relatively large interquartile range and the 75th percentile value is more equivalent to that in the local share categories. Across the local share categories, revenues do not increase monotonically. There is some evidence of a U-shaped relationship, with colleges in the smallest and largest local share categories associated with greater revenues per FTE.

These comparisons show that a combined state and local government role is associated with higher appropriations for community college students. Further multivariate controls are required to conclude that a combined governmental role leads to higher overall spending per student (as local share colleges may be disproportionately located in areas with higher costs). However, it may be that when local governments have responsibility for funding community colleges, they not only generate additional funds themselves, but also take a more active role in lobbying state and federal legislators for funds than do their counterparts in states with no local role, resulting in higher overall levels of public funding.

Figure 4 and Tables 7-9 provide results relevant to **Question 3**: Does local share funding increase the intrastate variation of revenues per student? Because colleges within the same state are sometimes distributed across the five local share funding categories analyzed above, a new variable was created to evaluate this question. It designates "local share" funding states as those with 75% or more of colleges reporting non-zero local appropriations. Other states are designated as "state funded." Table 7 shows the

assignment of states as local-share or state-funded states. Table 8 indicates the distribution of college-level deviations from median appropriations in the state, measured in dollars. Consistent with the analysis of revenues above, states with a local share have higher levels of appropriations and a greater range of appropriations as measured by the IQR, 90th percentile, and maximum values. However, this variation is directly related to the higher levels of spending and different levels of funding in states with colleges reporting local funding. Therefore, the standardized values of state-level deviations are presented in Table 9 and in Figure 4. As measured by the minimum, IQR, and 90th percentile values, states with local-share funding have a smaller range of FTE local and state appropriations.[5] These results provide evidence that local share funding does not create greater variation in revenue disparities.

States differ in the responsibility placed on students to finance their community college enrollment through tuition and fees. Table 10 shows the average tuition and fees for students enrolled full time by state, as well as the average percentage of full-time students at each college receiving federal financial grant aid. The tuition burden placed on students varies considerably, from a low of $310 in California to a high of $2,650 in Ohio. As indicated by the standard deviations, there is considerable variation in tuition and fee charges within states.[6] In all states, colleges report a significant number of students receiving federal grant aid to pay college expenses, with values ranging from approximately one-quarter to one-half of full-time students. These values reflect the impact of indirect enrollment costs, which necessitate financial aid for low-income students even when states keeps tuition and fee charges low.

Figures 5-6 provide an answer to **Question 4**, regarding the hypothesis that local share funding increases the intrastate range of tuition and fees. Figure 5 graphs the state range of tuition and fees for each college (which is the same value for colleges in the same state) against the college's ratio of local appropriations to state appropriations. Figure 6 graphs the same information using the interquartile range, which is not affected by outliers, which may be unique cases. These comparisons show that local share funding is not associated with higher intrastate variation in tuition and fees. The highest variation in tuition and fees is associated with colleges with low local-share funding.

Although variation in revenue deviations is not greater in local share states, the conceptual framework for the study suggests that local deviations would counter vertical equity while state funding would promote vertical equity. Therefore, to evaluate **Question 5**, regarding the equity of resource deviations, scatterplots and Pearson's correlation statistics were reviewed separately for local-share and state-funded states, with California analyzed individually, due to the large number of colleges and unique demographic characteristics of the state. Equity promoting deviations are expected to be positively correlated with the percentage of students at a college receiving federal grant aid ("grant%") and with the percentage of Black and Hispanic students, which are proxy measures of community wealth and racial characteristics and of educational need. The standardized deviation scores (ZDEV) were also correlated with college enrollment size and an ordinal variable indicating degree of urbanization. Larger colleges are expected to receive below median resources per FTE due to economies of scale, while urban institutions are expected to receive above median resources due to higher costs.

As shown in Table 11, ZDEV, which is normally distributed in each funding category, is not correlated in any category with the percentage of students receiving federal grants or with the percentages of enrolled students characterized by racial group assignment. In local-share states, ZDEV has a significant negative correlation with enrollment size, suggesting economies of scale, but this relationship is weak (r=-.17) and it is not observed in the other categories. Enrollment size is not significantly correlated with the racial group status of enrolled students, with the exception of a weak negative correlation between white students and large enrollments in local-share states (r--.16). In local-share states enrollment size has a moderate and significant negative correlation with the number of students receiving grant aid (r=-.30). These results indicate that negative revenue deviations associated with economies of scale are not masking positive equity-promoting deviations for students with higher educational need, because there is no positive correlation between enrollment size and the characteristics of traditionally disadvantaged students.

Similarly, revenue deviations do not have a positive correlation with urbanization, as hypothesized. Though this finding could possibly be due to the ordinal level of measurement of this variable, the boxplots in Figure 7 illustrate that revenue deviations have similar patterns in different geographic locales. Colleges in urban and urban fringe areas do not have unusually high positive deviations. The large number of positive outliers in the small town and rural colleges suggest compensations for diseconomies of scale, which is consistent with the significant negative correlation between locale and enrollment size in all three categories (r=-.50 in local category, r=-.41 in CA, and r=-.20 in state category). However, the correlation between revenue deviations and enrollment

size is relatively weak, as discussed above. The significant correlations between locale and the enrolled percentages of students by racial category indicate that colleges in rural and suburban areas have smaller percentages of students of color and larger percentages of White students. (An exception is observed in local-funded states, where the percentage of Black students is not correlated with locale.) Therefore, the positive revenue deviations to small town and rural areas may represent inequitable distributions stemming from the political power of communities where colleges enroll larger percentages of White students.

Federal grant receipt is moderately correlated with the percentage of Black and White students in local- and state-funded states and with Hispanic students in local-funded states but not in California. The findings in California and for Hispanic students in state-funded states may be due to small sample size and limited variation, respectively. The negative correlations of grants with White students and positive correlations with Black and Hispanic students indicate that colleges with more students of color have a larger percentage of students receiving federal grant aid, reflecting the disproportionate low-income status of students of color.

