The 2009 Update to Trends Analysis and Forecasting For Mississippi Libraries of 2008

A Report to the Mississippi Library Commission

By

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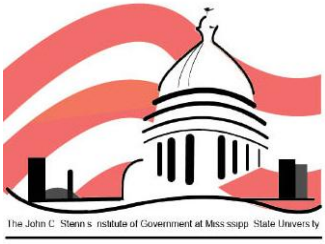

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Executive Summary of Major Findings

What are the major reasons for this study?

This study is an update to the 2008 study, which was undertaken as a key element in the process of planning for the future. The additional year of available data (2007) was added to the data base in order to ascertain whether there was an effect on the trends determined last year. In addition, a cost-effectiveness study was performed using methods similar to those used to examine cost effectiveness in other library systems. Subsequent to this examination, there are some recommendations for Mississippi library personnel to better determine their effectiveness using a performance evaluation methodology that should mesh nicely with current planning efforts. The critical factors for this update remained (as in last year's study) circulation of books, operating revenues by major source (local, state, and federal), and operating expenses by major category. This required analyses of data that have been collected and held by the Mississippi Library Commission.

What data was used in the study?

*Individual library data available from the Mississippi Library Commission were used in this study in order to analyze trends at both the state and local levels. For analyses, the libraries were placed into groups based on the population of their service areas. The most significant findings of the study follow below***.**

What were the most significant findings about circulation?

It now appears for the overall system of Mississippi public libraries that total circulation reached a peak in 2004 after a rising trend since 1999. Since 2004, however, there has been a downward trend in total circulation exacerbated by the effects of Hurricane Katrina. The patterns were very different among library groups and individual libraries with library groups 1 and 2 showing almost the reverse of the trends for the overall system. Groups 1 and 2 exhibited a declining trend from 1999 to 2004 but have since risen through 2007.

Per capita circulation, which is actually a much better measure of library circulation for an area than total circulation, has been much more stable over the years than has total circulation, except

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for group 8 which has shown persistent and substantial declines since 2004. For most library groups, per capita circulation has varied from 2 to 3 books per person, with libraries from the more populous areas generally having somewhat higher levels of per capita circulation. Overall, there has been no discernable trend to per capita circulation.

What were the most significant findings about funding?

Total revenues (in real inflation adjusted dollars) have risen between 1999 and 2007; however, there are two subtrends. From 1999 to 2004 revenues were rising. In both 2005 and 2006 there were declines with a small increase in 2007. There was no substantial change to the trends in the share of total revenues composed of local (city plus county) funding except in FY2007 when the percent of financial support accounted for by local funding dropped in all but two of the groups. In fact, while city funding remained fairly stable as a percent of total funding for most groups in the period of 1999 through 2006, city and county funding actually declined for five of the eight groups in 2007.

What were the most significant findings about expenditures?

Operating expenditures tend to rise as the service-area population of the library system increases and tend to rise faster than the rate of population increases. Regardless of the size of the individual library, the largest single component of operating expenditures is personnel costs (salaries and benefits). Personnel expenditures normally constitute at least 60 percent of operating costs, and for some individual libraries personnel costs are as much as 80 percent of total operating costs. For over half of the library groups, both staff costs and overall operating costs have been growing faster than the rate of inflation. There has also been some shifting of expenditures from print to non-print materials.

What were the results of the cost efficiency study?

Using the same limited output measures (total circulation, yearly visits, and hours of operation per week) as have been used in other published benchmark studies, the combined Mississippi public libraries appear to be substantially more efficient than is the case for studies of all U.S. public libraries, Hawaiian public libraries, and public libraries in Australia.

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What are your most important recommendations for Mississippi Public Libraries?

Measuring performance has become much more important for public programs. In the past, the emphasis on monitoring performance in the public sphere has largely focused on the costs and amounts of inputs, or immediate outputs rather than on outcomes over time. Simply monitoring costs and short-term output is easier, but program monitoring, performance measurement, and evaluation of programs and their managers should entail a more comprehensive evaluation approach. It is recommended that all Mississippi public libraries begin a system of routine and on-going program evaluation based upon what each of those libraries in their planning efforts have determined to be their most important outcomes long term outcomes as well as the specific programs and activities they use to achieve those results.

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Introduction to the Study

Evaluating a system of libraries is a daunting task. The traditional notion of a library as simply a place to hold books that can be lent to the public is far too narrow to fully account for the many functions of a modern library. And the question must be asked, "just what are the outputs of a library?" Bundy and Amey have succinctly outlined the problem:

> "*Meaningful output measures are not as common as input measures, and they are more difficult to determine. This is because a library's impact on learning, on the community, and on the quality of life of individuals cannot be readily quantified. Public libraries, for example, are unique as multifaceted community agencies. They endeavor to meet the needs of the entire population from 'cradle to grave,' and typically at least 50 percent of the population uses them regularly. Nonetheless, there is a strengthening consensus, to use Matarasso's (*Matarasso, F. (1998)) *words that 'Library services need more effective methods of monitoring, assessing and reporting on their wider value to society.*(Bundy and Amey (2006) .

The funding of libraries has become increasingly challenging because of the increasing need to be accountable with quantitative assessments, the desire by taxpayers for increased efficiency (doing more with less) and a general ideological shift away from governmentally provided services. To confound the problems, libraries need more resources to adapt to changing technologies and there is less certainty as to what their roles should be.

It is therefore imperative to continue to monitor library trends, as part of the effort to identify outputs and monitor effectiveness. This study attempts to assist in that process for the public libraries of Mississippi. This research is an update to the original study *Trends Analysis and Forecasting for Libraries* of August 2008. The research completed for this update addresses three issues. First, the study sets forth how the most significant findings from the 2008 study have been affected by the additional fiscal year (FY) 2007 to the data. Secondly, the research makes a first effort to examine a measure of cost effectiveness using state of the art econometric methods. Finally, the study offers recommendations for a program evaluation methodology for the libraries of Mississippi. The report is organized into five sections:

(1) An update on circulation;

(2) An update on operating income (with some emphasis given to the separate categories of funding – local, state, federal, and other);

(3) An update on Operating Expenditures (with some emphasis on staff costs);

(4) Results of a study of cost effectiveness

(5) Recommendations for a program evaluation methodology

In addition to the findings on circulation, funding, and expenditure trends, a stochastic frontier cost analysis has also been conducted in order to estimate inefficiencies and identify sources of those inefficiencies in the library system. The results of the inefficiency study are compared to similar studies in which inefficiencies have been estimated for all libraries in the U.S., for the Australian library system, and for other public enterprises.

As was the case for the original 2008 study, the groupings used for this analysis were based on library groups as they were in 1999 (see Appendix 1 for maps, groupings, and library identifications from the previous study). This was done in order to maximize the number of observations and to preserve consistency over time. It should also be recognized that one year of data is rarely enough to significantly affect overall trends. Such an addition of data is usually simply additional proof of those trends, or a slight divergence from the obvious longer-term trend, therefore there were few expectations for surprise. Occasionally, one year of additional data may suggest that a turning point in trends (a change in direction) has occurred. This is the primary reason for examining the additional year of data.

Individual library data available from the Mississippi Library Commission were used in this study in order to analyze trends at both the state and local levels. Data at the local level included not only local library data but also county-level economic and demographic data, which were aggregated into library systems. A map of the library systems is shown in Figure 1. There is one significant correction to that map; the South Delta Library Services system has been dissolved. The area is now served by two public library systems: Yazoo Library Association and Sharkey-Issaquena County Library System. Since the data examined here are from fiscal year 1999 through fiscal year 2006, these two separate systems are treated as one for the sake of continuity in the trend analysis. Figure 2,

