

**Florida's Public Libraries: Economic Impact Study
FY 2018-2019 and FY 2019-2020**

Prepared by the University of Florida
Bureau of Economic and Business Research (BEBR)¹

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Executive Summary

Across the state, Florida public libraries not only provide valuable materials and services to Florida residents, but also purchase inputs (goods and services) from Florida suppliers, thereby contributing to the state economy in several ways. This report quantitatively describes the economic impact of Florida public libraries for the fiscal years 2018-19 and 2019-20, giving a sense of how much Florida's economy is supported by the annual spending of its public libraries.

Using the Bureau of Economic Analysis' Regional Input-Output Modeling System (RIMS II) multipliers, our results show that Florida public libraries' purchases of inputs have a sizable impact on the economic activity and employment in the state. In particular, the economic contribution to Florida's economy in the last two fiscal years were

- \$638.9 million in gross output during fiscal year 2018-19 with \$356.2 million as the value added portion of this output (comparable to gross domestic product [GDP]), and \$184.7 million as the earnings portion of this value added
- 4,446 additional full- and part-time jobs supported during fiscal year 2018-19 beyond the library staff positions filled
- \$618 million in gross output during fiscal year 2019-20, with \$346.7 million as the value added portion of this output, and \$179.6 million as the earnings portion of this value added
- 4,353 additional full- and part-time jobs supported during fiscal year 2019-20 beyond the library staff positions filled

1. Introduction

The Florida Department of State Division of Library and Information Services (DLIS) overall mission is to promote and enhance library, records management, and archival services for the state of Florida. They seek to ensure access to information resources for the citizens of Florida, government agencies, libraries, businesses, and educational institutions.² In particular, their support to Florida public libraries results in not only a wide variety of valuable materials and services offered to Florida residents, but also a robust contribution to Florida's economy.

The total operating expenditures made by Florida public libraries to offer these materials and services were over 620 million dollars for the 2018-19 fiscal year and nearly 615 million dollars for the 2019-20 fiscal year. These expenditures, combined with capital outlays, contribute to the economy across the state in several ways.

First, Florida public libraries have a direct and indirect impacts on the state economy by contributing to other industries or sectors of the state economy when acquiring material and service inputs from them. Second, workers in those industries or sectors convert their paychecks into household spending, which spills over within the region creating further impacts, also known as induced impacts. Finally, library staff spend part of their earnings in Florida. How much of the local economy is supported by the annual spending of Florida's public libraries? This question is answered by conducting an economic impact study.

As commissioned by the DLIS, this report quantitatively describes the economic impact of Florida public libraries on Florida's economy. In particular, we use the Regional Input-Output Modeling System (RIMS II) provided by the Bureau of Economic Analysis (BEA) to estimate the impacts of Florida public libraries on gross output, value added, earnings, and employment in the state of Florida for the fiscal years 2018-19 and 2019-20.

The remainder of the report is organized as follows. Section 2 sets the spending context and details the expenditure patterns of the Florida public libraries in the last two fiscal years. Section 3 discusses the methodology, based on the BEA's RIMS II multipliers, to estimate the economic contribution of Florida public libraries to the state economy. Section 4 reports the impacts. The last section concludes, and the appendix includes additional robustness checks to further validate our main conclusions.

2. Florida Public Libraries Expenditures

For this study, we consider Florida public libraries' expenditures for the fiscal years 2018-19 and 2019-20. The expenditure data was provided by DLIS after being supplied to DLIS by the public libraries in Florida through the Annual Statistical Report Form.³ This data includes the expenses by category incurred in a

² More information about the Division of Library and Information Services (DLIS) is available at <https://dos.myflorida.com/library-archives/about-us/>

³ The annual public library statistics and rankings are available at <https://dos.myflorida.com/library-archives/services-for-libraries/more-programs/library-data-and-statistics/>

fiscal year by the public libraries across the state of Florida. The main categories are: (1) staff expenditures, which includes salaries and wages of all employees as well as the employee benefits (social security, retirement, insurance, and other benefits for all staff), (2) total collection expenditures, which captures the expenditures on print, electronic, and other materials, (3) all other operating expenditures, and (4) capital outlays. Table 1 shows the expenditure amounts by category and fiscal year.