The relationship of the variables in the correlation matrix was also examined using ordinary least squares regression with revenue deviations as the dependent variable.[7] Local-share and state funding categories were included as an indicator variable and California was excluded from the sample. The predictors explained less than 5% of the overall variation and the regression was not significant. These findings demonstrate that the included predictor variables do not have explanatory power and important predictors have been omitted from the model. In addition, as discussed in the Limitations

section, the proxy measures of community wealth and race may not be sufficient for the analysis.

These results indicate that deviations in local and state appropriations cannot be fully attributed to "rational" explanations such as economies of scale, geographic cost differences, or equity-promoting categorical aid incorporated into state appropriations. There is some evidence to support "critical" interpretations because in neither local-share nor state-funded states do revenue deviations have a strong positive correlation with greater percentages of enrolled Black and Hispanic students or with the percentage of students receiving grant aid.

Conclusion

This study examines several questions about the impact of local funding on community college finance equity. Community college systems in half of the United States have a structure similar to K-12 finance systems, in that they rely on local governments for funding. From a critical ideological perspective, it is hypothesized that local funding in community colleges creates revenue disparities that disadvantage low-income students and students of color, as has been shown to be the case in K-12 schooling through finance litigation. Analyzing finance data for a subsample of the national IPEDS survey, the study demonstrates that significant intrastate revenue disparities do exist. However, states with local funding do not have a greater range of revenue disparities than those with no local role. In addition, revenue deviations in local control states are not more strongly correlated with measures of community wealth than revenue deviations in states without local control. In fact, under neither type of funding structure are revenue deviations correlated with low-income students or students of color.

This finding in state-funded states is perhaps even more striking, because state funding has been understood as an equity-enhancing structure. Whether this finding is due to an erosion of equity commitments at the state level under pressures for efficiency and productivity or to the limitations of the variables in this study bears further analysis. Local funding states do have higher levels of per student revenues, suggesting that local control can have a positive effect by increasing overall levels of public financing for community colleges.

Unlike in K-12 financing, determination of what constitutes "fair" intrastate community college resource allocations will depend completely on political processes, rather than on legal decisions. Table 12 compares the governance and public purposes of K-12 education and three sectors of higher education: community colleges, four-year colleges, and professional education (with the latter two grouped together). While primary and secondary schooling are a constitutional right mandated by state law, higher education is not. High school students whose parents make schooling decisions have limited to no choice of the school they attend, but college students often travel in their state or across the country to find the educational program providing the right match for their talents and interests. States often expect students to relocate for specialized public education in the professions, such as medicine and law. Public professional education is also rationed by an "ability to benefit" test. The state only invests in students with successful academic records. Professional education is understood to exceed the threshold level for educating all citizens in a democracy. This threshold level has been rising since the earliest era of the common schools.

Today many would argue—particularly in drafting legislation such as the federal Hope scholarship supporting the first two years of college—that a community college education now sets the contemporary standard for full participation in the economic and democratic institutions of our country. If this rhetorical claim gains political support, then it could also be argued that the state has a responsibility to fund community colleges with equal shares. The revenue deviations documented in this paper would then be deserving of political debate within the states, if not litigation. In regard to mobility and college choice, many community college students have, in reality, limited options, because they are constrained by family responsibilities, employment obligations, and financial hardship. This study has identified six high revenue deviation states for an in-depth case study to further investigate the equity implications of intrastate revenue disparities: Arizona, Colorado, Florida, North Carolina, Michigan, and Texas. These states are located in different regions of the country and represent both local-share funding and state-funding systems. The examination of a smaller number of states will enable closer review of extreme cases and the incorporation of Census data matched to college service areas and in that way complement this study of national data.