Public Libraries in Mississippi **Counties in Mississippi**

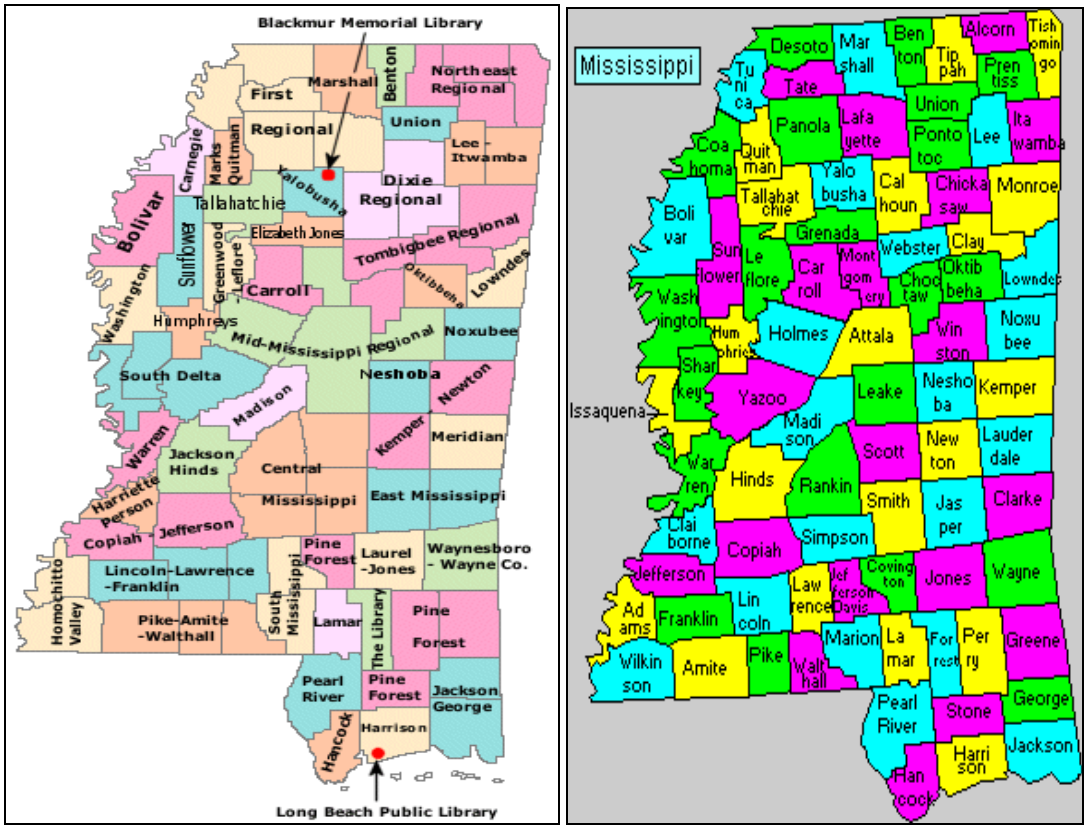

Figure 1.

displaying Mississippi's counties, is placed beside Figure 1 to aid in a better spatial understanding of the library systems in Figure 1. Table 1 provides a list of libraries along with the counties served by each, the code used for that library in this analysis, and the library area size group to which it belonged in 1999 and in 2006. Library size groups are based upon the population size of the library service areas. Library groups by size are compared for fiscal years 1999 and 2006 in Table 2. The 2006 groupings are used for the static analysis of the FY2007 data, while the 1999 size groupings are used for the dynamic analysis using data from FY1999 through FY2007 which allows form more consistency in the data across years.

Table 1 Library Systems, Areas, Codes, and Groups				
Library System	**Relevant Counties**	**Comments**	**Library Code for Analysis**	**1999/2006 Library Group**
Benton County Library System	Benton		1	1/1
Blackmur Memorial Library	Yalobusha		48	8/7
Bolivar County Library System	Bolivar		18	3/2
Carnegie Public Library of Clarksdale and Coahoma County	Coahoma		9	2/2
Carroll County Public Library System	Carroll		2	1/1
Central Mississippi Regional Library System	Rankin, Scott, Smith, Simpson		43	7/6
Copiah-Jefferson Regional Library	Copiah, Jefferson		19	3/2
Dixie Regional Library System	Pontotoc, Chickasaw, Calhoun		30	4/4
East Mississippi Regional Library	Jasper, Clarke		20	3/2
Elizabeth Jones Library	Grenada		10	2/2
First Regional Library	Desoto, Tunica, Tate, Panola,Lafeyette		44	7/6
Greenwood-Leflore Public Library System	Leflore		21	3/2
Hancock County Library System	Hancock		22	3/3
Harriette Person Memorial Library	Claiborne		3	1/1
Harrison County Library System	Harrison		45	7/6
Natchez Adams Wilkinson Library Service	Adams, Wilkinson	Previously Homchitto Valley	23	3/3
Humphreys County Library System	Humphreys		4	1/1
Jackson/Hinds Library System	Hinds		46	7/6
Jackson-George Regional Library	Jackson, George		47	7/6
Kemper-Newton Regional Library System	Kemper, Newton		11	2/2
Lamar County Library System	Lamar		24	3/3
Laurel-Jones County Library	Jones		31	4/4
Lee-Itawamba Lib System	Lee, Itawamba		40	6/5
Lincoln-Lawrence-Franklin Regional Library	Lincoln, Lawrence, Franklin		32	4/3
Long Beach Public Library	Harrison		49	8/7
Columbus-Lowndes Public Library	Lowndes		29	4/3
Madison County Library System	Madison		35	5/5

Table 1 Library Systems, Areas, Codes, and Groups				
Library System	**Relevant Counties**	**Comments**	**Library Code for Analysis**	**1999/2006 Library Group**
Marks-Quitman County Public Library System	Quitman		5	1/1
Marshall County Library System	Marshall		12	2/2
Meridian-Lauderdale County Public Library	Lauderdale		36	5/4
Mid-Mississippi Regional Library System	Montgomery, Attala, Leake, Holmes, Winston		41	6/5
Neshoba County Public Library	Neshoba		13	2/2
Northeast Regional Library	Tishomingo, Alcorn, Prentiss, Tippah		42	6/5
Noxubee County Library	Noxubee		6	1/1
Starkville-Oktibbeha County Public Library System	Oktibbeha		27	3/3
Pearl River County Library System	Pearl River		25	3/3
Pike-Amite-Walthall Library System	Pike, Amite, Walthall, Pike		37	5/4
Pine Forest Regional Library	Perry, Greene, Stone, Covington		33	4/4
Sharkey-Issaquena County Library System	Sharkey, Issaquena	Previously in South Delta; Combined here for trend analysis with Sharkey-Issaquena	14	2/1
South MS Regional Library	Marion, Jefferson Davis		26	3/2
Sunflower County Library	Sunflower		15	2/2
Tallahatchie County Library	Tallahatchie		7	1/1
The Library of Hattiesburg, Petal and Forrest County	Forrest		38	5/4
Tombigbee Regional Library System	Choctaw, Monroe, Clay, Webster		39	5/4
Union County Library	Union		16	2/2
Waynesboro-Wayne County Library System	Wayne		17	2/2
Warren County-Vicksburg Public Library	Warren		28	3/3
Washington County Library System*	Washington		34	4/3
Yalobusha County Public Library System	Yalobusha		8	1/1

Table 1 Library Systems, Areas, Codes, and Groups				
Comments	**Comments**	**Comments**	**Comments**	**Comments**
Yazoo Library Association	Yazoo	Previously in South Delta; Combined here for trend analysis with Sharkey-Issaquena	14	2/2

Note: **1999 Library Groups** are (in terms of service area population): GROUP 1 - Up to 20,000; GROUP 2 - 20,001 to 35,000;GROUP 3 - 35,001 to 50,000; GROUP 4 - 50,001 TO 65,000; GROUP 5 - 65,001 to 80,000; GROUP 6 – 80,001 to 100,000; GROUP 7 – over 100,000 ; GROUP 8 - INDEPENDENT LIBRARIES

2006 Library Groups are (in terms of service area population): GROUP 1 - Up to 20,000; GROUP 2 - 20,001 to 40,000;GROUP 3 - 40,001 to 60,000; GROUP 4 - 60,001 TO 80,000; GROUP 5 - 80,001 to 125,000; GROUP 6 – over 125,000; GROUP 7 - INDEPENDENT LIBRARIES

Table 2 Comparison of 1999 and 2006 Library Groups	
1999 Library Groups	**2006 Library Groups**
GROUP 1 - Up to 20,000 in Service Area Pop	**GROUP 1 -** Up to 20,000 in Service Area Pop
Benton County Library System	Benton County Library System
Carroll County Public Library System	Carroll County Public Library System
Harriette Person Memorial Library	Harriette Person Memorial Library
Humphreys County Library System	Humphreys County Library System
Marks-Quitman County Public Library System	Marks-Quitman County Public Library System
Noxubee County Library	Noxubee County Library
Tallahatchie County Library	Sharkey-Issaquena County Library System
Yalobusha County Public Library System	Tallahatchie County Library
	Yalobusha County Public Library System
GROUP 2 - 20,001 to 35,000 in Service Area Pop	**GROUP 2 -** 20,001 to 40,000 in Service Area Pop
Carnegie Public Library of Clarksdale and Coahoma County	Bolivar County Library System
Elizabeth Jones Library	Carnegie Public Library of Clarksdale and Coahoma County
Kemper-Newton Regional Library System	Copiah-Jefferson Regional Library
Marshall County Library System	East Mississippi Regional Library
Neshoba County Public Library	Elizabeth Jones Library
South Delta Library Services	Greenwood-Leflore Public Library System
Sunflower County Library	Kemper-Newton Regional Library System
Union County Library	Marshall County Library System
Waynesboro-Wayne County Library System	Neshoba County Public Library
	South MS Regional Library
	Sunflower County Library
	Union County Library
	Waynesboro-Wayne County Library System
	Yazoo Library Association
GROUP 3 - 35,001 to 50,000 in Service Area Pop	**GROUP 3 -** 40,001 to 60,000 in Service Area Pop
Bolivar County Library System	Columbus-Lowndes Public Library
Copiah-Jefferson Regional Library	Hancock County Library System
East Mississippi Regional Library	Lamar County Library System
Greenwood-Leflore Public Library System	Lincoln-Lawrence-Franklin Regional Library
Hancock County Library System	Natchez Adams Wilkinson Library Service
Homochitto Valley Library Service	Pearl River County Library System
Lamar County Library System	Starkville-Oktibbeha County Public Library System
Pearl River County Library System	Warren County-Vicksburg Public Library
South MS Regional Library	Washington County Library System*

