Research Brief

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Examining the Relationship between Revenue, Expenditure, and Service Trends in the City of Jackson (MS)

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Abstract

This research brief examined the relationship between revenue, expenditure, and service trends in the City of Jackson (MS) over a 10 year period beginning in 2007. Data analyzed revealed general fund revenue declined by approximately 3% over the 10 year period with some specific revenue sources declining (e.g., sales taxes, franchise taxes) and other specific revenue sources increasing (e.g. water and sewer charges). City expenditures generally declined over the 10 year period by approximately 19%. A review of the relationship between revenue, expenditure, and selected city services indicated mixed results with some service indicators increasing (e.g., number of Fire Department calls) and some service indicators decreasing (e.g., traffic violations issued; number of potholes reported/repaired). The number of city employees declined approximately 29% overall with a significant decline (approximately 70%) occurring among Department of Public Works' employees. A 10 year review of the city's net financial position (defined as financial liabilities minus cash and cash equivalents) indicated a decline of approximately 48% in the city's overall financial health as measured by net position. Based upon data analyzed in this research brief, the negative perception of the city's financial condition is mis-leading but not without some statistical support. Recommendations for improving the city's financial condition include increasing homeownership (especially among younger adults) as a way of increasing property and sales tax revenue; prioritizing "unrestricted funds" spending on key city services that have a "revenue multiplier/investment effect" such as infrastructure improvement, crime prevention, housing, and business development; and continue seeking external funding to augment local revenue sources.

Introduction

This research brief examined the relationship between revenue, expenditure, and service trends in the City of Jackson (MS) over a 10 year period. The City of Jackson like other urban areas across the United States is facing many municipal challenges ranging from deteriorating public infrastructure to an under-performing public educational system. These issues, along with others, are putting a strain on public resources available to address local problems. This research brief seeks to identify how changes in the City of Jackson's revenues and expenditures have impacted the provision of city services. The goal is to provide policy makers with information that can be used to improve the quality of life in Jackson and other urban areas facing similar challenges. By examining service trends and their potential relationship to changes in revenues and expenditures, policy makers will be in a better position to develop or revise policies impacting the quality of life in urban areas.

There are many issues to consider when interpreting the relationship between revenue, expenditure, and service trends. For example, changes in taxation rates, accounting rules, local spending priorities, city leadership, and economic conditions can affect how these research findings are interpreted. This brief seeks to provide policymakers with longitudinal insights on how changes in revenues and expenditures are impacting the provision of city services. While there are a multitude of issues that can affect the interpretation of this study's findings, longitudinal data provides solid evidence as to the overall direction of city finances and services. Armed with this information, policymakers and others can begin to take actions that help improve the quality of life in urban areas.

Research Methodology

This research study used a non-experimental, longitudinal research design analyzing secondary data contained in the City of Jackson's 2016 Comprehensive Annual Financial Report (CAFR) ending September 30, 2016. This report contained data on city operations for the years 2007 through 2016. Other data sources utilized for this study included City of Jackson Yearly Budget Books (2007 to 2016); U.S. Census Bureau data on population and employment trends; and the U.S. Department of Justice/Bureau of Justice Statistic's crime data. The primary revenue sources selected for examination were property taxes, sales taxes, franchise taxes, and user fees. The primary expenditure categories examined included general government, public safety, debt service, and public works. The primary city services examined included potholes reported/repaired, streets resurfaced, fire inspections, parking/traffic violations, and tons of trash collected.

¹ NOTE: the 2017 CAFR Report became available after the preparation of this research brief and identified errors totaling \$7 million in the 2016 CAFR Report. Those errors do not substantively alter or undermine the findings contained in this research brief.

To provide additional insight on revenue and expenditure trends in the City of Jackson, changes in the city's overall "net financial position" were also examined. Examining the city's net financial position provides a wider viewpoint upon which to consider the city's overall financial health and its ability to provide city services. Revenue generated from the City of Jackson's special "1% Infrastructure Sales Tax Program" was not included due to its recent enactment. Data in this report were analyzed using descriptive, correlation, and regression statistics to help identify key trends and relationships. Line and bar graphs were used to illustrate key longitudinal findings.