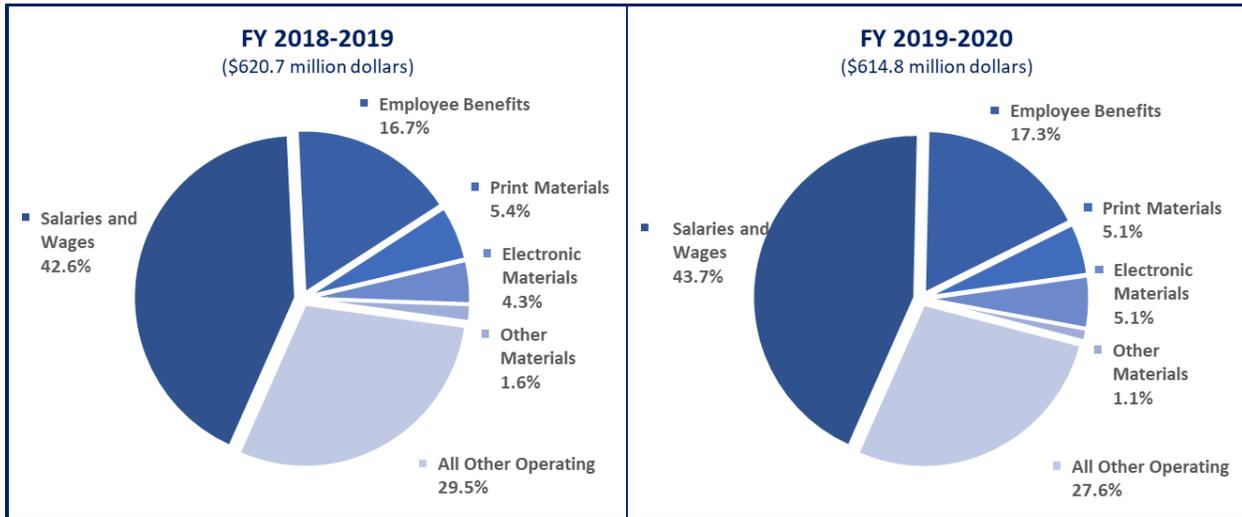
Table 1. Florida Public Libraries Expenditures by Category

Expenditure Category	FY 2018-2019			FY 2019-2020		
	Expenditure	In-state Expenditure	% In-state	Expenditure	In-state Expenditure	% In-state
Salaries and Wages	\$264,274,087	\$264,274,087	100.0	\$268,558,495	\$268,558,495	100.0
Employee Benefits	\$103,352,086	\$103,352,086	100.0	\$106,595,270	\$106,595,270	100.0
(1) Staff Expenditures	\$367,626,173	\$367,626,173	100.0	\$375,153,765	\$375,153,765	100.0
Print Materials Expenditures	\$33,511,492	\$7,239,411	21.6	\$31,197,614	\$7,198,842	23.1
Electronic Materials Expenditures	\$26,380,018	\$5,193,343	19.7	\$31,555,432	\$6,005,105	19.0
Other Materials Expenditures	\$10,195,708	\$2,226,193	21.8	\$6,955,296	\$1,466,631	21.1
(2) Total Collection Expenditures	\$70,087,218	\$14,658,947	20.9	\$69,708,342	\$14,670,577	21.0
(3) All Other Operating Expenditures	\$182,949,135	\$115,282,374	63.0	\$169,924,043	\$107,263,955	63.1
Total Operating Expenditures	\$620,662,526	\$497,567,494	80.2	\$614,786,150	\$497,088,297	80.9
(4) Capital Outlay	\$48,082,992	\$26,600,034	55.3	\$32,166,670	\$21,914,394	68.1

Source: data is supplied to the Division of Library and Information Services (DLIS) by public libraries.

In the 2018-19 fiscal year, the operating expenditures summed to \$620.7 million, and the capital outlays were slightly over \$48 million. Moreover, as shown in the left panel of figure 1, the largest component of the operating expenditures corresponded to staff expenditures, which accounted for 59.2% of the total (42.6% salaries and wages plus 16.7% employee benefits). The total collection expenditures accounted for 11.3% (5.4% print materials, 4.3% of electronic materials, and 1.6% all other materials), and all other operating expenses accounted for 29.5%. In the 2019-20 fiscal year, the total operating expenditures was \$614.8 million, while the capital outlays were nearly \$32.2 million. The distribution of the operating expenditures across categories in this fiscal year was very similar to that of the previous one.