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Table 2 Comparison of 1999 and 2006 Library Groups	
GROUP 4 - 50,001 to 65,000 in Service Area Pop	**GROUP 4 -** 60,001 to 80,000 in Service Area Pop
Columbus-Lowndes Public Library	Dixie Regional Library System
Dixie Regional Library System	Laurel-Jones County Library
Laurel-Jones County Library	Meridian-Lauderdale County Public Library
Lincoln-Lawrence-Franklin Regional Library	Pike-Amite-Walthall Library System
Pine Forest Regional Library	Pine Forest Regional Library
Washington County Library System	The Library of Hattiesburg, Petal and Forrest County
	Tombigbee Regional Library System
GROUP 5 - 65,001 to 80,000 in Service Area Pop	**GROUP 5 -** 80,001 to 125,000 Service Area Pop
Madison County Library System	Lee-Itawamba Library System*
Meridian-Lauderdale County Public Library	Madison County Library System
Pike-Amite-Walthall Library System	Mid-Mississippi Regional Library System
The Library of Hattiesburg, Petal and Forrest County	Northeast Regional Library
Tombigbee Regional Library System	
GROUP 6 - 80,001 to 100,000 Service Area Pop	**GROUP 6 –**125,001 & Over in Service Area Pop
Lee-Itawamba Library System	Central Mississippi Regional Library System
Mid-Mississippi Regional Library System	First Regional Library
Northeast Regional Library	Harrison County Library System
	Jackson-George Regional Library
	Jackson/Hinds Library System
GROUP 7 - 100,001 & Over in Service Area Pop	**GROUP 7 -** Independent Public Libraries in Service Area Pop
Central Mississippi Regional Library System	Blackmur Memorial Library
First Regional Library	Long Beach Public Library
Harrison County Library System	
Jackson/Hinds Library System	
Jackson-George Regional Library	
GROUP 8 - Independent Public Libraries in Service Area Pop	
Blackmur Memorial Library	
Long Beach Public Library	

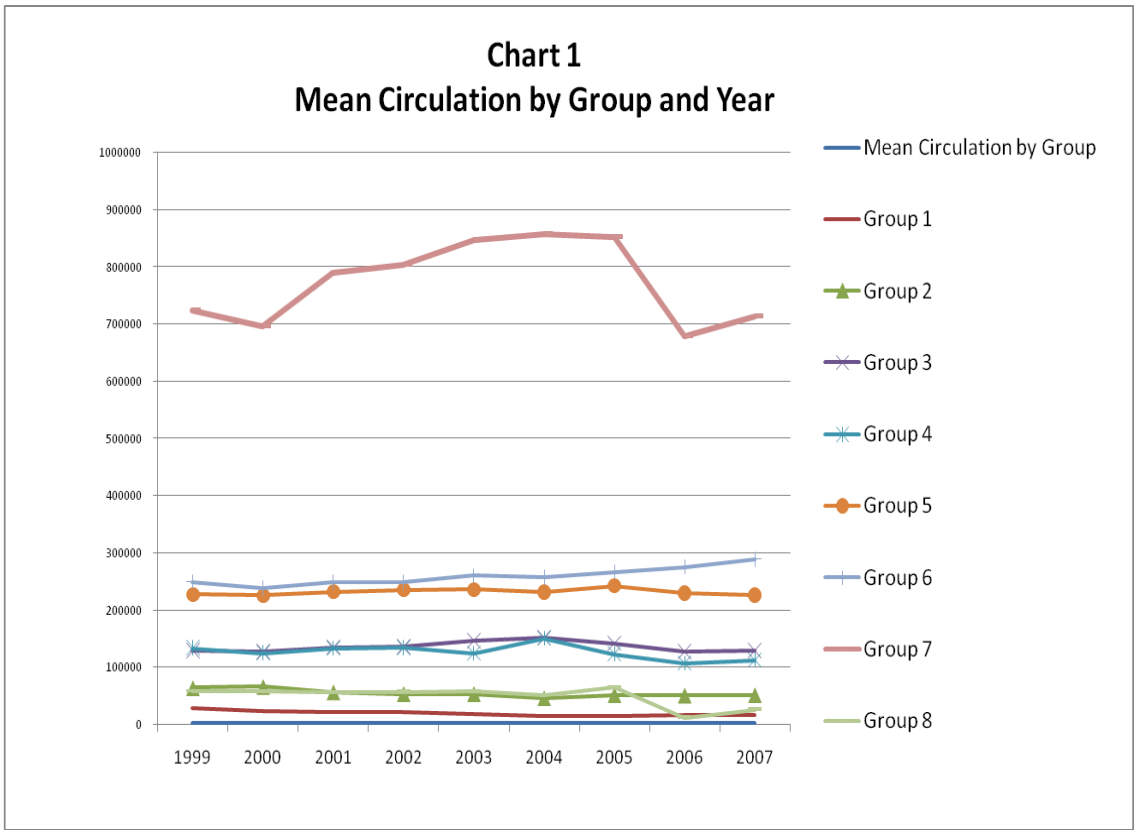
Circulation

Total Circulation

Total circulation data from fiscal years 1999 through 2006 suggest that there was generally an upward trend in the circulation of library materials both overall and for the majority of groups, with a slight drift downward in FY2005 and FY2006 (See Table 3: Mean Circulation by Group, Fiscal Years 1999-2007 and Chart 1: Mean Circulation by Group and Year.) The additional data for FY2007 suggest that FY2005 may actually have been the first evidence of a turning point in this trend. The trends for library groups (and certainly for individual libraries) do not all follow the same total circulation for all combined counties had grown from a total of 8,651,344 in FY1999 in a fairly consistent upward trend reaching 9,430,365 by FY2004 before a fairly small drop to 9,296,070 in FY2005. Even with that drop, the overall rate of growth had been at an annual average of 1.24 percent from FY1999 through FY2005. Circulation thus seemed fairly stable through FY2005 but there was substanitial drop to 8,021,714 in FY2006. While there was a small increase to 8,298,221 in FY 2007, the amount in FY2007 remained well below that of FY1999, suggesting that there has, overall, been a downward trend in circulation. The annual average rate of decline from 2005 through 2007 was 5.37 percent with circulation falling from the nine-year high of 9,430,365 in 2004 to the nine-year low of 8,021,714 in 2006 and then moving upwards to 8,298,221 in 2007. This could be interpreted as an overall downward trend, of the F2007 data might also suggest the system is beginning to recover from the devastation of Hurricane Katrina and will move back toward an overall upward trend.

Library group data suggest very different pictures depending on the group examined. Circulation dropped from FY1999 to FY2005 for Groups 1, 2, and 4 but actually increased during the same period for groups 3, 5, 6, 7, and 8. On, the other hand during the period FY2005-2007, circulation dropped in five of the eight groups (Group 2 remained about the same). The independent libraries in Group 8 experienced severe drops due to the dramatic Long Beach Library declines.

Table 3 Mean Circulation by Group Fiscal Years 1999-2007											
										Average annual percent change	
Group	1999	2000	2001	2002	2003	2004	2005	2006	2007	1999-2005	2005-2007
1	28,241	22,275	21,819	20,897	17,778	14,306	14,306	15,552	15,828	-8.22	5.32
2	64,091	66,042	56,453	53,811	53,804	46,499	51,965	51,018	51,838	-3.15	-0.12
3	128,925	126,888	134,817	135,750	145,743	151,609	141,869	127,108	128,398	1.67	-4.75
4	133,741	125,189	133,558	134,432	124,917	150,297	123,547	107,550	112,469	-1.27	-4.48
5	227,371	225,776	232,016	235,829	236,296	231,547	242,517	229,785	226,188	1.11	-3.37
6	249,499	238,138	248,513	248,835	260,232	257,993	267,084	275,771	289,149	1.17	4.13
7	724,976	696,074	789,717	803,664	848,101	858,441	853,561	678,783	713,600	2.96	-8.20
8	58,878	58,244	57,234	57,487	58,649	52,011	65,231	12,245	25,741	1.80	-30.27
Total	8,651,344	8,405,486	8,935,640	9010259	9,359,322	9,430,365	9,296,070	8,021,714	8,298,221	1.24	-5.37



Per Capita Circulation

The situation is somewhat different when examining per capita circulation (see Table 4: Mean Per Capita Circulation by Group and Fiscal Year and Chart 2: Mean Per Capita Circulation by Group and Year). On a per capita basis, circulation for the entire library system, has remained fairly constant with some fluctuation around a nine-year mean per capita circulation of 3.07 (none of the years deviate from that mean with any statistical significance), but there is no evidence of a discernable trend. Individual groups and individual libraries do vary substantially from their own nine-year means, and there are some discernable trends here. In particular, groups 1, 3, and 8 all appear to have downward trends from FY1999 to FY2007 although there is a substantial amount of variation in these patterns through the years. The other groups appear to have fairly stable mean per capita circulations suggesting that, except for group 8 (with a pronounced drop in both circulation and per capita circulation in FY2007), there has been little change in per capita circulation trends.