Figure 1 Equity and Efficiency in Community College Financing

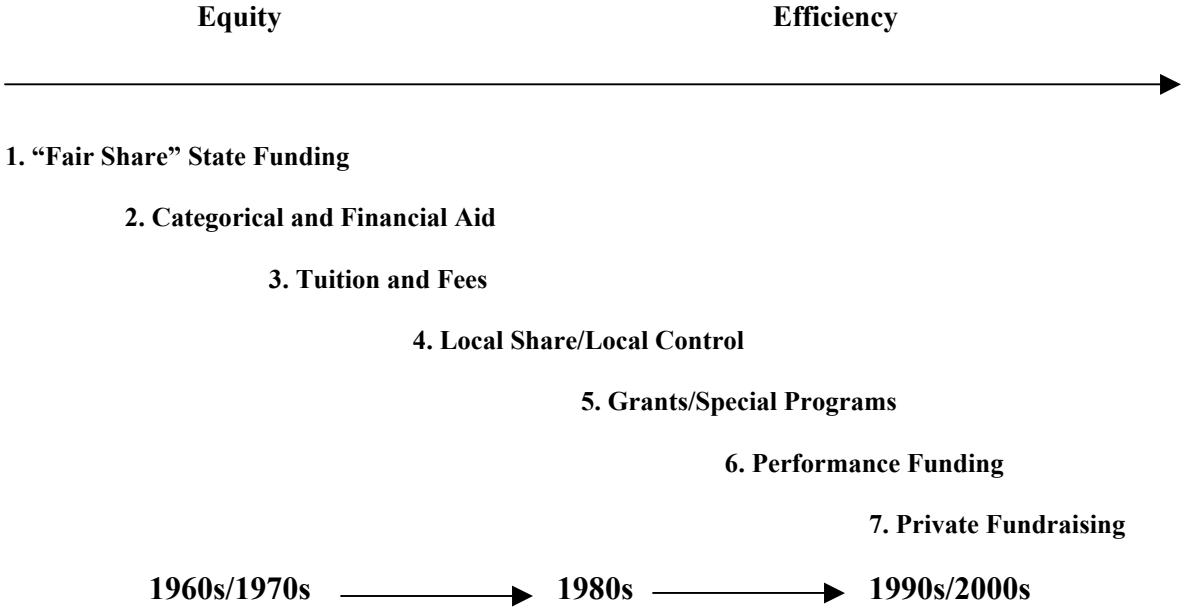
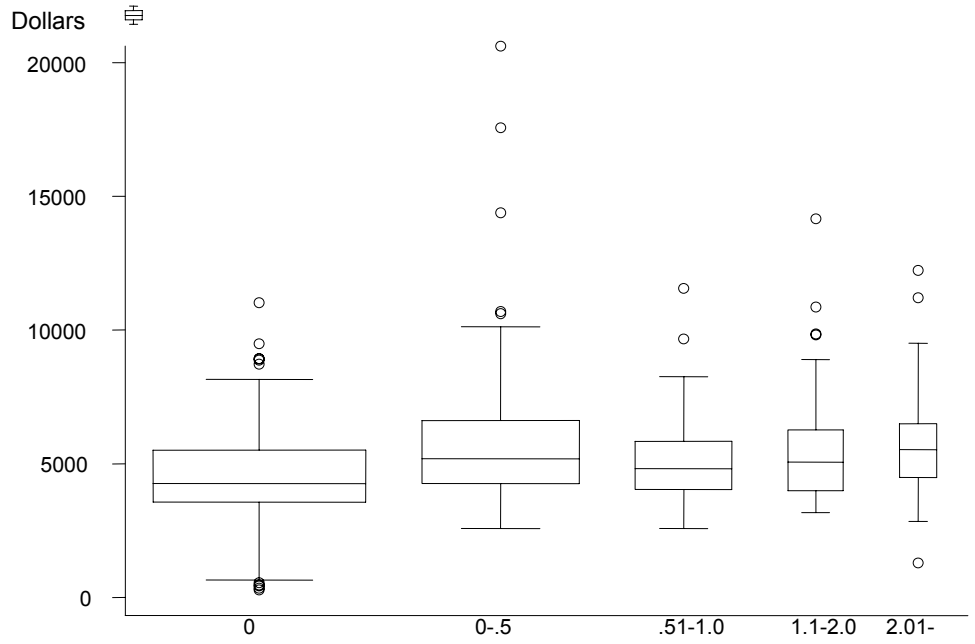
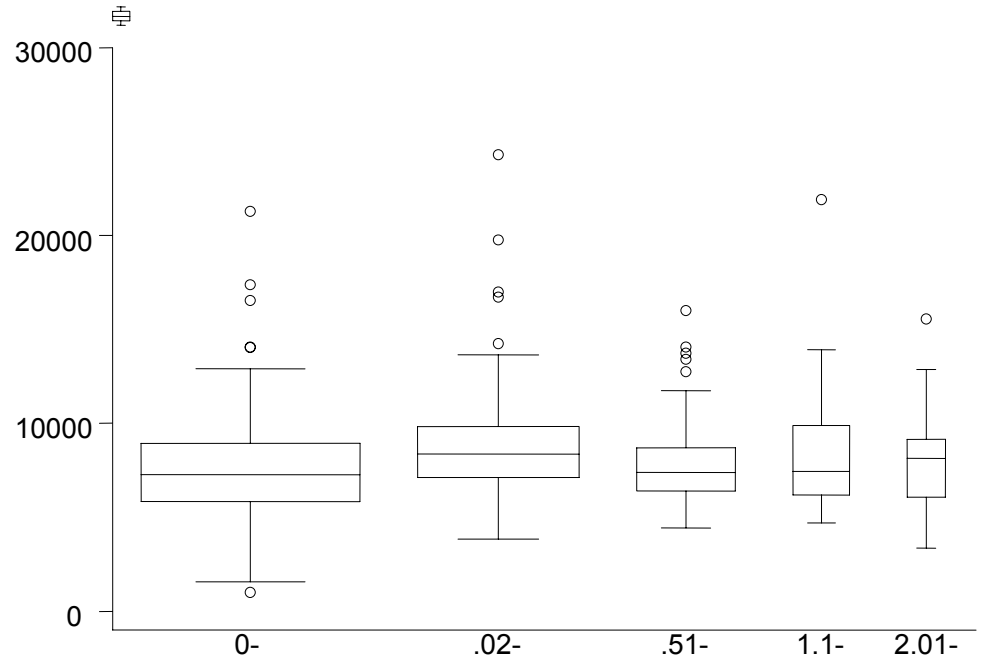


Figure 2 Local and State Appropriations Per FTE
by College Ratio of Local Appropriations to State Appropriations



Graph excludes the maximum values in the 0 and .02-.05 categories.

Figure 3 Total Revenues from All Sources Per FTE
by College Ratio of Local Appropriations to State Appropriations



Total revenues excludes tuition and fees.

Graph excludes the maximum values in the 0 and .02-.05 categories.

