

Spending Patterns of Metropolitan Universities: A Longitudinal Study

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Abstract

Metropolitan universities often point out they are underfunded for their mission. Using data from the Integrated Postsecondary Education Data System (IPEDS) relational database, the author assesses the financial resources and expenditure patterns of members of the Coalition of Urban and Metropolitan Universities and compares them to non-metropolitan peers. The analysis verifies that metropolitan institutions have fewer resources to work with than others in their Carnegie classification, and reveals a unique pattern of allocations and expenditures for metropolitan universities.

The uniqueness of metropolitan universities is well documented in the literature in terms of their mission (Dietz and Triponey 1997), their environment (Richardson and Bender 1987), and their standing among institutions of higher education in the United States (Berube 1978). As metropolitan institutions continue to refine their niche in American higher education, they have struggled with issues related to the adequacy of their resource base. Elliott (1994), for example, provides a variety of illustrations of how funding formulas based on full-time equivalency (FTE) work to the disadvantage of metropolitan institutions. FTE formulas fail to take into account campus needs in a variety of areas. Examples of these include failing to provide sufficient parking, adequate counseling and advising services, and financial aid for part-time students.

Grobman (1988) identified a number of financial issues that create unique problems for metropolitan universities. Among these are higher costs for security, land acquisition, construction, and remedial education than their counterparts located in rural areas. His recommendation is that funding formulas be examined to determine if adjustments are warranted for urban institutions.

In this environment of unique costs, metropolitan institutions have been faced with declining resource problems similar to other institutions of higher education. Eroding support from governmental sources (both state and federal) over a 15-year period (National Center for Education Statistics 2000) has forced universities to rely increasingly on tuition as an important source of revenue (Clodfelter 1996; The Institute for Higher Education Policy 1999). Additionally, financial aid policies have resulted in rising levels of student debt (The Institute for Higher Education Policy, Sallie Mae Education Institute and The Education Resources Institute 1998). These circumstances do not create an optimistic scenario for the fiscal environment of metropolitan universities.

While the literature cited above provides an overview of the contemporary financial circumstances of public universities, the actual differences, if any, in the expenditures of metropolitan universities compared with their peers have not been reported in the literature. This study was developed to address that void in the literature. It was guided by the following questions:

1. Do metropolitan institutions have a smaller resource base for expenditures than their non-metropolitan peers?
2. Are expenditure patterns of metropolitan universities different from non-urban universities?
3. Have expenditure patterns of metropolitan universities changed over time?

Method

This was a quantitative study that was interested in describing how metropolitan universities deployed their resources, a topic of increasing interest in higher education (Balderston 1995). Quantitative methods were chosen since they are appropriate for describing and analyzing current circumstances (Taylor 2000).

Data Sources

Four categories of institutions were identified for this report:

1. Members of the Coalition of Urban and Metropolitan Universities that are Research I, Research II, Doctoral I, or Doctoral II universities using the Carnegie classification that was in place at the time the data were collected (n=12);
2. All public Research I, Research II, Doctoral I, and Doctoral II institutions using the Carnegie classification system that was in place at the time the data were collected (n=149);
3. Members of the Coalition of Urban and Metropolitan Universities that are Masters I or Masters II universities using the Carnegie classification that was in place at the time the data were collected (n=22);
4. All public Masters I and Masters II universities using the Carnegie classification that was in place at the time the data were collected (N=275).

The institutions were aggregated using this typology since too few metropolitan institutions fit the various categories (i.e., Research I, Research II, Doctoral I, etc.). For example, there were only two Research I metropolitan universities, two Research II metropolitan universities, three Doctoral I universities, and five Doctoral II universities, and only one metropolitan Masters II university. So, all the metropolitan institutions that granted doctoral degrees were aggregated into one group, and all those that granted the master's degree as their highest degree were aggregated into another. Peer groups for these institutions were developed following this pattern. Three Bachelor's II colleges are members of the metropolitan coalition. They were not included in this study. International members of the coalition were not included, since they do not participate in IPEDS studies.

Data Collection

Data were collected using the Integrated Postsecondary Education Data System (IPEDS) relational data base. These data are available online (www.nces.ed.gov/ipeds) from the National Center for Education Statistics. For this report, data were collected for the years 1995, 1996, 1997, 1998, and 1999. In all cases, the year indicated in this report is the survey year.

