Community College Revenue Disparities:

What Accounts for an Urban College Deficit?

Alicia C. Dowd[1]

University of Massachusetts Boston

[1]Assistant Professor, Graduate College of Education, University of Massachusetts Boston, Boston, MA. Ph.D. Cornell University. Alicia C. Dowd's research interests include higher education finance, access, and outcome equity. She teaches research methods and the political economy of education to doctoral students in higher education administration.

Earlier drafts of sections of this paper were presented at the American Educational Research Association (AERA) Annual Meeting, April, 2004, San Diego, CA. The study draws on results presented in a manuscript now under review for publication at the *Review of Higher Education* and previously presented at the Complex Community College Conference, Cornell Higher Education Research Institute, October, 2003, Ithaca, New York. The author is appreciative of valuable research assistance provided by John Grant and a helpful critique of the AERA conference draft by discussant Laura Perna. All errors remain my own.

Correspondence concerning this article should be addressed to Alicia C. Dowd, Graduate College of Education, University of Massachusetts Boston, 100 Morrissey Blvd., Boston, MA 02125. E:mail: alicia.dowd@umb.edu.

Abstract

This study takes a political-economic perspective to examine predictors of revenue variation in U.S. community colleges using the IPEDS 2000 Finance Survey data. Descriptive analyses of the IPEDS data indicate it is common for colleges at the 90th percentile of a state's revenue distribution to have twice the per student resources as colleges at the 10th percentile. Ordinary least square regression results indicate progressive funding explains 7% of the revenue variation. Colleges serving higher proportions of students with financial need have higher revenues relative to other colleges in their states. Colleges located outside urban areas have revenues 13% to 18% higher than those in large cities, controlling for enrollment size and the proportion of part-time students. These findings, which explain 28% of revenue variation, may indicate differences in entrepreneurial revenue capacity or political compromises that "level up" spending to all legislative districts irrespective of student need. An urban community college research agenda is proposed to examine the political-economic mechanisms that create funding disparities.

Keywords: community colleges, finance, equity, accountability

Community colleges in the United States are operating in a difficult fiscal environment today as they face growing enrollment demand and a declining share of state government resources (Evelyn, 2004). In such a climate, it is not surprising that competition for resources is heightened. In Oregon recently, three community colleges filed a lawsuit claiming that the state's funding formula penalized colleges in communities with relatively high property wealth (Gomstyn, 2003). The suit was dismissed, but the litigants have promised to appeal. In California, a long simmering dispute over finance equity in the community college system ignited during the 2004-05 budget debate. An analysis of funding inequities showed a disparity of $1,500 per student between the 15 districts with the highest and lowest funding (Quittner, 2004b). Economic factors that might explain such a large gap, such as differences in program costs, institutional economies of scale, or community demographics and costs of living, did not account for the disparities. In January of 2004, the Public Policy Institute of California called the rationale for the financing system, known as program-based funding, a "fiction" (Murphy, 2004, p.96). These analyses suggest that political, not economic, factors primarily were at play in garnering greater resources for favored colleges. Under-funded colleges lobbied for $240 million for finance equalization over three years, which subsequently remained in the budget and was approved by Governor Schwarzenenegger, himself a community college alumnus

Such concerns about community college finance equity are not new. Breneman and Nelson (1981) and Garms (1981) raised the issue of equity in their early, comprehensive studies of community college financing. State reports from time to time highlight the lack of a clear public finance rationale for their community college systems.

New York State's financing system has been criticized as functioning under a "financing non-policy that is seriously disconnected from the community college mission" of providing affordable access (*SUNY Community Colleges*, 1999). Similarly, the authors of a community college finance report for the state of Maryland concluded that economies of scale did not account fully for large disparities of up to $2,000 in state aid per full-time equivalent student (Cade & Heller, 1996, p. 2). As in an Iowa Department of Education report, which urged attention to the "vital" concern of funding equity to "assure equal student access and fairness" (*Iowa Funding Formula*, 1998), these studies frequently raise warnings that equity concerns are being seriously slighted.

The examples above illustrate that issues related to financial equity and access to community colleges remain part of the public debate—as they were prominently during the expansion of the community college systems in the 1960s—but today compete with other political priorities and are subject to neglect. As a descriptive starting point, the state reports described above reveal that sizeable variations in resource allocation do exist. Using national data, Dowd and Grant (2004a; 2004b) have shown it is typical for colleges with the highest revenues in a state to have twice as many dollars per student as colleges with the lowest revenues. This holds true whether the analysis is based solely on state and local government appropriations or on total non-tuition revenues. What factors account for such a large difference in available resources?

Community colleges are financed through a complex system involving multiple levels of government and private resources (Breneman & Nelson, 1981; *Policy of Choice*, 2002; *State Funding*, 2000). Almost all community colleges receive state appropriations and grants. In approximately half the states, local appropriations are also provided. The federal government plays a role through grants for special programs and facilities, as well

as student financial aid. Private sector revenues flow through tuition and fees, sales of educational and auxiliary services, and philanthropy. The complexity of this financing system complicates the task of determining whether resources are allocated in an equitable manner and also masks inequities where they occur. A new emphasis on efficiency, productivity, and entrepreneurial competitiveness in the public sector also devalues equity as a funding goal (Burke & Serban, 1998).