Research Findings

Context for Analysis

The City of Jackson's FY 2016-17 total financial budget was \$364,074,011 (Lumumba, 2017). The major revenue sources for that budget was general fund revenue (e.g., property and sales taxes); special revenue funds (e.g., federal and state grants); debt service funds; proprietary funds (e.g., water/sewer); trust funds; and capital project funds. The City of Jackson derives most of its revenue from two basic categories: (1) Governmental Activities; and (2) Business-Type Activities. Governmental Activities are traditional revenue sources such as property and sales taxes; whereas Business-Type Activities are generally user-fees' such as water/sewer charges and traffic fines. As discussed later, "Business-Type Activities" are beginning to comprise a larger share of the city's overall revenue totals.

Table 1 provides percentages for "Governmental Activities" revenue sources. As true historically in the City of Jackson, property and sales taxes accounted for the majority of general fund revenue sources (approximately 75% for FY2016-17). This large percentage implies any significant increase or decline in property or sales taxes can have a substantial impact on the provision of city services. This finding immediately suggests a diversification in funding sources may be needed to help reduce dependency on those two revenue sources.

Table 1 Total Revenues by Source & Percent - Governmental Activities

Source	Percent
Property Taxes	49%
Sale Taxes	26%
Operating Grants and Contributions	9%
Charges for Services	7%
Franchise Taxes	6%
Capital Grants and Contributions	2%
Other Revenues	1%

Source: CAFR 2016

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² Net financial position is defined as financial liabilities minus cash and cash equivalents.

City Revenue Trends

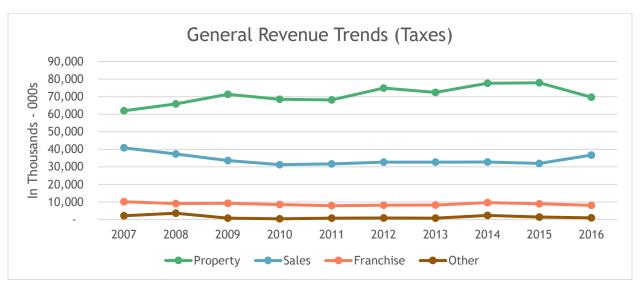
The following graphs and tables present a longitudinal analysis of the City of Jackson's major revenue sources for the period 2007 – 2016. As presented in Table 2 and Graph 1, the amount of taxes collected over the ten year period have been fairly consistent. A review of sales tax revenue reveals a general downward trend over the review period. Changes in property tax revenue, while showing a general upward trend over the review period, should be interpreted cautiously as it could be influenced by many factors such as millage rate increases, changes in tax assessment valuation methods, as well as changes in commercial and residential growth.

Table 2 Revenue Trends (in Thousands – 000s)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Property	61,945	65,845	71,298	68,523	68,108	74,856	72,437	77,634	77,881	69,708
Sales	40,849	37,298	33,598	31,265	31,656	32,701	32,718	32,740	31,937	36,731
Franchise	10,144	9,062	9,234	8,552	7,878	8,218	8,245	9,667	8,975	8,119
Other	2,190	3,605	819	431	830	843	830	2,349	1,448	942

Source: CAFR 2016

Graph 1 Revenue Trends



Source: CAFR 2016

City Expenditures

As presented in Table 3 and Graph 2, total general fund expenditures exceeded total general fund revenues in 7 of the 10 years under review. Table 3 provides a summary of general fund expenditures by major categories:

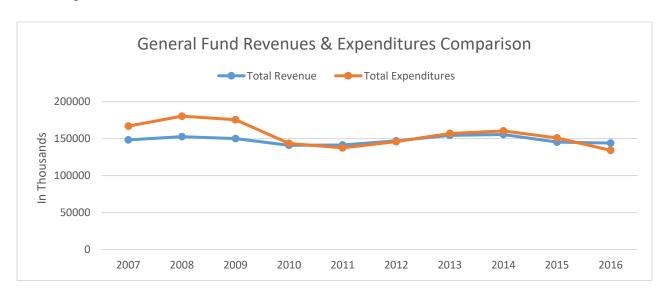
Table 3 Expenditures and Revenue Totals (Data Represented in Thousands – 000s)