All institutions of higher education receiving Title IV funding are required by law to submit data on an annual basis to the National Center for Education Statistics (NCES) through several surveys, such as the Institutional Characteristics Survey and the annual Finance Survey (20 U.S.C. 1094 [a][17]) (Integrated Postsecondary Data System 1999). NCES then analyzes the data and makes this information available to the public through specific reports as well as through the IPEDS relational data base. The consequence of this data collection approach is that the participation rate is 100 percent.

Data Analysis

Data were collected using the relational data base described above and were analyzed in several ways. To measure how institutions in the various categories allocated their resources, the total expenditure for a specific category (e.g., instruction, physical plant, etc.) was divided by the institution's corrected student headcount (an IPEDS measure). This yielded expenditures on a dollars per student basis. These calculations were computed for each of the four respondent groups identified above. It is important to note that the metropolitan universities were included in the entire set of the research and doctoral institutions, and the master's degree-granting institutions. This was done to provide a complete picture of how all institutions in a particular category allocated their resources, rather than subtracting the metropolitan institutions from the category, yielding a subset of it. Definitions of each expenditure category are included in Appendix A.

For each category, median expenditures were calculated using the relational data base. Medians were chosen so that extremely high or extremely low expenditures would not skew the data (Dooley 2001). Not all categories of expenditures in the data base were included in this study. For example, expenditures for research and scholarships are not reported. Expenditures in these areas often are a function of external funding (such as contracts, grants, and gifts) and as a consequence were not included in the study.

Results

This study generated a substantial amount of information about how metropolitan universities spent their money, and how they compared with their peers. These findings will be reported by institutional expenditure category.

Education and General Expenditures

Table 1 includes a comparison of the educational and general (E&G) expenditures by metropolitan universities with their peers, first for the research and doctoral (R/D) institutions and then the master's degree-granting universities. The most obvious finding from this table, and perhaps the most important revelation from the study, is that metropolitan institutions simply do not spend as much as their peers. The R/D metropolitan universities, based on median expenditures, spend, on average, \$2,000–3,000 less per student. This has been the case over the five years of data included in this study, although the gap narrowed in 1998 and 1999. In 1995, the metropolitan R/D institutions spent 79.7 percent of the amount spent by their peers. By 1999, the gap had narrowed to 92.39 percent of peer spending. This percentage was computed by dividing the total E&G expenditures of the metropolitan universities with their peer group.

Masters level metropolitan universities also spent less money per student than their peers. The gap between these institutional types has grown from 1995 through 1999, from metropolitan universities spending 93.3 percent of what their peers spent in 1995 per student to 89.3 percent in 1999. In actual dollars, the gap has grown from approximately \$500 per student to nearly \$1000 per student.

Table 1 Educational & General Expenditures Per Student

	Research/Doctoral Universities				
	1995	1996	1997	1998	1999
Metro Median (n=12)	10915.74	11100.57	12044.18	13114.37	14863.55
Peer Median (n=149)	13698.99	14598.84	15038.05	15731.66	16088.48
Metro Percentage of Peer Median	79.68	76.04	80.09	83.36	92.39
	Masters Universities				
	1995	1996	1997	1998	1999
Metro Median (n=22)	6818.21	7054.17	7373.55	7751.75	8056.54
Peer Median (n=275)	7311.46	7757.88	8088.56	8442.83	9023.67
Metro Percentage of Peer Median	93.25	90.93	91.16	91.81	89.28

Instruction

Instruction is the largest category of spending for colleges and universities, and “these expenditures reflect an investment in what for most institutions is the core mission, that of educating students” (Taylor and Massy 1996). The metropolitan universities spent a greater percentage of their budget on instruction, but since their budgets are smaller, they actually spent fewer dollars per student than their peers (see Table 2).

The R/D metropolitan universities spent a larger percentage of their budgets on instruction than their peers, although the gap between the two narrowed from 1995–1999. While peer universities spent a smaller percentage of their budget on instruction than

metropolitan institutions, they spent more money per student, except in 1998 which, presumably, can be interpreted as an anomaly. The story was much the same for the masters institutions, except for the 1998 anomaly. The metropolitan institutions experienced a decline in the percentage spent on instruction, while peer group spending remained approximately the same over the five-year period. The actual difference between groups was less than \$100 per student for each year measured.