Table 4
Mean Per Capita Circulation by Group and Fiscal Year

Group	1999	2000	2001	2002	2003	2004	2005	2006	2007
1	2.85	2.21	2.13	2.04	1.63	1.30	1.29	1.45	1.50
2	2.43	2.43	2.15	2.07	2.62	1.71	1.91	1.86	1.89
3	3.03	2.95	3.12	3.20	2.84	3.39	3.10	2.68	2.93
4	2.59	2.20	2.22	2.18	2.22	2.28	2.03	1.81	1.86
5	3.08	3.06	3.14	3.19	3.19	3.06	3.16	2.94	2.87
6	2.69	2.45	2.64	2.65	2.76	2.66	2.69	2.74	2.54
7	3.86	3.69	4.23	4.31	4.29	4.20	4.12	3.22	3.41
8	4.19	5.73	5.66	5.30	5.73	5.03	5.14	4.14	2.57
Total	3.10	2.95	3.21	3.23	3.26	3.23	3.16	2.74	2.77

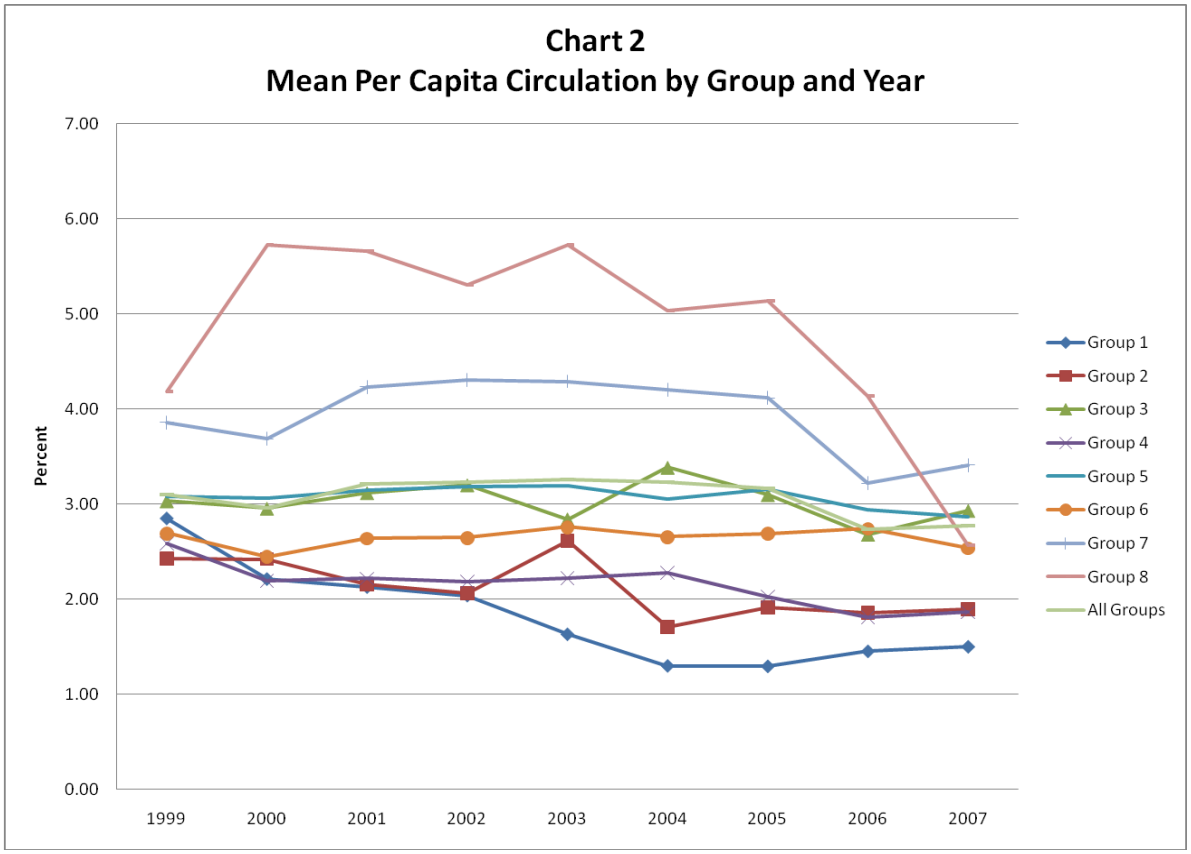


Chart 2
Mean Per Capita Circulation by Group and Year
Percent
7.00
6.00
5.00
4.00
3.00
2.00
1.00
0.00
1999
2000
2001
2002
2003
2004
2005
2006
2007
Group 1
Group 2
Group 3
Group 4
Group 5
Group 6
Group 7
Group 8
All Groups

Funding

Local funding, defined as the sum of city and county funds, was the major source of funding, typically making up nearly two-thirds of the operating income for most library systems, with slightly less importance (about half) for the smallest libraries (see Table 5: Mean Local (city plus county) Funds as a Percent of Mean Total Revenues, Fiscal Years 1999-2007). County funds tend to make up the majority of these revenues and account for 40 to 60 percent of total funding for all but two of the groups (groups 6 and 8) where they only constitute about 10 to 25 percent of total revenues. On the other hand, City sourced funds generally constitute between 10 and 30 percent of total revenues for all the groups except group 8 for which city funds constitute 50 to 90 percent of total revenues depending on the year.

Table 5
Mean Local (City plus County) Funds as a Percent of Mean Real Total Revenues
Fiscal Years 1999 -2007

Group	1999	2000	2001	2002	2003	2004	2005	2006	2007
1	54.13	46.19	48.05	48.51	52.44	50.39	50.61	50.22	53.17
2	82.12	73.74	75.97	80.78	77.44	81.21	77.50	71.43	60.43
3	76.85	75.96	81.31	80.96	82.01	87.78	87.91	86.25	67.21
4	72.86	65.55	70.04	70.81	72.16	64.80	64.82	63.90	65.44
5	71.04	73.63	71.10	73.23	75.78	76.77	77.53	76.46	62.59
6	67.74	63.16	66.92	68.24	70.51	66.49	68.60	67.29	51.16
7	72.29	71.39	75.12	70.60	71.78	76.29	71.22	67.72	64.39
8	93.14	86.35	87.16	91.43	90.59	93.68	93.01	81.73	66.45

There was no substantial change to the trends in the share of total revenues composed of local funding except in FY2007 when the percent of funding accounted for by local funding dropped in all but two of the groups. In fact, while city funding remained fairly stable as a percent of total funding for most groups from 1999 through 2006 (see Chart 3: Mean City Funds as a Percent of Total Revenues), real (in 2000 dollars) city funding actually declined for five of the eight groups (see Table 6: Real City Funding) in 2007.

Not surprisingly two of the most important determinants of local funding are the number of registered patrons and the personal income of area residents. The number of registered patrons is one indication of local involvement and likely support for the library, while the personal income of area residents is one measure of the capacity to pay taxes.