Expenditures	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Gen. Govt.	46176	63886	39351	30506	30977	29269	30718	30515	28371	27989
Public Safety	58926	53572	53215	51571	52606	57035	52586	54738	54068	53086
Culture/Recreation	13177	12835	12299	8078	13370	8349	13753	14242	14619	13339
Public Works	17243	26302	36742	24430	19126	24698	23232	30334	16554	9175
Employee	2180	1765	2149	8071	8625	8685	7780	8070	7553	6696
Benefits										
Capital Outlay	9040	1379	15311	9982	5749	10539	21090	10463	7546	8658
Debt Service	20144	20749	16520	10934	7048	7448	7841	12043	22191	15394
Total	166886	180488	175587	143572	137501	146023	157000	160405	150902	134337
Expenditures										
Total General	148334	152757	149996	141038	141504	147104	154497	155667	145437	143994
Fund										
Revenue										

Source: CAFR 2016

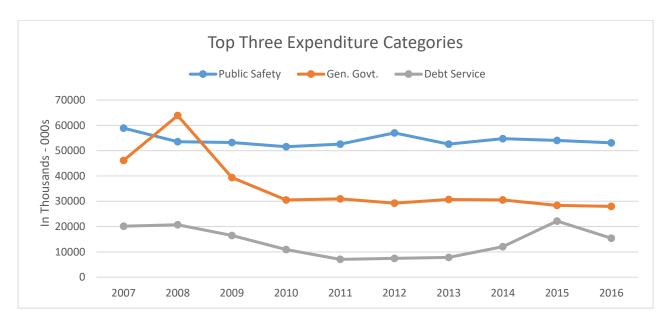
Since local governments are required to have balanced budgets, the deficits occurring in the seven year period were filled using a combination of other funding sources such as sales of capital assets, cash reserves, special revenue funds (e.g., federal & state grants), enterprise funds (e.g., water & sewer fees, transportation), and internal service funds (e.g., employees benefit funds) (CAFR 2016).

Graph# 2 (Data Represented in Thousands – 000s)



As presented in Graph 3, Public Safety consistently represents the largest expenditure category across the time period under review, followed by General Government, and then Debt service.

Graph 3 (Data Represented in Thousands – 000s)



City Services Trends

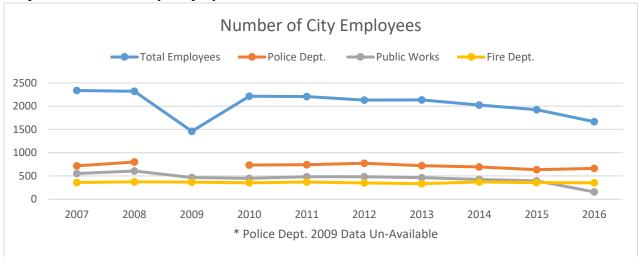
This section presents a longitudinal analysis of selected city services for the period 2007 – 2016. Its goal is to assess how revenue and expenditure trends have impacted the provision of city services. The primary focused was on basic city services that have historically been provided across time and political administrations. By selecting those basic city services, policymakers and other interested persons can better understand how revenue and expenditure trends over time have impacted city services and thus the quality of life in urban areas.

As shown in Table 4 and Graph 4, there has been a general downward decline in the total number of city employees going from 2,337 city employees in 2007 to 1,668 employees in 2016. This represented a 29% decline in the total number of city employees.

Table 4 Number of City Employees

		<u> </u>								
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Total	2337	2321	1460	2213	2208	2131	2136	2025	1926	1668
Employees										
Police	716	799	N/A	735	740	771	722	692	634	663
Fire	358	373	365	352	368	348	333	368	357	352
Public	552	606	466	449	482	484	461	425	395	157
Works										
Culture/Rec	381	218	319	370	303	238	318	262	273	260

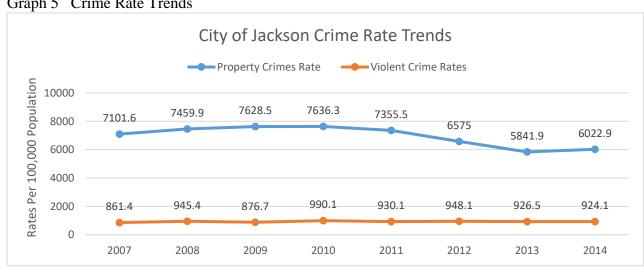
The largest number of employees were located in the Police Department, Public Works Department, and Fire Department. The total number of police and fire department employees fluctuated over the time period but largely remained constant. However, there was a significant decline (approximately 70%) in the number of public works employees going from 552 employees in 2007 to 157 employees in 2016.