Figure 4 Standardized Deviation (ZDEV) of Local and State Appropriations Per FTE from State Median for State-Funded and Local Share States

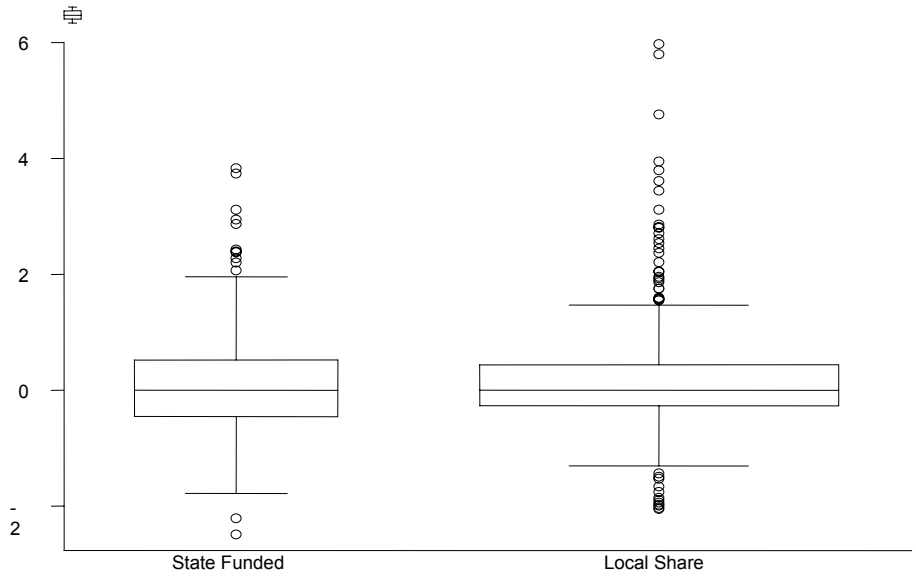


Figure 5 State Range of Tuition and Fees by College's Ratio of Local Appropriations to State Appropriations

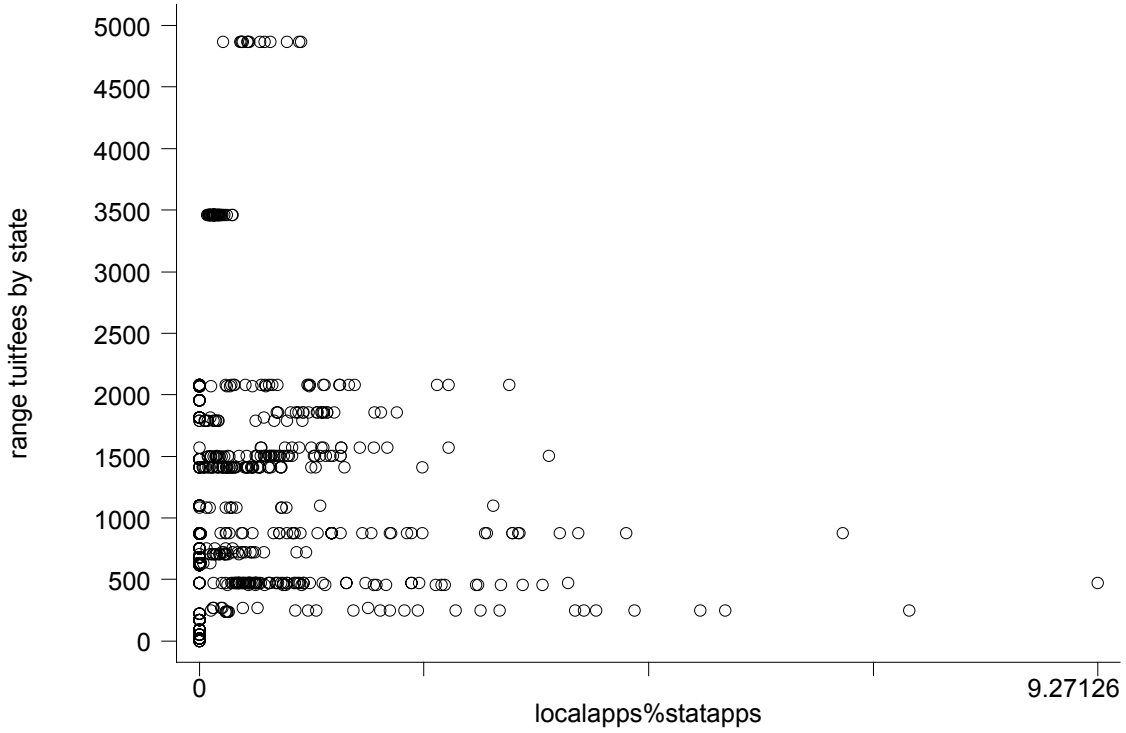


Figure 6 State Interquartile Range of Tuition and Fees by College's Ratio of Local Appropriations to State Appropriations