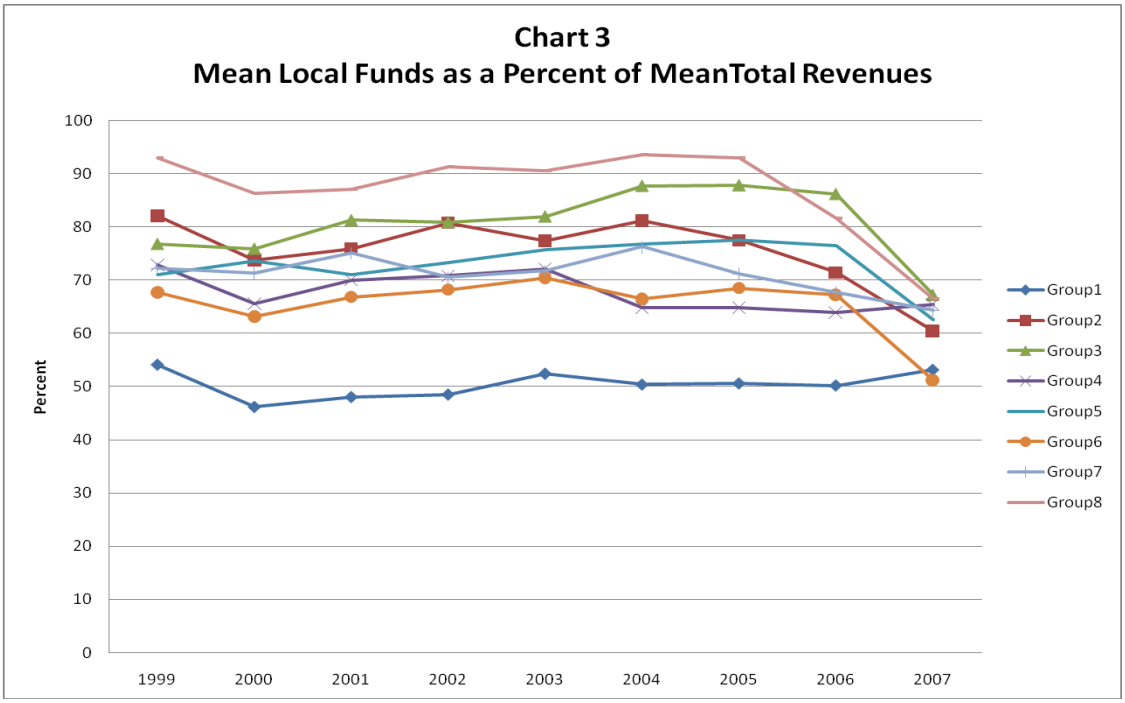


Table 6 Real City Funds by Group and Fiscal Year									
Group	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**
1	14,526	7,851	7,650	7,875	8,145	7,965	7,738	8,098	8,519
2	68,504	66,940	65,882	67,919	67,434	66,799	66,802	66,466	62,625
3	121,463	122,538	117,855	112,790	115,146	125,722	119,356	113,842	112,202
4	126,226	127,602	126,067	137,938	128,440	127,165	121,159	126,392	154,309
5	203,729	226,145	222,233	220,991	217,729	220,884	235,285	227,558	194,697
6	287,398	277,211	258,974	291,377	309,748	292,496	294,825	270,386	274,869
7	688,023	704,534	746,433	753,640	787,835	790,763	753,330	682,226	520,784
8	95,790	81,009	88,596	97,736	150,084	155,153	160,163	81,374	62,030

State Funding

State funding (see Table 7: Mean State Funding by Group and Year) makes up the second most important source of operating income. State funds have increased somewhat faster than inflation. There was very little in the way of a discernable pattern with respect to changes in per capita local funding by library population-area-size groups, but per capita state funding tended to decrease as the library service-area population grew. One additional year of data (FY2007) did not change this relationship in anyway.

Real (adjusted for inflation) state funds for libraries have been fairly constant over time, but did show increases in FY2007 for every group except group 1. However, the percent of total state government expenditures directed to libraries has been declining over time. For most governmentally budgeted items, regardless of the method that is supposedly used, funding is normally incremental and therefore based on the prior year's budget. It is, therefore, not surprising that one of the most important determinants of funding levels is the level of previous funding.

Table 7
Mean State Funding by Group and Year

Group	1999	2000	2001	2002	2003	2004	2005	2006	2007
1	37,329	37,924	38,483	37,971	35,133	35,972	37,573	37,103	36,096
2	71,096	77,251	75,746	79,716	75,039	73,508	75,578	77,666	78,607
3	94,949	112,085	107,555	102,775	106,121	104,833	107,795	108,429	112,301
4	140,062	158,122	150,273	148,860	148,040	147,454	149,189	153,668	161,627
5	173,413	178,751	182,408	177,583	177,676	178,074	186,568	182,217	188,688
6	244,032	261,997	238,659	270,038	254,798	250,379	253,788	255,784	273,029
7	441,202	433,939	443,498	456,734	459,412	493,641	485,132	485,657	555,954
8	5,330	9,904	10,765	6,550	6,133	6,471	7,748	6,608	17,020

Mean real total revenues (see Table 8: Mean Real Total Revenues by Group and Year) have increased in FY2007 (from FY2006) for seven of the eight library groups just as the same groups showed increases in FY2006 over FY2005. This is possibly the start of a new upwards moving trend although with current budget problems at the state governmental level, maintaining such a trend may be difficult to maintain.

The total revenues for all combined libraries (last line of Table 8) show a general rise in real (2000 dollars) revenue from 1999 to 2007, but once again, the year 2004 marks the peak of the upward trend with decreases in both 2005 and 2006 before a small increase in 2007. It should, however be noted that every year after 1999 shows a higher level of real revenues than 1999, even with the fluctuating trend.

Table 8
Mean Real Total Revenues by Group and Year

Group	1999	2000	2001	2002	2003	2004	2005	2006	2007
1	106,281	121,333	104,813	99,630	97,794	99,871	97,634	100,649	88,942
2	318,619	321,656	310,369	314,473	311,630	321,657	327,539	317,758	373,971
3	498,089	532,133	535,121	528,848	525,723	523,715	533,466	570,189	688,029
4	614,759	610,098	597,018	632,819	583,714	585,010	568,102	581,700	713,338
5	1,003,143	991,881	1,025,356	1,012,058	1,017,453	1,040,367	1,083,621	1,108,907	1,267,955
6	1,073,877	1,144,748	1,056,595	1,128,804	1,111,657	1,106,888	1,070,002	1,066,396	1,328,685
7	2,576,514	2,652,857	2,835,121	2,908,642	2,955,322	2,950,894	3,075,752	3,048,671	3,301,432
8	141,412	134,576	141,961	144,070	203,046	200,444	179,236	107,804	135,364
Total	31,934,260	33,374,292	33,913,338	34,503,562	34,784,270	35,076,461	34,866,480	33,233,098	34,401,398

Expenditures

One would expect operating expenditures to rise as the service-area population of the library system increases. While this tends to be true, expenditures actually also tend to rise at an increasing rate; that is, expenditures rise faster than the rate of population increase.

The largest single component of operating expenditures is personnel costs, which includes salaries and benefits (see Table 9: Percent of Total Operating Expenditures for all Combined Libraries by Category for Fiscal Years 1999-2007). This is true regardless of the size of the libraries. Personnel expenditures are normally at least 60 percent of operating costs, and for some individual libraries personnel costs are as much as 80 percent of total operating costs.

Table 9
Percent of Total Operating Expenditures for all Combined Libraries by Category for Fiscal Years 1999-2007

Year	Print Materials	Total Materials	Personnel Expenditures	Other Expenditures	Total Expend
1999	11.61	13.11	64.89	22.00	100
2000	13.57	14.52	62.96	22.52	100
2001	12.30	13.87	65.75	20.38	100
2002	11.75	13.74	64.83	21.43	100
2003	10.64	13.36	65.84	20.80	100
2004	9.57	13.16	68.07	18.77	100
2005	8.87	11.46	68.15	20.39	100
2006	8.18	10.00	67.83	22.17	100
2007	10.73	15.55	66.60	20.45	100

For the period FY1999-FY2004, the portion of total operating expenditures represented by total materials expenses averaged a little over 13.6 percent of total operating expenses. This lowered to about 11.5 percent in FY2005 and then to 10 percent in 2006 showing a trend of declining expenditures of material relative to total operating expenditures until 2007 when this ratio surged to over 15 percent. The distribution of total materials across categories is also fairly stable across libraries with the vast majority of materials expenses concentrated on print materials (about 70% in FY2006 and FY2007 with an overall mean of 79% across all years) and about 6% on electronic materials in FY2007. In prior years (from FY1999 to FY2005), the percent of materials expenditures had been gently decreasing from about 90 percent print materials to a low of 80 percent. The FY2007

numbers represent a substantial increase in the percent of materials expenditures going to non-print items. The numbers for FY2007 also show a substantial increase in the level of purchases of all materials including print materials after what had appeared to be a decreasing trend of materials expenditures prior to FY2006. These increases in materials expenses occur even though real total operating expenditures have shown very little overall increase. Thus, there appears to have been a shift in expenditures towards non-print materials, with what appears to be a small decrease in the percent of expenditures on both personnel and the "other expenditures" category (see Tables 9-11 and Charts 4 and 5). Additionally, for over half of the library groups, both staff costs and overall operating costs have been growing faster than the rate of inflation.