Graph 4 Number of City Employees

Police, Fire, and Public Works Metrics

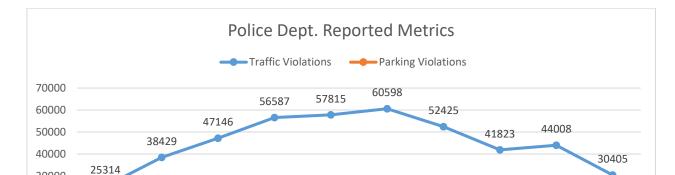
To help broaden the assessment of Jackson Police Department services, annual violent and property crime statistics were included for the years under review. These statistics were obtained from the U.S. Department of Justice/Bureau of Justice Statistics (DOJ, 2018). Graph 5 indicates property crime rates declined over the reporting period by 16%, whereas violent crime rates rose by 7% for the period.



Graph 5 Crime Rate Trends

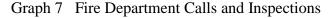
Source: (DOJ, 2018)

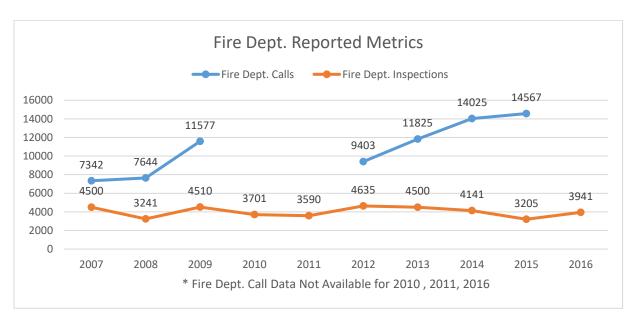
Graph 6 shows the number of reported traffic violations increased by 17% over the review period, while the number of reported parking violations generally declined by 37% for the period.



Graph 6 Reported Traffic and Parking Violations

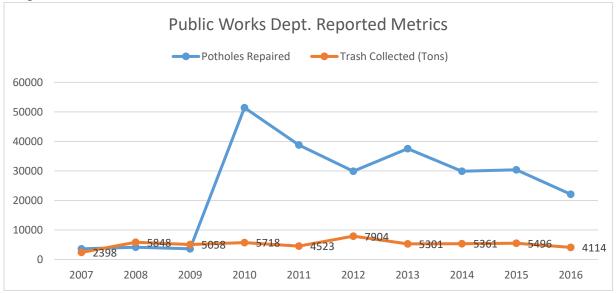
Graph 7 shows the number of reported calls answered by the Fire Department increased by 49% over the reporting period (with data on the years 2010 and 2011 not being available). Whereas the number of Fire Department inspections declined over the reporting period by 13%.





Graph 8 shows the number of "Potholes" reported/repaired spiked and then declined. The amount of "Trash Collected" (in daily tonnage) increased by 70% for the reporting period.





Correlation & Regression Analysis

To help identify statistically significant relationships between revenue and service trends, correlation and regression analyses were conducted. Table 5 and Table 6 present a summary of those findings. As related to this study, no statistically significant correlations were found between total revenue trends and selected service trends (see Table 5). This unexpected finding indicates additional research is needed to determine what factors contributed to this apparent "disconnect" between city revenue trends and city services trends.

In examining possible relationships between total revenue trends and police/fire department employment trends, the analysis found no statistically significant relationships. Of the employment trends examined, a statistically significant relationship was found between the total employment trend and the employment trend for the police department (see Table 6). These findings suggest employment trends were not significantly impacted by changes in **total revenue trends** (with the exception being the police department employment trend). Again, this is another un-expected finding suggesting other factors are likely influencing this study's results.