Revenue disparities can be characterized as progressive, regressive, or neutral, depending on the extent to which they promote vertical equity, which is defined as providing greater resources to students with greater educational need. The national analysis presented in this study contributes to the community college finance equity literature, which is primarily based on state-level empirical and theoretical analyses (Flores, 2003; Romano, 2003; *State Funding*, 2000). Through a multivariate analysis, the relative explanatory power of economic and political factors in determining intrastate community college revenue variations is estimated and the equity effects characterized.

Conceptual Framework

This study takes a political-economic perspective to analyze factors affecting resource disparities among community colleges. The economic perspective defines disparities in public financing systems that direct a greater share of resources to students with greater educational need as progressive, or as promoting vertical equity (DesJardins, 2002; Odden & Picus, 2004; Romano, 2003). State and local governments play a role in promoting vertical equity through finance equalization formulas and means-tested aid and grants. Localities are primarily interested in uniform resource distribution within their jurisdiction (Wong, 1994) and do not contribute to statewide equity. Local funding may foster finance inequities within states, as localities vary in their fiscal capacity and

willingness to support a college (Breneman & Nelson, 1981). However, the funding advantage of more affluent localities has been estimated as a relatively small proportion of total revenues (Dowd & Grant, 2004b).

Entrepreneurial forms of revenue, in which colleges sell educational or auxiliary services or secure philanthropic funding, are expected to be equity neutral or regressive, as colleges with ties in more affluent communities have greater opportunities to develop relationships with corporate and philanthropic leaders. These entrepreneurial activities contribute a small but growing share of total revenues (Merisotis & Wolanin, 2000; *State Funding*, 2000). In a single-state study of the distribution of revenues to colleges with primary service areas in communities of varying wealth, Dowd and Grant (2004a) found neutral equity effects of entrepreneurial revenues.

The economic perspective also focuses on anticipated institutional efficiencies in "production." Economies of scale are expected in institutions enrolling large numbers of students in comparison to colleges that must spread fixed costs among a small number of students (Halstead, 1991). Larger institutions may also be expected to have greater capacity to achieve efficiencies by investing in new technologies and administrative systems. In unionized environments, colleges that offer faculty and administrators amenities over and above uniform compensation scales, such as parking and attractive office space, will be in a stronger position to attract the personnel most qualified to achieve such efficiencies. In practice, however, the magnitude of cost advantages and disadvantages due to institutional size are difficult to estimate and poorly understood (Halstead, 1991; Odden & Picus, 2004).

The political perspective focuses on partisan divisions expected to disadvantage urban areas in legislative arenas. This disadvantage stems from tensions of race,

economics, and geography that serve to isolate cities from the suburbs and rural areas. Changes in urban demographics underway since the 1960s have led to a power shift that favors predominantly White Republicans over Democratic Blacks and other people of color in cities. These demographic changes have contributed to the erosion of support for universal primary and secondary schooling and to a fundamental shift in social values toward public education (Rury & Mirel, 1997).

Cities have faced the loss of industry and the middle class, in addition to higher population density, unemployment, and incidence of crime than non-urban areas. Facing a greater demand for public services, cities have higher tax rates, but lower levels of support for education (Rury & Mirel, 1997). Though states play a role in promoting vertical equity, reallocating resources to urban areas to address social needs, legislatures also pursue "territorial equity," which "scatters" aid to all districts, including the most affluent (Wong, 1994, p. 271). This leads state legislators to employ "leveling up" strategies in which "no district suffers a reduction in state support" (Wong, p. 273). The outcomes of territorial strategies are also determined by the distribution of power in the legislature and by regional "splits," in which suburban lawmakers oppose spending plans that shift benefits to cities (Wong, p. 274). In community college financing, legislative decisions, whether determined with or without a funding formula, are often also influenced by recommendations of higher education coordinating and governing boards, which must also be recognized as political players in this arena.

Data and Sample

National data from the 2000-2001 Integrated Postsecondary Education Data System (IPEDS) Finance and Institutional Characteristics surveys are 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 (excluding those in the U.S. territories). Colleges that report financial data as a "child" of a "parent" institution are not included. Technical colleges, which numbered 173, were also excluded because several states award technical programs appropriations 1.5 to 2.0 times that of general education to pay for higher costs of facilities, equipment, and materials (*State Funding*, 2000). The data do not enable a control for institutional mix of program types, so the exclusion of colleges with a high proportion of technical programs is desirable, given their different funding structure. This step does not completely exclude technical programs, which are also offered to varying degrees at the colleges in the sample.