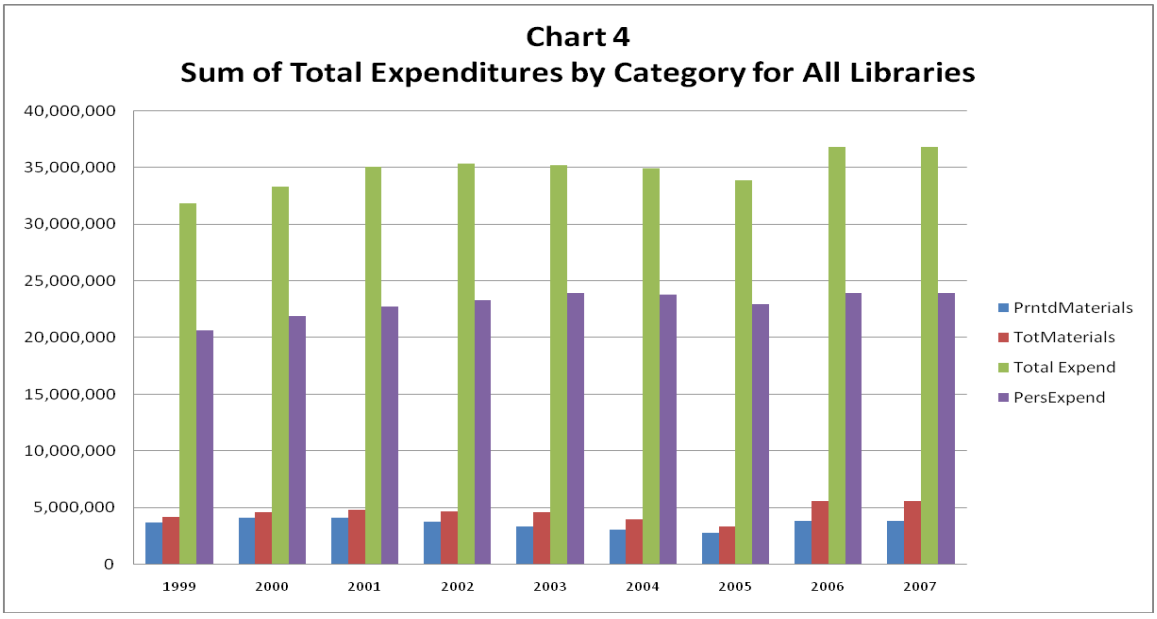


Table 10
Mean Real Total Operating Expenditures by Group

Group	1999	2000	2001	2002	2003	2004	2005	2006	2007
1	95,095	108,060	98,915	94,076	94,906	99,241	94,051	93,207	90,106
2	269,475	292,966	301,809	302,502	282,213	301,461	315,365	311,450	302,291
3	452,262	496,912	483,900	494,373	512,201	524,469	517,534	509,783	537,864
4	549,901	598,392	580,572	606,997	584,699	642,515	513,178	557,126	591,849
5	981,610	919,186	913,093	944,462	947,059	929,297	968,330	940,816	932,092
6	957,157	1,072,565	1,020,703	1,045,224	1,016,507	1,364,051	1,011,366	1,003,524	1,059,273
7	2,435,515	2,511,809	2,666,520	2,875,988	2,981,562	2,507,364	2,876,833	2,726,144	2,983,220
8	130,591	130,961	130,312	144,998	165,595	419,631	138,146	106,775	103,616

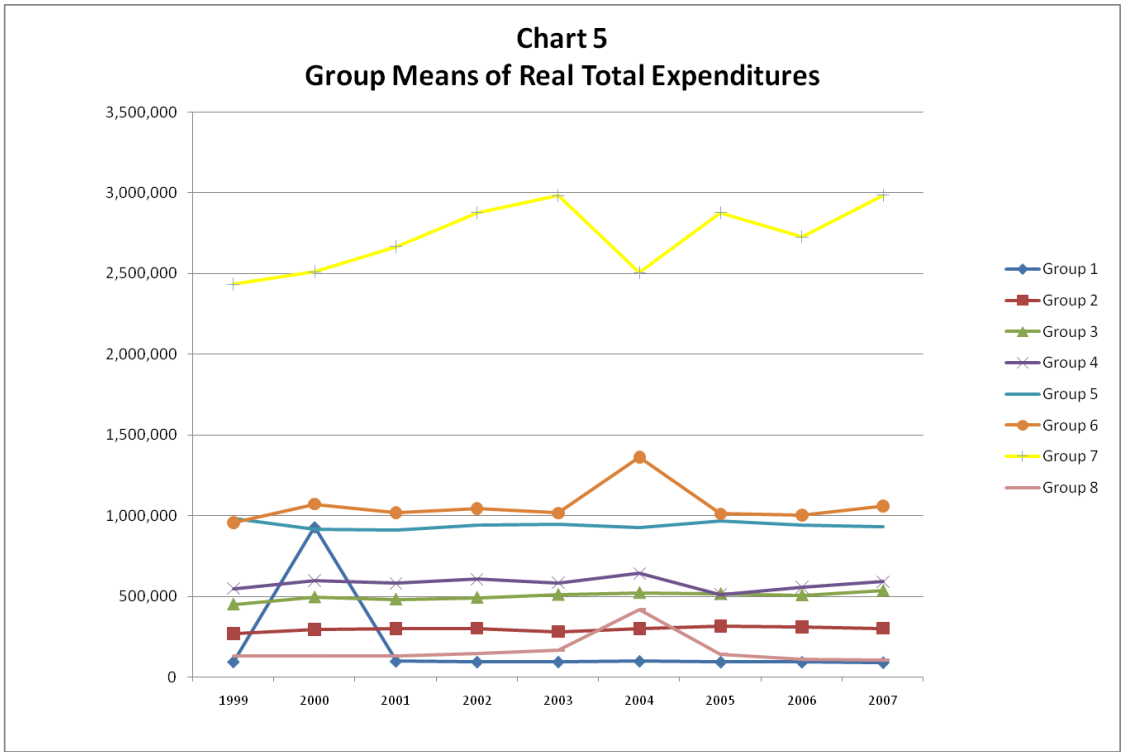


Table 11
Mean Real Personnel Expenditures by Group

	1999	2000	2001	2002	2003	2004	2005	2006	2007
Group 1	66,107	67,862	67,816	66,504	67,929	66,033	66,188	70,260	63,670
Group 2	171,129	179,545	186,411	185,309	191,022	187,933	191,371	200,145	204,270
Group 3	288,814	298,613	313,612	322,228	331,550	349,579	348,848	332,281	344,786
Group 4	387,823	408,980	405,716	407,596	403,007	409,780	354,574	368,444	398,151
Group 5	575,040	568,952	575,119	582,523	589,931	572,974	599,559	596,255	590,963
Group 6	695,192	737,880	736,471	749,235	751,435	746,332	766,243	748,438	779,074
Group 7	1,568,982	1,558,644	1,739,532	1,838,834	1,923,631	2,037,891	2,013,648	1,895,762	1,982,311
Group 8	89,298	73,733	90,254	100,666	101,172	89,982	101,128	84,330	78,032

Estimation of a Stochastic Cost Frontier

This analysis follows the methodology of Hemmeter(2006). Hereafter, such methodologies are referred to as "frontier studies." The focus here is on Mississippi public libraries. In particular, the question examined here is whether libraries in less populous counties (or more rural areas) are less cost efficient than those in more urban areas. The analysis uses a stochastic cost frontier to determine the level of cost inefficiency. A stochastic cost frontier is the theoretical lowest possible cost boundary that could be achieved by any one library in the state given the characteristics of that library. It is based on

the cost and characteristics of all libraries that are included in the study. In other words, the analysis considers all libraries and then constructs an individual cost efficiency boundary for each library and measures how close that library comes to its boundary.

In this analysis, data were used for fiscal years 2000 through 2007 for all libraries except those in Group 8. Group 8 libraries were excluded from this study because their characteristics were too different from the other libraries for inclusion in the study. In particular, the Long Beach Library could not be included because of the drastic changes in its cost structure. The data set used begins in FY2000 since some of the data used in the study were not collected uniformly across all libraries until FY2000.

It was hypothesized that libraries in less populous areas would be more likely to be inefficient than libraries in more urban areas. This would be likely because there is likely to be less scrutiny of library operations and this may result in higher level of funding that would otherwise be given. Higher funding can, paradoxically lead to "doing less with more." On the other hand, Hemmetter (2006) points out, in more urban areas there are overlapping library service areas and other substitutes for library services. Such "crowding out" leads to communities voting against library funding proposals, forcing libraries to get by with less (which would be more cost efficient) or to reduce services.

Sources of competition for library patrons also tend to be more available in more populous areas. Such competition might include internet access and other libraries (university, public or private school libraries) and overlapping jurisdictions. Another possibility, of course, is that the loss of patrons resulting from increased competition may actually lead to less public or governmental, monitoring and may therefore actually lead to increased inefficiency.