In examining the predictive relationship between "Total Revenues and Total Expenditures", the regression model indicated that the two variables were significantly associated (r = .705) as expected, with "Total Revenues" predicting 49.7% of the changes occurring in Total expenditures. This finding suggests "other factors" explain approximately 50% of the changes occurring between the two variables. Additional research is needed to determine what "other factors" are so strongly influencing the relationship, and how are those factors impacting the provision of city services.

Correlation Analysis of Findings

Table 5

	1	2	3	4	5	6	7	8	9
	TotalRev	TotalEmpl	V_Crime	P_Crime	ParkViol	TrafficV	FireCalls	FireInsp	TrashColl
1 TotalRev	1.00								
2 TotalEmploy	0.01	1.00							
3 V_Crime	-0.34	0.37	1.00						
4 P_Crime	-0.63	-0.10	0.03	1.00					
5 ParkViol	-0.32	0.61	0.19	0.26	1.00				
6 TrafficV	-0.23	0.10	0.65	-0.05	0.48	1.00			
7 FireCalls	0.48	0.05	0.11	-0.59	-0.12	0.52	1.00		
8 FireInsp	0.33	-0.19	-0.52	-0.48	0.17	0.04	-0.03	1.00	
9 TrashColl	0.09	0.01	0.67	-0.18	0.15	.71*	0.33	-0.03	1.00

^{*} Correlation is significant at the 0.05 level (2-tailed) n = 10 years

Legend

Degema			
TotalRev =	Total Revenue	P_Crime =	Property Crime
TotalEmploy =	Total Employment	ParkViol =	Parking Violations
V_Crime =	Violent Crime	TrafficV =	Traffic Violations
FireCalls =	Fire Calls Received	TrashColl =	Trash Collections
FireInsp =	Fire Inspections		

Table 6 Revenue and Selected Employment Correlation Analysis

		1	2	3	4
		TotalRev	TotalEmply	PolicEmp	FireEmp
1	TotalRev	1.00			
2	TotalEmply	0.01	1.00		
3	PolicEmp	0.15	.74*	1.00	
4	FireEmp	0.02	-0.01	0.17	1.00

^{*.} Correlation is significant at the 0.05 level (2-tailed)

Legend

TotalRev = Total Revenue PolicEmp = Total Police Dept. Employment

TotalEmploy = Total Employment FireEmp = Total Fire Dept. Employment

Regression Model --- Relationship between "Total Revenues and Total Expenditures"

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	Sig. F Change
1	.705 ^a	0.497	0.434	11782.284	0.497	7.908	0.023

a. Predictors: (Constant), Total Revenue

b. Dependent Variable: Total Expenditures

City of Jackson's Net Financial Position

An examination of changes in the city's overall "net financial position" is included to provide additional insight on the city's financial health and its ability to fund city services. According to the City of Jackson's 2016 CAFR report, as of September 30, 2016, the City of Jackson's overall net financial position³ increased by \$20 million from fiscal year 2015. Table 7 shows how the net financial position was calculated.

For 2015 and 2016, total revenues for Governmental Activities were less than total expenses for those same years. This contributed to a deficit in the Governmental Activities category of \$11,282,000 and \$1,734,000 respectively for those years. By contrast, the city's Business-Type activities category reflected a positive net position due to its revenues for 2016 and 2015 being more than its expenses. Thus, Governmental Activities "lost" money and Business-Type activities produced a "profit". Table 7 provides a two year summary of the City of Jackson's net financial position.

Table 7 Numbers are reported in Thousands – 000s

	Governme			ss-Type	_	-1-1
	Activitie	es	ACTIV	vities	1	otal
	2016	2015	2016	2015	2016	2015
Total Revenues	141,275	147,478	83,813	74,753	225,088	222,231
Total Expenses	-152,557	-149,212	-53,107	-64,564	-205,664	-213,776
Increase in net position before transfers	-11,282	-1,734	30,706	10,189	19,424	8,455
Transfers	-2,081	-3,054	2,081	3,054	-	-
Increase in net position	-13,363	-4,788	32,787	13,243	19,424	8,455
Net position - October 1, 2015	-45,973	195,200	272,812	276,684	226,839	407,332
Prior year adjustment	475	-236,385		-17,115	475	-253,500
Net position - September 30, 2016	-58,861	-45,973	305,599	272,812	246,738	162,287

The 2016 Comprehensive Annual Financial Report (CAFR) for the period ending September 30, 2016 stated . . . "Over time, increases or decreases in net position may serve as a useful indicator of whether the financial position of the City of Jackson is improving or deteriorating.