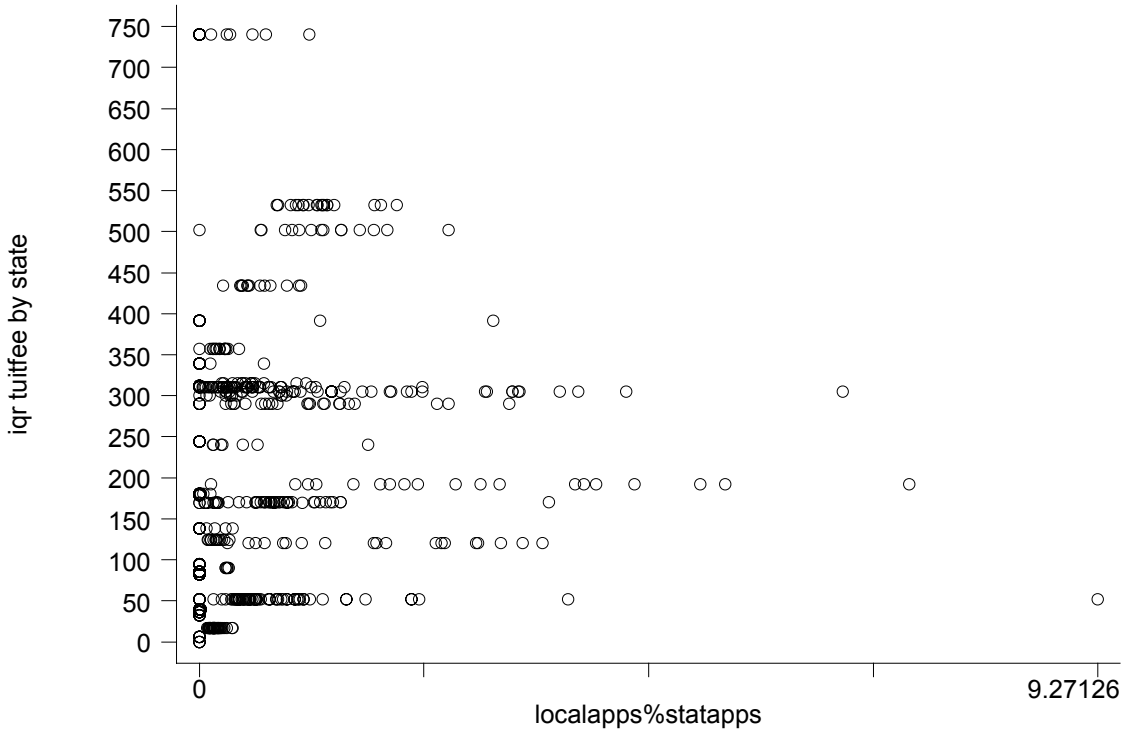


Figure 7 Standardized Deviation (ZDEV) of Local and State Appropriations Per FTE by Geographic Locale

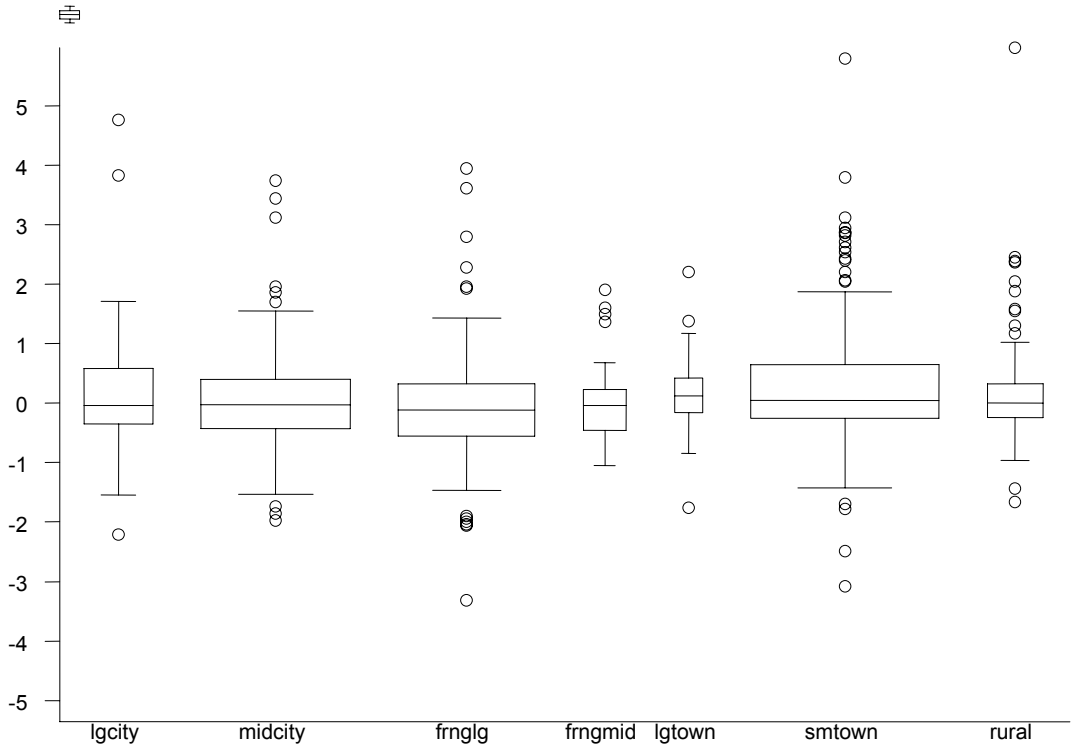


Table 1 Mean and Standard Deviation ($s) of All Sources of Revenue and Local and State Appropriations Per FTE by State

state	N colleges	mean ALL REVenue	sd ALL REV	mean local/state APPropriations	sd Loc/stat APP
AL	21	9870.297	1995.173	4556.364	913.9668
AR	15	13895.84	14983.11	7369.534	7130.601
AZ	19	8152.044	1970.37	4913.591	1192.132
CA	77	8099.803	3268.713	5198.023	2310.228
CO	15	10105.88	2394.96	4159.279	1339.746
CT	12	11407.52	1500.748	7073.921	1020.995
FL	28	9795.426	2514.33	5057.954	1447.779
GA	14	12595.99	4313.327	5893.336	1528.292
HI	7	9484.801	3088.955	4936.614	1803.617
IA	14	12614.6	2864.979	4618.918	1298.983
IL	45	9688.45	3528.432	4519.24	2328.647
KS	19	9573.429	2048.656	5293.544	1411.388
LA	6	8258.973	1922.187	3442.172	845.2829
MA	15	10590.6	2044.234	5314.938	1745.524
MD	15	11899.83	2812.609	5944.429	1723.554
MI	28	11453.28	2027.568	5821.265	1918.989
MN	12	10039.51	2320.115	4640.688	1326.487
MO	10	9269.289	1802.407	3750.253	438.6467
MS	15	13191.9	11315.99	6038.143	4086.653
NC	50	12719.6	6645.153	7510.897	4610.336
ND	5	11541.96	2483.43	4355.798	1052.313
NE	5	10082.43	1773.757	5556.237	1359.844
NJ	19	9301.881	1676.559	4121.562	1097.458
NM	15	11861.9	4990.846	5642.465	2064.948
NY	33	10450.55	2015.093	4617.428	1449.896
OH	28	9922.416	1683.082	4256.802	1181.507
OK	14	9033.744	2134.186	4196.858	1165.259
OR	13	14184.1	2117.157	6845.553	1240.008
PA	15	9851.896	1594.173	3777.551	1242.547
SC	5	10616.65	1074.791	5349.074	993.7877
TN	10	7921.47	2066.484	3574.752	680.7204
TX	58	9312.955	2323.698	5074.998	1754.619
VA	24	7849.07	1626.901	4308.846	987.0787
WA	27	9713.179	1365.211	3996.347	778.7096
WY	7	10927.5	2325.554	6064.704	909.1838

Source: NCES IPEDS Finance Survey 2000-2001. Community college subsample (see text for details). Source: NCES IPEDS Finance Survey 2000-01.