There have been several studies conducted looking at inefficiencies in local public services. Sari (2003) concluded that hospitals are between 19 and 38 percent inefficient on average. Hemmeter (2006) stated that libraries across the U.S. were on average 28% inefficient, while Sharma et al. (1999) estimated inefficiencies to be about 16 percent in Hawaiian libraries, Worthington's (1999) estimated inefficiencies at 18 percent in Australian libraries. Several studies have asserted that libraries are subject to slight economies of scale suggesting that larger libraries which tend to be located in more populous areas have a natural tendency to be more efficient (see for example Worthington (1999) or Vitaliano (1997) on x-efficiencies and economies of scale).

Models and Methods

This analysis resembles Vitaliano (1997) and Hemmeter (2006) in using stochastic cost functions to measure cost. Estimation of stochastic cost frontiers requires input, output, and cost data. These data are used to estimate a "frontier," which indicates for the different characteristics of each library the minimum possible cost. That minimum is the "frontier." The difference between the frontier and the actual cost of each library is the measure of inefficiency.

This discussion of stochastic frontier analysis draws largely on Coelli (1996), Greene (2003), and Hemmerter (2006). The stochastic frontier methodology originates in the work of Aigner, Lovell and Schmidt (1977) and Meeusen and van den Broeck (1977) in developing frontier production functions. The model begins with the form

$$Y_i = x_i\beta_i + (v_i + u_i)\ , j=1,\ldots,N$$

Where,

Y_i is the production (or the logarithm of production) of the ith firm;

X_i is a vector of inputs of the ith firm;

β is a vector of unknown parameters;

v_i are random variables which are assumed to be iid (independent and identically distributed) where the variable is normal with mean zero and variance of $\sigma_i^2 \sim N(0, \sigma_v^2)$; and

u_i are non-negative random variables, which are assumed to be iid $\sim N(0, \sigma_v^2)$.

The original specification has been altered in a number of different ways over the years. In Hammeter (2006) and here, the model has been altered to that of a cost function, which takes the form:

$C_i = \alpha + \beta X_i + e_i$, where,

C_i=cost for the ith firm.

X_i is a vector of input prices and outputs, and

α and β_i are parameters to be estimated.

The error term e_i is the sum of the stochastic error component v_i and an inefficiency component u_i such that $e_i = v_i + u_i$. The inefficiency component of the error term (u_i.) is assumed to follow a known distribution (i.e., half normal). The ratio of observed costs to the minimum possible costs,

given the attributes of the ith firm, is indicated as the expected value of u_i given the value of e_i (or $\exp(u_i \mid e_i)$). This is defined as the level of cost inefficiency.

According to Hemmeter (2006) the most common method of analysis is a two-step process. First, the stochastic frontier is estimated and levels of inefficiency calculated for each unit. Next, these inefficiency levels are regressed on possible cause of inefficiency using a Tobit regression. The possible causes of inefficiency are those factors that are believed to influence costs indirectly and not to influence the frontier itself, as they would if they were included in the first stage.

Costs are measured as the total operating expenditures for the library's year. These are determined by output, fixed input, and input price variables. Neither capital nor capital expenditures are considered here as a short-run cost function is being assumed. Output variables included are total circulation, yearly visits, and hours of operation per week. Fixed input variables include collections and branches. Input price variables are limited to salaries. The specification is not identical that by Hemmeter but is quite similar in many respects and similar in outcome. The output is quite robust with the inclusion of substitute parameters not greatly affecting the overall results. This specification yields an average cost-inefficiency (e^u-1) of 12.1 percent, which is somewhat lower than Hemmetter's findings for 3308 library systems in the U.S. but very close to estimates of the Australian library system calculated by Worthington(1999) and the results reported for Hawaiian state libraries by Sharma et al. (1999). The results of the stochastic frontier estimation are shown in Table 11:

Results of Stochastic Frontier Cost Estimation, Primary Index Equation for Model. The coefficients for two of the output variables (Visits and Hours per week) are negative and significant, which indicates that those libraries with more hours per week or higher levels of visits actually have lower library costs. This suggests economies of scale for library operations. The one exception is circulation, which is positive suggesting that, all other things being equal, higher circulation contributes to less efficiency. Perhaps higher circulation causes higher costs in person hours and records keeping. Additionally, higher circulation may be dependent upon larger collections (which also has a positive but not significant coefficient.)

The fixed input variables carry opposite signs and neither of them is significant. The negative sign on branches contradicts some earlier studies suggesting that libraries tend to have too many branches but is not statistically significant (and, in fact, a negative sign would agree with Hemmetter (2006) suggesting that multiple branches may actually carry some economies that tend to reduce

Table 11 Results of Stochastic Frontier Cost Estimation Primary Index Equation for Model					
Variable	Coefficient	Standard Error	Coeff/Std Error	P[|Z|>z]	Mean of X
Output Variables					
Ln(Circulation)	.04995319	.01508278	3.312	.0009	11.4519580
Ln(Visits)	-.02132172	.01281856	-1.663	.0962	8.67116924
Ln(Hours per week)	-.05524043	.03230950	-1.710	.0873	4.88962553
Fixed input Variables					
Ln(Collections)	.02100053	.01830456	1.147	.2513	8.71297425
Ln(Branches)	-.00035504	.02459470	-.014	.9885	1.27410368
Input Price Variables					
Ln(Salaries)	.97722880	.02004442	48.753	.0000	12.3430955
Constant	.53127518	.12846235	4.136	.0000	
Variance parameters for compound error					
Lambda	1.90067278	.25230962	7.533	.0000	
Sigma	.17450652	.00814644	21.421	.0000	
Estimated using Limdep version 8.0					

overall cost inefficiencies). The coefficient on the price variable (salaries) is also positive and significant signaling that increases in staff would contribute to lower library efficiency.

There are many possible sources of inefficiency, including lack of competition and monitoring, overlapping jurisdictions, size limitations on control, inappropriate staffing sources, or differences in income sources. The results of the Tobit estimates (see Table 12: Tobit, using observations 1-379 (n=371)) come from regressing the measure of inefficiency on funding sources (percent local and percent state), the percent of operating costs made up by personnel costs, population, the number of branches, and the size of collections.

Table 12
Tobit, using observations 1-379 (n = 371)
Missing or incomplete observations dropped: 8
Dependent variable: (e^u-1)

	Coefficient	*Std. Error*	*z-stat*	*p-value*
Constant	-5.83254	3.16029	-1.8456	0.06495*
Year	0.00302481	0.00158013	1.9143	0.05558*
Percent of Revenues from Local Sources	-0.00122045	0.000438541	-2.7830	0.00539***
Percent of Revenues from State	-0.617039	0.304792	-2.0245	0.04292**
Librarians/Staff	-0.0198273	0.0129703	-1.5287	0.12635
Population	2.30911e-07	1.13634e-07	2.0321	0.04215**
Adult attendance	-8.57865e-07	5.58511e-07	-1.5360	0.12454
Public terminals	-8.83748e-05	0.00022528	-0.3923	0.69484
Per Capita Circulation	-0.00208358	0.00298146	-0.6988	0.48465

The results of the Tobit analysis (Table 12) suggests that the larger the percent of funding that comes from state or local sources the lower the level of inefficiency. This supports the findings of Hemmetter's overall U.S. results and suggests that either monitoring or reporting required for state and local funding (as opposed to federal or other sources of funding) may cause libraries to operate more efficiently. The coefficient on population indicates that more populous library systems are more inefficient than library systems from smaller counties which seems to contradict the likelihood of economies of scale unless additional competition has overwhelmed economies of scale. Finally, the coefficient on the year indicates that, over time, there is a trend toward increasing inefficiency.

Thus, overall the stochastic cost frontier analysis would suggest that Mississippi libraries are operating much more efficiently than most library systems, but those efficiencies have been diminishing. I would suggest that Hurricane Katrina is a likely source of much of those inefficiencies and that, in fact, operating at such an efficient level suggests the possibility of underfunding as a cause. There is one suggestion, however, which seems to stand out due to the findings on circulation. It would be possible to improve the costs due to circulation with increased virtual lending and with more interlibrary loan operations (preferably virtual copies when possible) that would take advantage of system-wide economies of scale.

One final concern is brought to mind by this analysis. The attempt was made to follow Hemmeter's methodology as closely as possible, including his choice of output variables. But, it is obvious, that many other output variables could have been included.

Output

The measures of output used in the stochastic frontier study were limited to circulation, visits, and hours of operation per week. There a many other output variables that could be used (see for example Mason (2009), or Zweizig (1982)). According to Zweizig, output measures might include such a variety as circulation per capita, in-library materials use per capita, library visits per capita, program attendance per capita, reference transactions per capita, reference fill rate, title fill rate , subject & author fill rate, browsers' fill rate, materials availability survey , registration as a percentage of population, turnover rate, or document delivery.