Table 2 Expenditures on Instruction Per Student

	Research/Doctoral Universities				
	1995	1996	1997	1998	1999
Metro Median (n=12)	4544.99	4552.85	4882.18	4980.85	5161.48
Percentage of Metro E&G	41.64	41.01	40.54	37.98	34.73
Peer Median (n=149)	4858.7	4858.38	5216.68	4897.62	5444.64
Percentage of Peer E&G	35.47	33.28	34.69	31.13	33.84

	Masters Universities				
	1995	1996	1997	1998	1999
Metro Median (n=22)	3028.05	3077.63	3112.91	3415.35	3508.55
Percentage of Metro E&G	27.74	27.72	5.85	26.04	23.61
Peer Median (n=275)	3054.23	3201.26	3308.94	3282.10	3592.24
Percentage of Peer E&G	22.30	21.93	22.00	20.86	22.33

Academic Support

Research and doctoral metropolitan institutions spent more on academic support in both actual dollars and as a percentage of their budget than their peers, except for 1995. This pattern was consistent over each of the five years reported. Metropolitan masters universities also spent a larger percentage of their budget on academic support than their peers; however, the non-metropolitan institutions spent more money per student from 1995–1999 (See Table 3).

Table 3 Expenditures for Academic Support per Student

	Research/Doctoral Universities				
	1995	1996	1997	1998	1999
Metro Median (n=12)	1148.26	1302.89	1494.71	1604.76	1713.83
Percentage of Metro E&G	10.52	11.74	12.41	12.24	11.53
Peer Median (n=149)	1204.83	1282.58	1346.2	1449.47	1547.07
Percentage of Peer E&G	8.80	8.79	8.95	9.21	9.62

	Masters Universities				
	1995	1996	1997	1998	1999
Metro Median (n=22)	606.09	634.18	671.24	674.33	765.97
Percentage of Metro E&G	5.55	5.71	5.57	5.14	5.15
Peer Median (n=275)	651.51	681.48	736.02	802.4	839.46
Percentage of Peer E&G	4.76	4.67	4.89	5.10	5.22

Institutional Support

Except for the first two years of this study, metropolitan R/D universities spent less money per student, but devoted a larger percentage of their budget to this category of expenditure than their peers. The R/D metropolitan universities spent more per student in 1995 and 1996 than their peers, but this pattern reversed itself thereafter. The R/D peer institutions gradually increased their spending on institutional support as a percentage of budget, while the metropolitan institutions spent less each year.

The metropolitan masters universities increased spending each year on institutional support, and this spending represented an increase in this category as a percentage of overall spending until 1999, when the percentage decreased. From 1997 through 1999, the metropolitan universities spent a larger percentage of their budget on academic support than the peer group. The peer masters institutions increased their spending per student every year, although the percentage declined in 1996 and 1997. By 1999, peer spending on institutional support, as a percentage of E&G expenditures, was the highest percentage of budget for the years studied (See Table 4).

Table 4 Expenditures for Institutional Support per Student

	Research/Doctoral Universities				
	1995	1996	1997	1998	1999
Metro Median (n=12)	1148.26	1302.9	1059.83	1011.22	1142.98
Percentage of Metro E&G	10.52	11.74	8.80	7.71	7.69
Peer Median (n=149)	989.44	1088.89	1076.75	1184.48	1225.4
Percentage of Peer E&G	7.22	7.46	7.16	7.53	7.62
	Masters Universities				
	1995	1996	1997	1998	1999
Metro Median (n=22)	606.09	634.18	855.2	947.3	995.55
Percentage of Metro E&G	5.55	5.71	7.10	7.22	6.70
Peer Median (n=275)	835.75	881.54	905.74	967.17	1024
Percentage of Peer E&G	6.10	6.04	6.02	6.15	6.36

Student Services

Spending on student services deviated a bit from the spending patterns in the other categories (See Table 5). For R/D institutions, the metropolitan universities spent a larger percentage of their budgets on student services than their peers, and in 1999, actually spent more dollars per student. Spending, in actual dollars, increased each year for both groups, although the percentage grew in some years and declined in others, yielding no discernible spending pattern difference between the two groups of R/D institutions.

The metropolitan masters institutions also increased spending on student services in actual dollars over the five years of this study, but the percentage devoted to student

services within the budget declined. Their peers spent more each year on student services, and by 1999 had increased spending as a percentage of budget by .5. In actual dollars per student, the peer group spent almost 30 percent more than the metropolitan universities on student services in 1999.