³ Net financial position is defined as financial liabilities minus cash and cash equivalents.

Using the city's 2016 net position as a measure of the city's overall financial health and its ability to fund vital city services, it appears the city (as of the close of September, 2016) has the financial capacity and discretion to fund selected city services." (Emphasis Added)

Ten Year Trend in Net Position

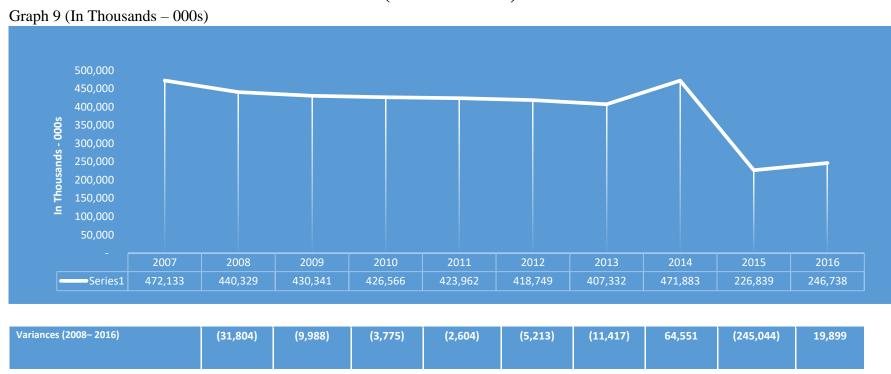
Graph 9 provides a 10 year review of changes in net position for the City of Jackson. Over the 10 year period, there has been a general decline in the overall net financial position from \$472,133,000 in 2007 to \$246,738,000 in 2016. This represents an approximately 48% decline in overall net position. There was a significant drop in the overall net position of approximately \$244,994,000 between the years 2014 and 2016. Additional research is needed to determine the cause and implications of that significant decline. If one uses the 10 year trend in overall net position as a barometer for assessing the City of Jackson's financial health, then one could reach the conclusion that the city's overall financial health has been in a state of decline. It should also be noted the City of Jackson did experience growth in its overall net position in two (2014 and 2016) of the last three years examined in this report. These recent increases may signal a new trend of improvements in the city's overall financial health. Future research is needed to confirm or disprove the existence of a new positive trend in the city's overall financial health.

Discussion

Interpreting the relationship between the City of Jackson's revenues, expenditures, and service trends is not a straight forward proposition. The data examined in this research brief indicated the city's revenue base in the categories of governmental and business-related activities fluctuated throughout the ten-year period under review. However, a fluctuating revenue base does not necessarily mean a "declining revenue base". The City of Jackson had a favorable "net position" as of September 30, 2016, with considerable un-restricted spending discretion in some of its revenue sources. However, from a "net financial position" 10 year trend perspective, there was a significant decline in the city's overall financial health as measured by its net position.

In examining longitudinal data across several categories, general fund revenue declined over the ten year period, while city expenditures also showed a decline over this same period. The city experienced an overall reduction in the number of city workers over the 10 year period going from 2,337 employees in 2007 to 1,638 employees in 2016. A review of the financial impact on selected city services indicated mixed results with some service indicators increasing (e.g., Fire Department calls) and some service indicators decreasing (e.g., number of public works employees; number of potholes reported/repaired). A review of correlation and regression findings indicated the "Total Revenues" and "Total Expenditures" variables were significantly associated (r = .705) as expected with "Total Revenues" predicting nearly half (49.7%) of the changes occurring in "Total expenditures". However, the correlation results indicated that selected city services were not significantly impacted by changes in total revenue trends. This

Changes in the City of Jackson's Total Net Financial Positions (2007-2016)



un-expected finding indicates there are probably other factors influencing the relationship between revenue, expenditures, and city services. Some of those factors could be changing economic conditions, reporting requirements, and/or strategic decisions made by city leaders.