Note: The number of colleges listed per state is determined by the number of colleges reporting financial data. In some states, such as California, this number is less than the total number of colleges in the state.

Table 2 Mean and Standard Deviation ($s) of State and Local Appropriations (Apps) Per FTE by State

State	MEAN State APPS	SD(statappps)	MEAN Local APPS	SD(localapps)
AL	4517.764	932.2172	38.5996	94.55053
AR	7110.53	7190.747	259.0033	481.6393
AZ	1573.545	959.691	3340.046	1139.415
CA	3012.618	1294.622	2185.405	1742.677
CO	3651.174	1351.073	508.1059	1401.197
CT	7073.921	1020.995	0	0
FL	5057.954	1447.779	0	0
GA	5893.336	1528.292	0	0
HI	4936.614	1803.617	0	0
IA	3822.83	1048.998	796.0885	462.739
IL	1958.045	2054.103	2561.195	1101.122
KS	1969.047	396.8051	3324.497	1606.598
LA	3442.172	845.2829	0	0
MA	5314.938	1745.524	0	0
MD	2925.459	1555.709	3018.97	1368.663
MI	3218.833	846.8762	2602.433	1971.127
MN	4640.688	1326.487	0	0
MO	2800.802	774.2325	949.451	652.3595
MS	5105.665	3170.785	932.4783	947.9647
NC	6433.187	4286.313	1077.71	474.9854
ND	4355.5	1052.064	.2984314	.6673129
NE	4319.589	1078.727	1236.649	284.4817
NJ	1862.642	615.3164	2258.92	611.6527
NM	4546.937	2094.538	1095.529	1223.596
NY	2396.026	208.3607	2221.402	1414.845
OH	3843.979	659.7409	412.8236	1024.553
OK	4006.954	1104.364	189.9047	614.6725
OR	4571.312	1260.11	2274.242	685.6906
PA	2356.97	730.9244	1420.58	678.9523
SC	5349.074	993.7877	0	0
TN	3574.752	680.7204	0	0
TX	3658.452	1097.472	1416.546	1245.005
VA	4280.507	975.6693	28.33908	29.17327
WA	3996.347	778.7096	0	0
WY	4328.463	1140.274	1736.241	1210.609

Source: NCES IPEDS Finance Survey 2000-2001. Community college subsample (see text for details). Source: NCES IPEDS Finance Survey 2000-01.

Note: The number of colleges listed per state is determined by the number of colleges reporting financial data. In some states, such as California, this number is less than the total number of colleges in the state.

Table 3 Measures of Variation of Deviation from Median Values of State and Local Appropriations Per FTE By State

State	N	Minimum	IQR	90th pctl	Maximum	Range
AL	21	-1045.04	1713.076	1542.681	1606.621	2651.66
AR	15	-2777.864	2367.833	3763.669	26647.77	29425.63
AZ	19	-1440.999	1795.765	1749.435	3336.916	4777.914
CA	77	-4747.56	1487.556	2035.771	9114.768	13862.33
CO	15	-1814.219	1944.853	2241.613	2513.148	4327.367
CT	12	-1477.771	1109.175	1523.548	1737.474	3215.245
FL	28	-1550.859	1512.98	2986.755	4258.477	5809.336
GA	14	-3803.578	2203.121	1069.686	1794.569	5598.148
HI	7	-941.6504	886.1697	4312.98	4312.98	5254.63
IA	14	-1026.425	769.4526	2865.823	3712.08	4738.505
IL	45	-2963.706	1364.013	1924.802	13491.61	16455.32
KS	19	-2025.363	2548.736	2003.204	2224.885	4250.249
LA	6	-885.4282	757.0803	1569.394	1569.394	2454.822
MA	15	-5792.653	1579.916	1287.591	1711.026	7503.679
MD	15	-1485.456	1425.457	4077.399	4217.136	5702.592
MI	28	-3558.023	2787.807	2554.708	3928.489	7486.512
MN	12	-1673.669	2236.805	1487.417	2426.315	4099.985
MO	10	-522.7891	705.2615	671.2275	770.0322	1292.821
MS	15	-1503.029	1052.412	1326.7	15516.8	17019.83
NC	50	-7104.495	2060.506	2152.588	27547.74	34652.23
ND	5	-1877.693	1881.901	142.292	142.292	2019.985
NE	5	-686.499	299.2642	2778.275	2778.275	3464.774
NJ	19	-1269.948	755.1726	1571.449	3962.132	5232.08
NM	15	-3623.48	1800.209	1954.785	5390.001	9013.481
NY	33	-1435.42	1102.827	1470.58	6896.319	8331.739
OH	28	-1024.51	1223.345	1898.038	4519.967	5544.476
OK	14	-766.7947	1431.402	1997.086	3340.544	4107.339
OR	13	-1563.541	1131.577	969.7041	3354.904	4918.445
PA	15	-3825.14	1323.573	1250.382	1409.759	5234.898
SC	5	-1679.085	736.5151	840.8486	840.8486	2519.934
TN	10	-1504.332	315.7327	664.9521	727.231	2231.563
TX	58	-2240.782	2341.024	2791.957	6038.479	8279.261
VA	24	-1014.159	840.0259	2248.356	2394.103	3408.262
WA	27	-1141.891	657.4675	1163.29	2423.808	3565.699
WY	7	-602.7378	1912.03	1697.639	1697.639	2300.377
Total	715	-7104.495	1383.865	1898.038	27547.74	34652.23

Source: NCES IPEDS Finance Survey 2000-2001. Community college subsample (see text for details). Source: NCES IPEDS Finance Survey 2000-01.