Table 5 Expenditures for Student Services Per Student

	Research/Doctoral Universities				
	1995	1996	1997	1998	1999
Metro Median (n=12)	483.72	541.05	547.82	627.91	708.45
Percentage of Metro E&G	4.43	4.87	4.55	4.79	4.77
Peer Median (n=149)	571.29	595.66	619.07	668.26	681.38
Percentage of Peer E&G	4.17	4.08	4.12	4.25	4.24
	Masters Universities				
	1995	1996	1997	1998	1999
Metro Median (n=22)	497.91	443.86	517.9	533.38	560.34
Percentage of Peer E&G	4.56	4.00	4.30	4.07	3.77
Peer Median (n=275)	544.31	533.75	624.35	672.71	725.55
Percentage of Metro E&G	4.0	3.7	4.2	4.3	4.5

Physical Plant

Metropolitan universities spent less per student on physical plant than other institutions, regardless of institutional type. The R/D metropolitan universities experienced a decline in per student spending from 1995 through 1997, but increased spending in 1998 and 1999. Their peers increased spending each year on physical plant, although 1995 represented the largest percentage of budget spent on this category. Table 6 depicts these data.

The masters metropolitan institutions spent more in actual dollars each year on physical plant than their peers, but the percentage of budget devoted to physical plant declined in 1998 and 1999. The non-metropolitan institutions also spent more each year in actual dollars, and by 1999 had spent a slightly larger percentage of their budgets on physical plant than in 1995.

Table 6 Expenditures for Physical Plant Per Student

	Research/Doctoral Universities				
	1995	1996	1997	1998	1999
Metro Median (n=12)	705.46	687.4	684.16	763.99	862.34
Percentage of Metro E&G	6.46	6.19	5.68	5.83	5.80
Peer Median (n=149)	959.54	1003.96	1023.89	1085.39	1122.48
Percentage of Peer E&G	7.00	6.88	6.81	6.90	6.98

	Masters Universities				
	1995	1996	1997	1998	1999
Metro Median (n=22)	560.06	615.55	628.01	633.57	663.86
Percentage of Metro E&G	5.13	5.55	5.21	4.83	4.47
Peer Median (n=275)	651.96	683.96	730.58	735.73	769.49
Percentage of Peer E&G	4.76	4.69	4.86	4.68	4.78

Public Service

Spending on public service was dissimilar to many of the other categories of expenditures (see Table 7). The R/D metropolitan institutions decreased spending on public service in 1996 and 1997 before increasing spending modestly in 1998 and then substantially in 1999. Their peers spent less in 1997 but then experienced increases in 1998 and 1999. The net effect of this was that both the metropolitan R/Ds and their peers increased their spending from 1995 to 1999, although the percentage of budget dedicated to these categories declined.

The metropolitan masters universities and their peers experienced modest gains in this category of expenditures. These institutions increased their spending each year in actual dollars and as a percentage of budget. The peers increased their spending on public service as a percentage of expenditures each year, while the metropolitan universities reduced spending in 1998 and recovered modestly in 1999.

Table 7 Expenditures for Public Service Per Student

	Research/Doctoral Universities				
	1995	1996	1997	1998	1999
Metro Median (n=12)	423.91	399.5	385.54	392.09	515.55
Percentage of Metro E&G	3.88	3.60	3.20	2.99	3.47
Peer Median (n=149)	636.35	666.49	642.62	690.25	726.39
Percentage of Peer E&G	4.65	4.57	4.27	4.39	4.51

	Masters Universities				
	1995	1996	1997	1998	1999
Metro Median (n=22)	144.72	155.15	179.74	183	214.74
Percentage of Metro E&G	1.33	1.40	1.49	1.40	1.44
Peer Median (n=275)	145.75	155.97	165.68	195.97	217.18
Percentage of Peer E&G	1.06	1.07	1.10	1.25	1.35

Discussion and Conclusions

As was suggested in the findings of this report, perhaps the most obvious and important conclusion from the data generated in this study is that metropolitan institutions, regardless of institutional type, do not have the financial resources of their peers. Certainly, there could be exceptions, but taken together, metropolitan institutions spent less money on the expenditure categories included in this study than their peers. The R/D metropolitan

institutions appeared to make progress in relation to their peers, but the masters level institutions fell farther behind their peers during the five years of data provided in this report.

It is impossible to know with absolute certainty why metropolitan institutions are funded at a lower level than their peers. Potential reasons include the age of these institutions (younger than their peers), the financial status of their students (perhaps more modest than those attending peer institutions), the political positioning of metropolitan institutions compared with other institutions in their states, or the level of support from benefactors. Regardless of the reasons, metropolitan institutions had less money to work with than their peers.

Metropolitan institutions spent more on instruction than their peers, although this gap is narrowing. Metropolitan institutions may take more of an open door approach to admissions and, consequently, may have to put additional resources into instruction, for smaller classes or more developmental courses, for example. As was the case with higher education in general, the metropolitan institutions devoted a smaller percentage of their expenditures to instruction over the five years of this study. This trend is reflected in every category of institution, according to the *Digest of Education Statistics, 1999* (National Center for Education Statistics 2000). Institutions of higher education are reducing their expenditures for instruction, which could be due to a variety of factors, including the use of more part-time faculty (The Institute for Higher Education Policy 1999), or shifting resources to other expenditure categories (Stringer, Cunningham, Merisotis, Wellman and O'Brien 1999).