Process and Program Evaluation

The problem with performing an efficiency study is the problem of selecting appropriate measureable outputs. In an effort to better understand the types of outputs the libraries of Mississippi are producing, a factor analysis was performed, looking at all possible outputs in the data base. The outputs seemed to cluster into two primary factors. The first group has been labeled as personal lending activities. It includes library visits, circulation, reference requests, and public terminals. The second factor focused on attendance at library events including children and adult events as well as those occurring outside the library. This clustering into these two factors would seem fairly obvious. The question is whether these are all the outputs being provided by Mississippi Public libraries. If not, then the questions that follows are what outputs should be considered and what weights each of those outputs should have in the overall evaluation of library effectiveness.

Outputs and the Evaluation Process

Measuring performance has become much more important for public programs. In the past, the emphasis on monitoring performance in the public sphere has largely focused on the costs and amounts of inputs or immediate outputs rather than on outcomes over time. Simply monitoring costs and short-term output is easier, but program monitoring, performance measurement, and evaluation of programs and their managers should entail a more comprehensive evaluation approach (Voytek, Lellock, and Schmit, 2004).

There have been many attempts in the literature to focus on certain outputs or to weight the importance of the various outputs. There have also been efforts to tie library funding to success in given outputs or some weighted combination of outputs. Rather than move more in those directions, I would suggest that this is a perfect time for individual libraries to determine what their outputs, and more importantly, their outcomes should be. That determination should be part of a larger process of formal program evaluation that should be part of the planning process. This would include what the librarians view as needs within their own local communities and what grass-root efforts within those communities determine the output should be. Then each library can judge its own efficiency with respect to its own efforts. This is one of the most important processes that should result from library planning. It is important to have both planning and evaluation processes and these should be formalized for each library and for the library system as a whole.

Evaluation is an ongoing process that can interact with other elements of planning, assessment and implementation at several points. There are many evaluation methods (see for example Affholter (1994), Rossi, Lipsey, and Freeman (2004) or Voytek, Lellock, and Schmitt (2004)). The following is a brief example of how such an evaluation process can be set in motion. For each program which makes up the overall library for a given period there must be some envisioned outcomes which fit with the mission of the library. For each of these programs, the evaluator must determine why such a program exists. What is the theory behind it? That is, why is it expected that the program will result in the ultimate outcome that is envisioned? If the program is an existing (as opposed to proposed) program, one might review existing program documents, interview stakeholders, and observe how the program functions. For proposed programs, discussions with library staff and other stakeholders will help produce a vision of this theory.

The goals and objectives of every program should be consistent with the overall mission of the library. Each program should be broken down into its constituent functions, components, and activities. Functions might include things like assessing who the library actually serves and who is not being serviced, or assigning personnel to specific activities, or training volunteers. It is important to understand how the various expected outcomes and functions relate to each other. One should have an idea of desired long term outcomes (as well as immediate and intermediate term outcomes) and try to establish specific programs to meet those outcomes. Unintended outcomes should also be assessed (see Table 13 for an example of such a "logic model").

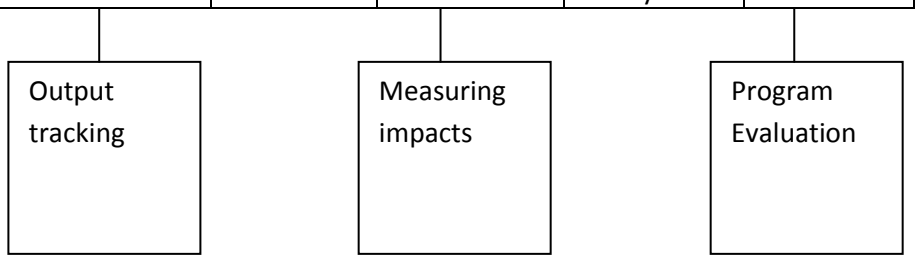
It should be remembered that outcomes are not necessarily the same as the outputs. Outputs are the apparent result of an activity. For example, cookies are the output of a certain baking activity. Using the same example, the ultimate outcome may be a reward for good behavior or a family party, or a warm moment of cookies and milk. Outcomes should be clear, feasible, and plausible and should constitute some change that is an improvement. You should be able to assess what components, activities, and functions are needed to achieve the outputs that will result in the ultimate outcomes. To whatever extent possible, outcomes and outputs should be quantified, but it must also be recognized that some outcomes are simply not quantifiable and indicators will thus be qualitative in these cases.

Using Table 13 as an example of part of the evaluation process for a hypothetical library, examine line two which calls for 12 hours of a librarian per month in creating activities focused on the history of literature. Ultimately, the real reason or outcome for this program might be to generate a higher level of social capital in the community. But, there is an immediate output which here includes 12 public events per year, examining some theme in the history of literature. That is the output. The theory behind this program might be that if there are relevant and exciting presentations at the library focusing on literature, it will come to include more and more people and they will get to know each other as well as the library. The short term outcomes might simply be to cause more interest in literature and its interrelationships with culture. A longer term outcome might be to build a wider read, more literate community, with the ultimate outcome being to increase social capital in the community. An unintended consequence might well be more public support for the library and its funding needs

Each library should have an evaluator who should monitor program process and assess the program. The same evaluator could do multiple libraries. It is important that an evaluator is impartial

Table 13
Logic Model Example for Library Programs

			Intended Outcomes			Unintended Outcomes
Inputs	Activities	Outputs	Initial	Intermediate	Longer Term	
Books	Lending	Provision of books to the community				
Librarian 12 hrs per month	Literary History activities	One activity per month. In person meetings which are also available on-line as mp3 recordings. Each event will focus on an important event or theme in literary history. (Example: censorship of books in Mississippi)	Stimulate interest in literature, its role in culture, and the importance of libraries in that history	Develop a wider read more literate community	Increase social capital within the community	Increased public support and funding for the library
Libarian 30 hrs per month plus computer with internet connection	Web page for information and access to the library	Circulation catalog	1 increase book lending activity	See Book inputs	See Book inputs	Increased software needs
		E-books	Reduce the need for trips to the library	Increase Library readership	Increase the digital abilities and reputation of the library	Increased costs of e-books, new formats, and need for larger server
		On-line poetry publishing for local authors	Provide an outlet for local authors	Develop a network of poets and poetry lovers	Increase the appreciation for poetry in the community	Local author book publishing and copyright issues
		Book reviews by local readers	Stimulate interest in new books	Improve relationships between readers	Increase contacts between library users	Visits from authors that are reviewed



and unbiased. The evaluator's job is three- fold. First, the theory behind the program logic should be examined to determine whether it is likely to succeed. The evaluator must determine whether the relationship between activities, outputs, and outcomes seems rational. The evaluator must also determine whether the program is consistent with the mission and long term planning of the library.

Second, the evaluator must determine how success can be measured in terms of outputs, near term outcomes, and long term outcomes. Criteria that are used to determine whether each object is reached must be clear and simple. There must be consideration of any probable but unintended consequences.

Finally, an evaluation should also include an impact analysis as a means of understanding the resulting outcomes. Such an impact analysis begins by questioning what specific objectives are set for the program and what means were designated to achieve those objectives. Then a determination must be made of the relative degree to which the sum of objectives has been achieved (in as precise and quantitative way as possible (for example, as a weighted (by importance) percentage of all objectives). The evaluator must ask whether the program hits its target population, and must assess whether the method of delivery is consistent with the program's intentions. The evaluator must determine what resources have been used for each program, whether the output and outcomes are consistent with the amount of resources invested in the program, and whether the service delivery and support functions are consistent with the program design. What resources have been expended? How many persons are being serviced? Is the target population actually being reached? Were some objectives unattainable, or could modification reach those objectives? Were the criteria used to assess attainment flawed? Then, some determination must be made as to whether the goals should be reformulated or the program should be modified.

It is only through the process of program evaluation that real outputs, real outcomes, and efficiency can be understood. But when such a program evaluation is done on an on-going basis by an impartial evaluator, it provides clear signals within the library and to all the library's stakeholders of how efficient the library is being with its resources.

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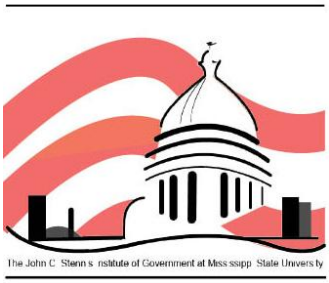
at Mississippi State University



Elected to the United States Senate in 1947 with the promise to "plow a straight furrow to the end of the row," John C. Stennis recognized the need for an organization to assist governments with a wide range of issues and to better equip citizens to participate in the political process. In 1976, Senator Stennis set the mission parameters and ushered in the development of a policy research and assistance institute which was to bear his name as an acknowledgment of his service to the people of Mississippi.

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