In addition, states with fewer than 5 two-year public non-technical colleges are excluded, omitting 15 colleges. This step is taken because the analysis seeks to understand a college's revenue position within its state, while controlling for other factors in a multivariate analysis. This is obviously not relevant in states with only one community college (Vermont and Rhode Island). In states with 5 or fewer community colleges, the use of statistics robust to extreme values would not be possible due to a lack of cases. Treating 5 colleges as a cut point is consistent with comparative analyses conducted for a national study of college instructional costs sponsored by the National Center for Education Statistics (Middaugh, Graham, & Shahid, 2003). The remaining sample includes 679 colleges with non-missing data in 35 states, or 67% of the IPEDS population of 1010 active public two-year colleges. The sample was not randomly selected and the results cannot be generalized to all community colleges nationally.

Variables

The dependent variable is an index of a college's within-state revenue position. This is defined by the college's total non-tuition revenue as a proportion of the median

value in the state. Total revenues include appropriations and grants from state, local, and federal governments, and from entrepreneurial activities such as educational sales and services and auxiliary enterprises. The total revenue measure excludes tuition and fees, which are paid in large part by students themselves. Tuition revenues are excluded because the study focuses on the equity of public resource distribution to colleges serving different student populations, as defined by socio-economic and racial characteristics, and on college capacity to raise additional revenues to effectively serve students. To compare revenues across colleges of different enrollment sizes, total revenues are divided by the 12-month unduplicated head count of students enrolled for credit in both academic and vocational programs. It omits those who are enrolled in courses that do not carry academic credit, which include developmental courses in many states (Shults, 2001).

Table 1 presents variable definitions and descriptive statistics. The predictor variables are grouped in three categories, student financial need, institutional enrollment size, and political factors represented by degree of urbanization and race/ethnicity. First, funding in positive association with financial need is conceptualized as meeting vertical equity goals. Financial need is measured by one variable, the percentage of full-time students at each college who receive federal grant aid. This variable serves as a proxy for financial need in the community. It is transformed into a within-state index by dividing each college value by its state median. The index represents the proportion of students receiving grant aid relative to other colleges in the same state, where the college at the median has the value of 1.0. It indicates the relative financial need of students who face relatively similar tuition and fee charges in the same state. There is much greater national variation in tuition and fee charges across the states, the levels of which contribute to a student's federal aid eligibility.

Second, funding in negative association with institutional size is conceptualized as reflecting economies of scale. Institutional size is entered as indicator variables, where very large (>=20,000) and large (7001-19,999) colleges are compared to colleges of typical size (<=7000), based on the full-time enrollment head count. Economies of scale of large colleges are reduced when students enroll for relatively few credits at a time. Therefore, student enrollment intensity is measured by the ratio of head count enrollment to the full-time equivalent (FTE) enrollment, using the NCES measure where three part-time students are equal to one FTE. A hypothetical college enrolling only full-time students would have a "part-time index" equal to 1.00; the head count is identical to the FTEs. The part-time index increases as the number of part-time students increases.

Finally, political negotiations for state appropriations and grants are hypothesized to disadvantage colleges located in urban areas. The degree of urbanization is entered as indicator variables, where six locales ranging from urban fringe to rural are compared to the omitted large city group. Similarly, communities of color are expected to be at a disadvantage in political negotiations, as well as in securing entrepreneurial revenues, due to historic political and economic discrimination. The percentage of enrolled students who are Black and Hispanic is a proxy for the population surrounding the college. These percentages are also expressed as an index relative to the state median. Asian and Native American students are not distinguished from Caucasian students due to small sample size.

Methods

Variation in total revenue per student is reported using the interquartile range (*IQR*) and the ratio of 90^{th} to 10^{th} percentile values. Both of these statistics are not affected by extreme cases, which may be present in the data due to measurement error.

The hypothesized relationships were analyzed using graphs, descriptive statistics, correlation, and sequential ordinary least squares regression (OLS). The predictors were entered in three blocks (financial need, enrollment size, and urbanization), and the change in R^2 observed.

The natural logarithm of the index of college revenue position is the dependent variable in the regression analysis. The indexes of the predictors described above are multiplied by 100 and expressed as percentages. In OLS with a dependent variable in logarithmic form, the coefficients can then be interpreted as the percentage change in Y given a one percent change in the predictors (Wooldridge, 2000). Through linear transformation, the estimated effects of a 10% or 100% change can also be described.

The dependent variable is normally distributed. However, because the indexes are calculated by state, the error terms are not independent or homoskedastic in the full sample. Therefore, the significance of the regression predictors are tested using robust standard errors (Wooldridge, 2000) appropriate for heteroskedastic data clustered by state. Multicollinearity is assessed using a variance inflation factor (*VIF*) test. The linear functional form of the regression model is evaluated using the Ramsey RESET diagnostic statistic, in addition to graphs of residuals and leverage points. Nine leverage points were identified, and the model was estimated with and without these cases. Finally, as community college researchers sometimes do (Romano, 2003), an alternative model was estimated excluding California colleges because the state has a unique finance structure (Murphy, 2004) and contributes a relatively large portion of the sample (11%).

All reported results are significant at alpha =.05. The significance of individual indicator variables is reported only after significant F-tests for the group of indicators. The analysis was conducted in Stata version 7.0.