Metropolitan institutions devote more resources to academic support than their peers, as a percentage of budget and in the case of the R/D institutions in actual dollars spent per student. This may also be a factor of admissions policies. It could also be a consequence of the unique contributions metropolitan institutions make to their communities through art galleries, libraries, and museums, where these facilities are often seen as a community resource rather than simply a facility available to members of the campus.

Institutional support as an expenditure category may be thought of as reflecting administrative costs. Metropolitan institutions did, however, decrease their budget percentage on this category of expenditures compared with their peers. Metropolitan R/D universities spent a smaller percentage of budget on this category of expenditures over the five years of the study, which runs counter to the trend for higher education (National Center for Education Statistics 2000). Their spending now is in line with their peers, as a percentage of total expenditures. The metropolitan masters universities spent more money on this category of expenditures than their peers as a percentage of budget in 1997, 1998, and 1999. Reasons for this increase in spending on institutional support are unknown.

Metropolitan R/D universities spent more on student services than their peers on a per student basis. While metropolitan universities may have less extensive student activity, entertainment, and recreation programs than their peers, they experience additional costs in providing academic advising and registration services, particularly if the

institution is funded on a full-time equivalent (FTE) student basis. It takes nearly as much time to advise and register a part-time student as a full-time student. Funding formulas, especially for student affairs, work to the detriment of metropolitan institutions for reasons described earlier in this report.

The masters metropolitan universities have reduced per capita spending on student affairs, which runs counter to the experience of their peer institutions. These institutions, evidently, have chosen to put their resources into other areas of expenditures.

All of the institutions, except the masters peer group, have reduced spending for physical plant, which is consistent with national data (National Center for Education Statistics 2000). While additional funds have been committed to physical plant spending, the percentage of spending continues to decline.

Finally, a counter-intuitive finding of this study is that the R/D metropolitan universities have decreased their spending on a per student basis for public service. Presumably, public service would be an important activity for metropolitan R/D universities and this decline is surprising. The R/D peer group experienced a similar decline. Both the metropolitan and non-metropolitan masters degree-granting institutions experienced an increase in spending on a per capita basis and as a percentage of their budget.

Limitations and Recommendations for Further Study

A study of this type has several limitations. First, the study covers just five years of expenditures. Year-by-year expenditures are not available in the IPEDS data base before 1995, so there is no way to know if the trends identified in this study would have occurred over 10, 15, or 20 years. While this study provides a basis for examining institutional expenditures, it cannot, because of a lack of data, provide a longer view of expenditure patterns. As more data become available, additional studies should be conducted to determine if the trends and patterns identified in this report are sustained or reversed.

A study such as this does not provide information about specific institutions. It is possible that individual institutions, either the members of the Metropolitan Coalition or members of the peer group, could have allocated resources in very different ways. For example, a specific institution could be spending more on instruction but less on institutional support, which would run counter to the aggregate spending patterns reported in this paper. Subsequent studies of individual institutions could be very valuable for identifying whether institutions have allocated their resources in different patterns, how this was accomplished, and why the institution undertook this approach. Case studies to examine such issues would be very useful.

Use of headcount for this study probably understates the financial situation of metropolitan institutions. Had full-time equivalent students been used, the situation very likely would have been even less favorable, since metropolitan universities often enroll part-time students (Jones and Damron, n.d.; Rhatigan 1986). This same study could be conducted using FTE student data, potentially with even more dramatic results. IPEDS does not collect FTE student data, although FTEs could be computed since credit hour production is collected by IPEDS.

Expenditure patterns are only one ingredient in developing the complete financial picture of institutions of higher education. Income sources also are important. It is conceivable, although unlikely, that members of the peer groups might be spending more because they have chosen to liquidate assets. Given the hundreds of institutions involved in this study, this eventuality is unlikely, but not impossible. Another study that could be conducted would be to examine and compare income sources of metropolitan universities with their peers.

Finally, as is the case with any study where the data have been collected by survey instrument, there is a potential for error. The patterns and trends identified in this report suggest that errors in reporting, if any, have been minor in nature. Nonetheless, there is no guarantee that errors did not occur. Reporting errors can be overcome by site visits to the reporting institutions and an inspection of the raw data, a costly and time-consuming procedure.

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