Note: The number of colleges listed per state is determined by the number of colleges reporting financial data. In some states, such as California, this number is less than the total number of colleges in the state.

Table 4 Distribution of Colleges in Local Share Categories by State

state	Ratio of Local Apps to State Apps 0-	.02-.5	.51-1	1.1-2	>2.0
AL	19	2			
AR	11	4			
AZ		1	1	5	12
CA	9	24	33	5	6
CO	13			1	1
CT	12				
FL	28				
GA	14				
HI	7				
IA	1	13			
IL		6	9	13	13
KS		2	5	4	8
LA	6				
MA	14				
MD	1		5	8	1
MI	6	5	5	9	3
MN	12				
MO	1	6	3		
MS		15			
NC		46			
ND	5				
NE		5			
NJ			7	11	1
NM	2	9	4		
NY		4	20	8	1
OH	22	3	2	1	
OK	12	1	1		
OR		7	5	1	
PA		7	7		
SC	5				
TN	10				
TX	7	34	13	3	1
VA	24				
WA	27				
WY		5	1	1	

Source: NCES IPEDS Finance Survey 2000-01

Table 5 Local and State Appropriations per FTE by Local Share Category

LocalShare	N	min	median	iqr	max
0-	268	292.9505	4254.841	1940.507	32373.35
.02-	199	2573.969	5182.377	2461.138	34652.23
.51-	121	2586.328	4811.328	1804.975	11546.32
1.1-	70	3175.471	5054.226	2284.751	14155.28
2.01-	47	1282.682	5537.435	2004.632	12232.09
Total	705	292.9505	4757.443	2242.971	34652.23

Source: NCES IPEDS Finance Survey 2000-01

Table 6 Total Revenues per FTE by Local Share Category

LocalShare	N	min	median	iqr	max
0-	268	1003.544	7308.971	3094.172	58690.03
.02-	199	3840.333	8394.342	2728.402	47286.42
.51-	121	4444.365	7391.2	2287.09	16015.81
1.1-	70	4719.537	7439.897	3699.685	21922.82
2.01-	47	3373.201	8123.339	3079.796	15549.98
Total	705	1003.544	7652.714	2985.919	58690.03

Source: NCES IPEDS Finance Survey 2000-01
Note: Total revenues excludes tuition and fees

Table 7 Local-Share State-Funded States

state	State Funded	Local Share
AL	24	
AR	15	
AZ		19
CA		105
CO	15	
CT	12	
FL	28	
GA	14	
HI	7	
IA		14
IL		41
KS		19
LA	6	
MA	14	
MD		20
MI		29
MN	12	
MO		16
MS		15
NC		46
ND	5	
NE		5
NJ		19
NM		16
NY		33
OH	28	
OK	14	
OR		13
PA		14
SC	5	
TN	10	
TX		62
VA	24	
WA	27	
WY		7

Source: NECS IPEDS Finance Survey 2000-01
Note: States designated as “Local Share” when at least 75% of colleges in the state reporting finance data included local appropriations.

Table 8 Deviations ($s) in Appropriations from the State Median by Local-Share and State-Funded States

localstate	N	min	iqr	90th ptle	max	range
StateFunded	257	-3803.578	1261.138	1606.621	26647.77	30451.35
LocalShare	448	-4747.56	1478.046	2003.204	27547.74	32295.3
Total	705	-4747.56	1353.827	1923.911	27547.74	32295.3

Source: NECS IPEDS Finance Survey 2000-01

Table 9 Standardized Deviations (Z) in Appropriations from the State Median by Local-Share and State-Funded States

localstate	N	min	iqr	90th ptle	max	range
StateFunded	257	-2.488778	.9806071	1.505907	3.825595	6.314372
LocalShare	448	-2.055018	.7061884	1.269522	5.975213	8.03023
Total	705	-2.488778	.8423178	1.333208	5.975213	8.46399

Source: NECS IPEDS Finance Survey 2000-01

Table 10 Mean and Standard Deviation of Average Tuition and Fees (TUIT$)
And Percentage of Full-time Students Receiving Federal Grant Aid (Grant%)
For Full-Time Students by State

state	N	Mean TUIT$	SD(TUIT$)	Mean GRANT%	SD(Grant%)
AL	21	1681.429	158.028	48	16.60422
AR	15	1041.867	218.0465	47.53333	17.42275
AZ	19	909.7368	104.537	37.68421	19.03229
CA	99	310.2626	56.88273	28.22857	15.5231
CO	15	1739.133	283.5942	33.8	15.13369
CT	12	1869.5	33.85665	25.83333	11.8001
FL	28	1438.286	149.2105	30.42857	10.96266
GA	14	1645.714	504.9136	40.07143	13.68022
HI	7	1061	18.53825	30	8.485281
IA	14	2207.572	220.2183	36	13.76171
IL	44	1512	184.3383	29.23404	18.52286
KS	19	1387	119.492	34.36842	9.61602
LA	5	1177.6	338.3494	39.16667	10.26483
MA	15	1899.533	352.7121	30.42857	14.74769
MD	15	2165.133	435.9792	33.33333	18.96865
MI	26	1754.038	377.6993	32.15385	14.53738
MN	12	2620.75	154.886	34.08333	13.50729
MO	16	1504.25	271.4591	38.4375	15.40982
MS	15	1144	357.8779	54.14286	11.75295
NC	50	962.86	464.0641	42.6	18.53843
ND	5	1947.8	87.96136	56	18.72165
NE	5	1429.4	94.65094	42.4	27.30018
NJ	19	2284.21	447.5458	36.21053	17.85304
NM	16	807.875	391.6956	52	15.79029
NY	35	2570.029	238.9413	48.625	14.32289
OH	27	2649.593	567.7153	31.85714	14.99559
OK	12	1295.667	450.7665	33.81818	17.12786
OR	13	1725.692	230.4186	36.30769	18.30931
PA	15	2441	1138.355	27.2	12.44531
SC	5	2200	0	36.4	11.61034
TN	10	1437.3	6.037844	27.4	22.07663
TX	61	874.0656	275.4357	37.1129	21.32966
VA	24	1180.708	167.2513	41.95833	15.6663
WA	25	1725.2	55.71131	22.81482	10.05767
WY	7	1468.857	108.8109	34.14286	11.09698