As stated in the city's 2016 CAFR report, the City of Jackson has several sources of "unrestricted revenue" that city leaders have full discretion over expending. Addressing the quality of life challenges referenced earlier in this brief (e.g., declining population base; significant infrastructure problems; public education challenges, and deteriorating housing stock) represent major strategic decisions. Deciding how to expend limited revenue is compounded when considering other issues such as limited business growth, a decline in the city's population and tax base, and the relocation of many city residents to neighboring cities in the Jackson metro area. (Census, 2016)

Conclusions

The data analyzed in this research brief revealed "mixed results" regarding the relationship between city revenues, expenditures, and services. The city's revenue base in the categories of governmental and business-related activities fluctuated throughout the ten-year period under review. However, it is clear that some revenue sources under the "governmental activities" category have declined (e.g., sales taxes), and some revenue sources under the "business activities" category have increased significantly (e.g. revenue from water and sewer charges). City "expenditures" have generally declined over the ten year period resulting in fewer city employees (especially in the Public Works department). What is clear from reviewing the data is the growing shift from traditional "governmental activities" revenue sources (e.g., property tax, sales tax) to more "business activities" revenue sources (e.g., water and sewer fees). A 10 year review of the city's net financial position indicated a declining pattern in the city's overall financial health as measured by net position. Many city and non-city residents have perceptions of the City of Jackson's financial condition being in a steady state of decline. These perceptions are not completely accurate when considering recent increases in overall city net financial position and increases in revenue from "Business-type" activities. Based upon data analyzed in this research brief, the negative perception of the city's financial condition is misleading but not without some statistical support. Overall, this study's findings indicated there are substantive changes occurring in how the City of Jackson generates revenue; expend those revenues; and decide which city services are funded. For the 10 year period reviewed, the City of Jackson's overall financial health has declined as measured by net financial position and general fund revenue.

Recommendations

Based upon the findings contained in this report, the following recommendations are made to assist the City of Jackson and other urban areas facing the type of revenue, expenditure, and services challenges described in this study:

- 1. Make available for public review a wider array of service indicators for each city department. Making available a wider array of service indicators will allow citizens, administrators, policymakers, researchers, and other interested parties to track and evaluate the provision of city services in relations to budgetary outlays.
- 2. Focus on innovative ways of increasing homeownership, especially for younger adults, as a way of increasing the city's revenue base. Those innovative approaches could be financed from using unrestricted funds and/or from a designated set-aside account such as traffic and/or parking violations and fines. The goal is to increase the amount of property and sales taxes available for collection.
- 3. Prioritize the spending of "unrestricted funds" on key city services such as infrastructure improvement; crime prevention; housing; and business development. All of these areas could have a "multiplier/investment effect" by generating additional revenue in the form of increased property tax, sales tax, and fee revenue.
- 4. Continuing seeking innovative financial and programmatic support from external entities such as the State of Mississippi and the federal government. Developing and implementing innovative arrangements such as the Capitol Improvement District and other cost-sharing arrangements can help expand the amount of revenue available for needed city services.

References

- Census. (2016, April). *American Community Survey*. Retrieved from U.S. Census Bureau: http://www.census.gov/acs
- DOJ. (2018, April). *Bureau of Justice Statistics*. Retrieved from U.S. Department of Justice: https://www.bjs.gov/
- Lumumba, C. A. (2017). FY2017-18 Adopted Annual Budget Report. Budget Office, Department of Administration. Jackson, MS: City of Jackson, Mississippi. Retrieved from http://www.jacksonms.gov/DocumentCenter/view/3532
- Yarber, T. (2015-16). City of Jackson (Ms) Proposed Annual Budget Fiscal Year 2015-16. Mayor's Office. Jackson, MS: City of Jackson.
- Yarber, T. (2016). *Comprehensive Annual Financial Report*. Department of Administration / Finance Division. Jackson, MS: City of Jackson.