Limitations

It is important to note several limitations of the study. While all surveys are subject to measurement error, with thousands of institutional researchers and administrators across the country entering complex enrollment and financial data, IPEDS may suffer this problem even more than usual. The validity of measuring full-time, part-time, and for-credit enrollment counts is questionable in the two-year public sector. Community colleges have a high proportion of students whose enrollment status is uncertain or transitional (Adelman, 2004), including those in non-credit developmental courses who concurrently enroll in college-level courses for credit (Shults, 2001). Complex, multi-institutional enrollment patterns present significant challenges to measuring and comparing enrollment at community colleges. The operationalization of "per capita" revenue in this study is affected by these limitations of conceptualization and measurement, as it is elsewhere.

The "revenue per student" measure represents an average level of financial resources available to students at a college. However, estimated expenditures per student vary considerably according to the resource needs of different curricula (such as developmental versus general education) and of students with different educational and career goals (such as those enrolled to earn a degree versus those engaged in occupational training) (*State Funding*, 2000). The total revenues of a college are allocated in ways unseen by IPEDS to particular disciplines, programs, and services to credit, non-credit, part-time, and full-time students. However, the student enrollment count is based only on students enrolled in credit-bearing courses. Non-credit students are not observed.

The analysis is also sensitive to the use of the full-time equivalent (FTE) or head count unit of analysis due to the fact that colleges have varying part-time to full-time

enrollment ratios. Colleges with relatively high part-time enrollment will have a lower per student revenue value, because state appropriations, which are a major revenue source, are often based on FTE funding. The difficulty of measuring "per student" funding and costs are shared by other studies of higher education finance (Jones, 2000; McKeown Moak, 2000).

The use of the percentage of full-time, first-time students at a college receiving federal financial aid as a proxy for community wealth is also a limitation. Variation in tuition and fees, which occurs both across and within states, partially determines who qualifies for financial aid. Both financially needy students and students attending more expensive colleges are more likely to be eligible for aid. This concern is minimized by comparing grant receipt among students in the same state, where tuition and fee charges have smaller variation than in the national sample. The grant aid variable is also based on financial aid awarded to full-time students and may systematically under-represent students from the poorest communities who study part time to avoid the opportunity costs of lost wages. Correlation of the financial aid variable with child poverty measures from the U.S. Census in two states showed a moderate relationship. Similarly, the use of characteristics of enrolled students as a proxy for community racial characteristics may underestimate the Black and Hispanic populations in the community. This is likely to occur where Black and Hispanic residents are less affluent than their White counterparts and less able to afford college.

Finally, the aggregated measure of revenue masks differences in a college's ability to attract different forms of revenue, such as state appropriations, federal grants, and sales of educational services. Additional studies should be conducted to evaluate the factors that affect the receipt of revenue from different sources.

Results

Revenue Sources In this sample of U.S. community colleges in thirty-five states, the median value of total revenues from all sources except tuition and fees per student is $2,800. Average tuition and fees are $1,400, which contribute 21% of total college revenues. The largest share of non-tuition revenues is provided by governmental sources. As reported in Table 2, state appropriations are the largest source, providing 62% of non-tuition revenues in states without local funding and 40% in local-share states. Local appropriations provide 25% in states with a local role. Federal grants and contracts contribute 17% on average, while state grants contribute 6%. All entrepreneurial forms of revenue combined contribute 12% in states without local funding and 15% in local-share states. At 7%, the largest of the IPEDS non-governmental funding categories is auxiliary revenues, which includes items such as food services, book stores, and health services. Revenues categorized as "other," which includes such items as miscellaneous rentals and sales and interest income, account for 3%, while all other forms of entrepreneurial revenue each contribute 1% or less. These minor finance categories include private gifts, educational sales and services, independent operations, and endowments. The results do not capture revenues held by college foundations, because colleges were not required to report endowment income held by these semi-autonomous fundraising organizations until the 2005 Finance Survey.

Variation in Revenue and Enrollment Within the states in the sample, revenue per student varies considerably by college. The state *IQR* values range from $600 to $4000. When the *IQR* is expressed as a proportion of state median revenues, the median value is .46 per student. This indicates that in half the states in the sample, colleges in the highest revenue quartile have more than 1.5 times the revenue of colleges in the lowest quartile.

The median ratio of 90th to 10th percentile revenues per student is 2.2, which indicates, even omitting extreme high and low values that may be anomalies, colleges garnering the highest level of revenues typically have double the revenues of colleges in the same state at the lower end of the revenue distribution. When FTE is used as the "per capita" enrollment unit instead of unduplicated head count in a sensitivity analysis, these measures of variation are lower, but still sizeable, with comparable values of .29 for the revenue index and 1.85 for the 90th to 10th percentile ratio.