Source: NCES IPEDS Finance Survey 2000-2001. Community college subsample (see text for details).

Note: The number of colleges listed per state is determined by the number of colleges reporting financial data. In some states, such as California, this number is less than the total number of colleges in the state.

Table 11 Correlation Matrices by Local Share Funding and State Funding

Local Share States, Excluding CA

	ZDEV	grant%	black%	hispan%	white%	enroll	locale
ZDEV	1.0000						
grant%	0.1470	1.0000					
black%	0.0895	0.2990*	1.0000				
hispan%	0.0501	0.2496*	-0.0758	1.0000			
white%	-0.0863	-0.3949*	-0.6155*	-0.7001*	1.0000		
enroll	-0.1690*	-0.3044*	0.0069	0.1492	-0.1619*	1.0000	
locale	0.0845	0.1921*	-0.0673	-0.3001*	0.2827*	-0.4981*	1.0000

California

	ZDEV	grant%	black%	hispan%	white%	enroll	locale
ZDEV	1.0000						
grant%	0.0121	1.0000					
black%	0.0317	0.2127	1.0000				
hispan%	-0.1994	0.2813	-0.0012	1.0000			
white%	0.1001	-0.2861	-0.5442*	-0.6467*	1.0000		
enroll	-0.0473	-0.0560	-0.0979	0.0857	-0.1748	1.0000	
locale	0.0564	-0.0262	-0.2714	-0.0764	0.3937*	-0.4079*	1.0000

State Funded

	ZDEV	grant%	black%	hispan%	white%	enroll	locale
ZDEV	1.0000						
grant%	0.1079	1.0000					
black%	0.1284	0.3610*	1.0000				
hispan%	-0.0142	0.0112	-0.0704	1.0000			
white%	-0.0892	-0.2327*	-0.6816*	-0.3084*	1.0000		
enroll	-0.1018	-0.1417	-0.0152	0.1868	-0.0799	1.0000	
locale	0.1200	0.1650	-0.2098*	-0.2077*	0.3129*	-0.2162*	1.0000

Source: NCES IPEDS Finance Survey 2000-01
* significant at p<.05 with Bonferroni correction for multiple tests

Variable name code

ZDEV: Standardized deviation of college revenues from state median
Grant%: Percentage of full-time students at the college receiving federal financial grant aid.
Black%, Hispan%, White%: Percentage of students at the college who are categorized as Black, Hispanic, or Asian-Pacific Islander
Enroll: 12 month unduplicated enrollment count
Locale: Degree of urbanization (ordinal values 1-8 corresponding to large city, midsize city, large city fringe, midcity fringe, large town, small town, rural)

.

Table 12 Governance Characteristics and Public Purpose of K-12 and Higher Education

	Primary and Secondary	Community Colleges	Four-year and Professional

	Schools		Public Higher Education
Constitutional Right	Yes	No	No
Student Participation	Mandated	Optional	Optional
Student Choice of Institution	Limited or within parental control	Yes, but often constrained by finances and family responsibilities	Yes
Role in Democratic and Workforce Education	Meets traditional necessary threshold level	Meets rising threshold level	Exceeds threshold levels
Local Control	Yes	Sometimes (Yes, in 26 states)	No, not typically

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[1] Colleges with the word "technical" in their name were excluded. Other technical colleges may still remain in the sample.

[2] The excluded states and colleges are Alaska (2), Delaware (3), Idaho (3), Indiana (13 of 14 technical colleges), Kentucky (financial data reported for Lexington CC only), Maine (7 of 7 technical colleges), Montana (5 of 8 technical colleges), Nevada (3), Rhode Island (1), South Dakota (4), Utah (3), Vermont (1), West Virginia (3) and Wisconsin (16 of 17 technical colleges).

[3] The FTE calculation is based on the same ratio used to publish enrollment statistics in the annual Digest of Education Statistics. For the public two-year sector, the FTE equals full-time enrollment plus part-time enrollment multiplied by one-third.

[4] The standardized score is equal to the college's distance from the state median of local and state appropriations divided by the state-level standard deviation of deviations from the median. The mean is not used due to the presence of extreme, but potentially valid, community college data values. Several extreme cases, such as the Los Angeles County College of Nursing and Allied Health and Lamar State College—Port Arthur, were not community colleges and were excluded.

[5] The results do not change if California is excluded from the local share funding category.

[6] To some extent, the variation in tuition and fees is due to mismeasurement at the college level. A review of reported tuition charges in Massachusetts, where the Board of Higher Education sets a uniform tuition, showed that individual colleges reported different tuition rates, in some cases due to different approaches to calculating full-time enrollment status. In this state, fees are set by the individual colleges and do create valid variation in the total of tuition and fees.

[7] The dependent variable was an adjusted measure of ZDEV scaled to all positive values to allow consistent interpretation of the effects.