The Pearson's correlation among enrollment head count and revenues in the major revenue categories indicates that state appropriations are strongly, but not entirely, driven by enrollment (R^2= 64 %), as are local appropriations (R^2 = 51%) in states with a local funding role. Federal grants are moderately correlated with enrollment (R^2 = 40%), whereas state grants, sales revenue, and auxiliary revenue are only weakly related (R^2 < 25%). Larger enrollment is positively correlated with urbanization, but the association is not as strong as might be expected. The strongest magnitude of R^2 = 36% is observed through Spearman's correlation of enrollment with the ordinal locale variable.

For-credit enrollments vary in the sample from 439 to 77,500 students, with an average of 10,380. As shown in Table 1, the mean value of the part-time index is 286%, with a range of 110% to 1007%, which demonstrates the considerable variation in the proportion of part-time to full-time students on community college campuses.

Regression Analysis Table 3 presents the sequential regression analysis predicting a college's intrastate revenue position based on total non-tuition revenues per student relative to the state median. The regression is statistically significant and passes multicollinearity tests at all steps. Nine extreme values must be omitted before the model passes tests of linearity. Omitting these leverage points changes the value of the

coefficients, but does not substantively alter the magnitude or significance of the results. Therefore, the results based on the model without leverage points are presented in Table 2 (and the results with leverage points are available from the author). When California is omitted, the results are not substantively altered, so the state has been retained in the analysis.

As the sole predictor in the first step, the percentage of aided students at a college explains 7% of the variation in total revenues. A 100% increase in the aided student index predicts a 17.5% increase in a college's intrastate revenue position, all else equal. In the final model, this effect is reduced to 13.6%.

The inclusion of the enrollment size variables increases R^2 to 25%. Controlling for the proportion of part-time students, large colleges have a revenue position 10% lower than typical size colleges with otherwise similar characteristics. The coefficient is of the same magnitude for very large colleges, but is not statistically significant due to a smaller number of cases in this category. The results of an alternative model fitting enrollment size with cubic terms (available from the author) shows the negative effect of size on revenue position to decrease as colleges become very large. A 100% increase in the part-time index is associated with 13.2% drop in revenue position.

Lastly, the inclusion of degree of urbanization and the Black and Hispanic student indexes increase R^2 to 28%. Colleges located in towns and rural areas are predicted to have a revenue position 12.8% to 17.5% higher than colleges with otherwise similar characteristics in large cities. No difference is found in a college's revenue position among colleges in large and mid-size cities and the urban fringes of those areas. The effects of enrollment size are no longer substantive or significant when degree of

urbanization enters the model at this step. The indexes for Black and Hispanic students are not statistically significant predictors.

Discussion

It is common for community colleges at the low end of the revenue distribution in their state to operate with half the level of resources per student as colleges at the upper end of the distribution. What are the sources and equity implications of this resource gap? Student enrollment is a common determinant of state appropriations to community colleges; as college enrollments grow, funding increases (Burke & Serban, 1998; *State Funding*, 2000). However, even state appropriations are not strictly enrollment driven. Economic and political factors also influence resource allocation. As the findings of this study show, economic factors explain only a small proportion of revenue variation. Colleges serving greater numbers of students with financial need are estimated to have a stronger revenue position, but only 7% of revenue variation is explained. Large institutions are estimated to operate with lower revenues per student, suggesting economies of scale, until the model controls for urbanization. Then, it is not size that matters, but geographic location. Colleges in towns and rural areas are estimated to have per student revenues 13% to 18 % greater than colleges in large cities. This holds even when controlling for enrollment size and the proportion of part-time students. Therefore, the urban college revenue deficit cannot be attributed to economies of scale. Other factors are at play, and the model only begins to control for these: 72% of intrastate revenue variation remains unexplained.

Several interpretations are plausible and deserve further investigation. The source of the urban revenue deficit may be governmental or entrepreneurial funding, or both. Community colleges receive state, local and federal governmental funds. These sources

contribute the majority of community college revenues: 88% (or 86% in states with a local funding share). At the state level, legislators may engage in “leveling up” strategies (Wong, 1994). These are compromises to satisfy legislators and distribute resources to constituents in all districts, even while establishing progressive finance policies to promote vertical equity. Such legislative compromises may direct larger shares of state resources to non-urban colleges than is warranted to compensate for diseconomies of small institutional size or for educational needs. This revenue advantage may be achieved through regional coalitions that isolate urban legislators, whose constituents and economic agenda may be perceived as distinct from and in competition with those of legislators from the suburbs, towns, and rural areas.

Several states adjust appropriations by a factor of 1.5 to 2.0 to provide greater revenues to specialized curricula, particularly remedial and technical education (*State Funding*, 2000). To some extent, then, revenue variations may be attributed to differences in the program mix. The observed funding pattern implies either that town and rural colleges are performing higher rates of remediation, which seems unlikely given the poorer quality of urban schools (Rury & Mirel, 1997), or are offering programs with a greater technical emphasis. In the latter case, revenue disparities would indicate unequal opportunity to participate in economically rewarding technical programs.

In states with local appropriations for community colleges, urban legislators and taxpayers, faced with a relatively high social welfare burden, may be more unwilling than non-urban legislators to fund community colleges. Federal funding is often explicitly means-tested, as for the TRIO and GEAR UP programs, and these funding policies contribute to progressive financing. However, colleges need skilled administrators to compete for federal and state funds. With relatively uniform compensation scales in

operation in public higher education systems, colleges outside cities may compete effectively for skilled administrators with comparatively low home prices and campus amenities such as parking and office space, resulting in an increased capacity to compete for federal grants.

Administrative skill and capacity also come into play in generating entrepreneurial revenues through corporate contract training, auxiliary sales in food courts and bookstores, and in fundraising. In the states in the sample analyzed for this study, entrepreneurial income contributes 12% to 14% of total non-tuition revenues, an amount that can be expected to grow in the years ahead as state support for higher education diminishes (Merisotis & Wolanin, 2000). Among the emerging market and entrepreneurial sources of revenues, auxiliary services contribute a sizeable share at 7%. The ability to raise auxiliary revenues depends on consumer demand from students and others on campus, while other entrepreneurial revenues depend on demand—and capacity to pay—from the corporate sector and philanthropists. As a result, colleges in less affluent areas will have lower entrepreneurial revenue capacity.

Implications

Disparities in educational resources in central cities and suburbs have long been evident and are related to the "spatial distribution of poverty" (Rury & Mirel, 1997, p. 62). As has been evocatively portrayed by Jonathan Kozol in *Savage Inequalities* (1991), urban schools are typically at the losing end of the resource gap. The history of and current events in primary and secondary school financing demonstrate that urban schools must pursue judicial remedies to receive a fair share of resources denied them or forestalled through legislative processes (*CFE v State*, 2003; McDaniel, 2004). Despite

two waves of court-mandated school finance reform (Verstegen, 1998), political and market forces perpetuate resource inequities (Hoxby, 2001; Timar, 2003).

The findings of this study indicate that community colleges in large cities are at a disadvantage in securing governmental and entrepreneurial revenues relative to colleges with similar enrollment and demographic characteristics in large and small towns and rural areas. As Rury and Mirel (1997) have argued, it would be "naïve to suggest that economic and social or cultural relationships are not closely tied to the distribution of political power in society" (p. 49). The study shows that economic factors do not fully explain observed revenue disparities. One potential political mechanism that may result in an urban funding disadvantage—the use of legislative "leveling up" strategies to achieve "territorial equity" (Wong, 1994)—has been discussed.

These results have been obtained in national data. More nuanced geo-political relationships may well be observed in individual states. Flores (2003), for example, has presented findings that show inequitable financing of Hispanic Serving Institutions in the border areas of Texas. In California, the financing system in place prior to the recently adopted equalization plan benefited smaller districts (Murphy, 2004) in addition to the urban centers of Los Angeles and San Francisco, which were at the 90th percentile of the funding distribution (Quittner, 2004b). The emerging urban area of San Diego, in contrast, was at a disadvantage under the historical funding plan and gained significantly under equalization (Quittner, 2004a).

Community colleges share educational and financial characteristics of schools. They receive significant shares of their resources from the state government and serve students who often have limited mobility and institutional choice. Unlike elite students who select a private college or public flagship university from a national choice set,

community college students make attendance decisions based on college proximity (Flores, 2003). In half the states, local funding and governance play a role in garnering resources (*State Funding*, 2000). This study presents evidence that current funding practices disadvantage urban community colleges. It provides impetus for further theoretical and empirical research to determine the political and economic mechanisms by which urban colleges may be shortchanged. The findings give urgency to a political-economic research agenda in the two-year public college sector that questions: How do "identifiable social and economic interests employ the political domain to define the spatial distribution of educational activities" and resources (Rury & Mirel, 1997, p.98). Several research questions concerning legislative coalitions, administrative capacity, and institutional economies of scale emerge for further investigation:

- Do rural and suburban state legislators form coalitions that isolate urban colleges in negotiations for community college appropriations and grants?
- In states with local funding, are urban districts less willing to fund community colleges due to a heavier social welfare tax burden?
- Do urban community colleges offer a curriculum with fewer expensive technical programs, reducing opportunities for training in technical fields?
- Do suburban and rural community colleges offer amenities that enable them to attract and retain skilled administrators more effectively than urban colleges?
- Do urban colleges compete less effectively than colleges in towns and rural areas for competitive governmental grants?
- Do urban colleges have lower capacity to raise revenues through contract training, auxiliary services, and fundraising due to lower community wealth?

- In what functional areas (e.g. curriculum, student services, institutional administration) are large community colleges expected to achieve economies of scale and in what ways are these functions affected by diversity of language and learning needs in the student body?

These questions emphasize that the equity of a public two-year college finance system that relies increasingly on entrepreneurial revenues requires further study. This is particularly true in the current era of public college accountability, in which many colleges are being held responsible for producing improved outcomes, as measured by student program completion, graduation, and transfer rates (Burke & Associates, 2002). Unless urban institutions are more efficient in producing educational programs and delivering educational services, with fewer resources they will produce fewer educational outcomes or outcomes of a lesser quality than comparable non-urban institutions. This is problematic not only for the functioning and reputation of those colleges, but also for the economic and community well being of U.S. cities, which will depend on an educated population for revitalization and renewed prosperity.

Table 1 Variables, Descriptive Statistics, and Transformations

Variable	Type of Variable	Values Mean (SD) [Range]	Transformations
Dependent variable: College revenue position within state *Derived from:* Total non-tuition revenue per student	College revenue per student as proportion of state median revenue per student	107.2(40.29) [20-536] $3096(1460) [1004-58690]	College revenue/ median revenue of all colleges in the state, expressed as % (X100); Log transformation for regression; Skewness = -.334
Aided students index [fgrantidx] *derived from* Students receiving federal grant aid	Ranking index within state Percentage of full-time first-time degree-seeking students	106.7(51.47) [0-356] 35.46(17.56) [0-100]	College value/state median, expressed as % (X100); Skewness = 1.21
Part-time index [ptidx] *derived from* Enrollment of credit and vocational students (in 1000s) Full-time equivalent enrollment (FTE)	Unduplicated head count as a proportion of FTE 12-month unduplicated head count 3 part-time students = 1 FTE	286.6(95.19) [110-1007] 10.38(10.54) [.439-77.5] 3537(3257) [127-25323]	Enrollment/FTE, expressed as % (X100); Skewness = 2.25

Enrollment size category	Indicators of: Typical (<=7000), Large (7001-19,999), very large (>=20,000)	 50% 48% 33% [0(no)-1(yes)]	Categorization of 12-month unduplicated head count variable, Omitted = typical
Urbanization	Indicators of: large cities, urban fringe; mid-size cities, midsize urban fringe, large towns, small towns, rural	 10.7% 20.0% 22.1% 6.6% 4.2% 27.5% 7.5% [0(no)-1(yes)]	Categorization of locale variable, Omitted = large city
Black student index *derived from* Black student percentage	Ranking index within state Percentage of total enrollment	150.4(181) [0-1800] 11.26(14.20) [0-97]	College value/state median, expressed as % (X100); Skewness = 3.83
Hispanic student index *derived from* Hispanic student percentage	Ranking index within state Percentage of total enrollment	151.7 (197) [0-2433] 9.89(14.89) [0-96]	College value/state median, expressed as % (X100); Skewness = 5.20

Table 2 Revenue Sources as a Proportion of Total Non-Tuition Revenues

Governmental

Local funding	state approps*	state grant	local approps	local grants	federal approps	federal grants
No	0.620	0.057	0.013	0.007	0.000	0.182
Yes	0.399	0.054	0.245	0.006	0.005	0.155
Total	0.490	0.055	0.149	0.007	0.003	0.166

Entrepreneurial

Local funding	auxiliary	other	gifts	sales	endowment	independent operations
No	0.076	0.020	0.016	0.010	0.000	0.000
Yes	0.071	0.043	0.013	0.016	0.001	0.001
Total	0.073	0.033	0.014	0.008	0.001	0.001

Source: NCES IPEDS00-01

*approps=appropriations

Table 3 Predictors of College Revenue Position

	(1)Financial need	(2)Enrollment	(3)Urbanization
Aid index	0.00175	0.00149	0.00137
	(0.00041)**	(0.00034)**	(0.00032)**
Part-time index		-0.00132	-0.00136
		(0.00019)**	(0.00020)**
Large college		-0.10160	-0.03484
		(0.03064)**	(0.03925)
Very large		-0.10334	-0.00066
		(0.06367)	(0.06947)
Fringe lg. city			-0.00817
			(0.05160)
Mid-size city			0.08866
			(0.05107)
Fringe mid city			0.04406
			(0.06920)
Large town			0.12816
			(0.04830)*
Small town			0.17501
			(0.04625)**
Rural			0.14612
			(0.05763)*
Black index			0.00002
			(0.00007)
Hispanic index			0.00007
			(0.00010)
Constant	4.42874	4.88263	4.77340
	(0.04567)**	(0.06959)**	(0.07527)**
F test	17.81**	22.38**	26.13**
	(1, 32)	(4,32)	(12,32)
Mean VIF	1.00	1.12	2.09
R-squared	0.07	0.25	0.28

Observations = 670

Robust standard errors in parentheses

* significant at 5%; ** significant at 1%

Source: NCES IPEDS00-01

References

Adelman, C. (2004, June). *Moving into town: Four portrait models of traditional-age community college populations.* Paper presented at the Association for Institutional Research Annual Forum, Boston, MA.

Breneman, D. W., & Nelson, S. C. (1981). *Financing community colleges: An economic perspective*. Washington: The Brookings Institution.

Burke, J. C., & Associates. (2002). *Funding public colleges and universities for performance: Popularity, problems, and prospects.* Albany: Rockefeller Institute Press.

Burke, J. C., & Serban, A. M. (Eds.). (1998). *Performance funding for public higher education: Fad or trend?* San Francisco: Jossey-Bass.

CFE v. State Victory: Good for New York, Good for the Nation. (ACCESS Quarterly)(2003). New York: ACCESS: A Project of the Campaign for Fiscal Equity, Inc.

Community colleges and the State University of New York. (1999). Boulder, Colorado: National Center for Higher Education Management Systems.

DesJardins, S. L. (2002). Understanding and using efficiency and equity criteria in the study of higher education policy. In J. C. Smart & W. G. Tierney (Eds.), *Higher education: Handbook of theory and research* (pp. 173-219). New York: Agathon Press.

Dowd, A. C., & Grant, J. L. (2004a, April). *Community college finance equity: An examination of revenue disparities by race and community wealth.* Paper presented at the American Educational Research Association, San Diego, CA.

Dowd, A. C., & Grant, J. L. (2004b). *Equity and efficiency of community college appropriations: The role of local financing.*Unpublished manuscript, Boston, MA.

Evelyn, J. (2004, April 30). Community colleges at a crossroads. *Chronicle of Higher Education,* p. A34.

Flores, S. (2003, November). *Disproportionate policies: Latino access to community colleges in Texas.* Paper presented at the Association for the Study of Higher Education, Portland, Oregon.

Garms, W. I. (1981). On measuring the equity of community college finance. *Educational Administration Quarterly, 17*(2), 1-20.

Gomstyn, A. (2003). *Oregon judge rejects community-colleges' lawsuit seeking more state money*. Retrieved November 17, 2003, from http://chronicle.com

Halstead, K. (1991). *Higher education revenues and expenditures: A study of institutional costs*. Washington: Research Associates of Washington.

Hoxby, C. M. (2001). All school finance equalizations are not created equal. *Quarterly Journal of Economics*(November), 1189-1231.

Iowa Community College funding formula task force report. (1998). Iowa Department of Education.

Jones, D. P. (2000, March). *An alternative look at the cost question.* Paper presented at the Higher Education Cost Measurement: Public policy issues, options, strategies, Washington, D. C.

Kozol, J. (1991). *Savage Inequalities*. New York: Crown Publishers.

McDaniel, G. (2004). *Legal actions counter cuts to funding in Florida and Maryland: Florida lawsuit challenges decision to give poor district largest cut*. Retrieved August 5, 2004, from http://www.schoolfunding.info

McKeown Moak, M. (2000, March). *A view from the states: A survey of the collection and use of cost data by states.* Paper presented at the Higher Education Cost Measurement: Public Policy Issues, Options, Strategies, Washington, D. C.

Merisotis, J. P., & Wolanin, T. R. (2000). *Community college financing: Strategies and challenges. New expeditions: Charting the second century of community colleges. Issues Paper No. 5* (No. 1523). Annapolis Junction, MD: American Association of Community Colleges, Association of Community College Trustees.

Middaugh, M. F., Graham, R., & Shahid, A. (2003). *A study of higher education instructional expenditures: The Delaware Study of Instructional Costs and Productivity* (No. NCES 2003-161). Washington, D.C.: U.S. Department of Education, National Center for Education Statistics.

Murphy, P. J. (2004). *Financing California's community colleges*. San Francisco: Public Policy Institute of California.

Odden, A. R., & Picus, L. O. (2004). *School finance: A policy perspective* (Third edition ed.). Boston: McGraw-Hill.

Policy of choice: Expanding student options in higher education. (New Millenium Project on Higher Education Costs, Pricing, and Productivity)(2002). Washington, D.C.: Institute for Higher Education Policy.

Quittner, D. (2004a, July 30). GCCCD: Equity at last in state funding: District share of equalization dollars in state budget totals $2 million. *News Release*.

Quittner, D. (2004b). *State funding inequities in the California community college system*. El Cajon: Office of Intergovernmental Relations, Economic Development, and Public Information, Grossmont-Cuyamaca Community College District.

Romano, R. M. (2003, October). *Financing community colleges across the states: An economic perspective.* Paper presented at the Complex Community College Conference, Cornell Higher Education Research Institute, Cornell University, Ithaca, NY.

Rury, J. L., & Mirel, J. E. (1997). The political economy of urban education. *Review of Research in Education, 22,* 49-110.

Shults, C. (2001). *Remedial education: Practices and policies in community colleges* (Research Brief No. AACC-RB-00-2). Washington, D.C.: American Association of Community Colleges.

State funding for community colleges: A fifty state survey. (2000). Denver, Colorado: Center for Community College Policy, Education Commission of the States.

Timar, T. B. (2003). *School governance in California: You can't always get what you want*. Retrieved April 30, 2003, from www.ucla-idea.org

Verstegen, D. A. (1998). Judicial analysis during the new wave of school finance litigation: The new adequacy in education. *Journal of Education Finance, 24*(Summer), 51-68.

Wong, K. K. (1994). Governance structure, resource allocation, and equity policy. *Review of Research in Education, 20*, 257-289.

Wooldridge, J. M. (2000). *Introductory econometrics: A modern approach*: South-Western College Publishing.