Figure 1. Florida Public Libraries Total Operating Expenditures Breakdown



Source: data is supplied to the Division of Library and Information Services by public libraries.

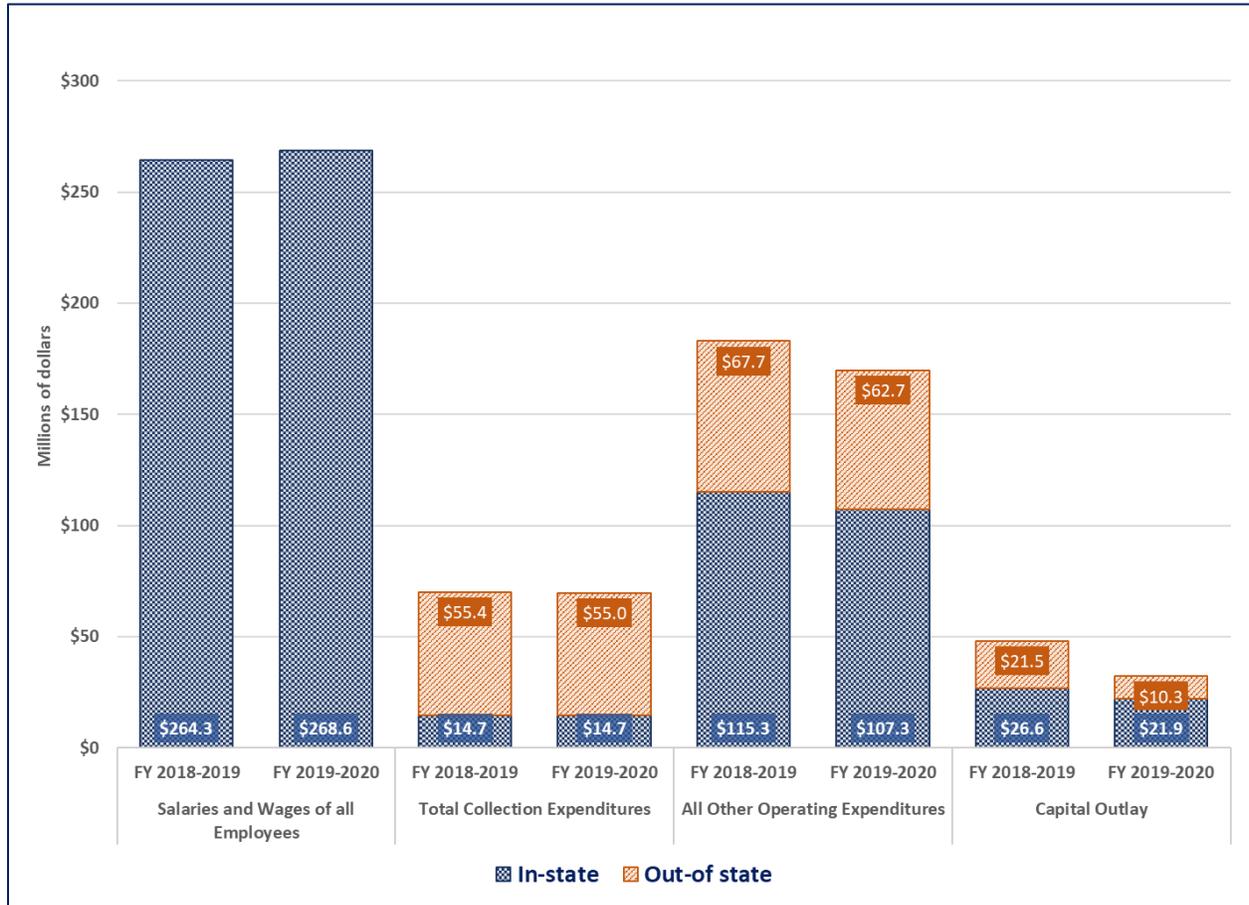
Local industries in Florida typically do not supply all the inputs needed by other industries or businesses, or in this case inputs needed by Florida public libraries to provide services. As a result, some purchases are from suppliers outside the state. For this reason, not all the realized expenditures from the libraries is on goods and services produced within the state of Florida. Table 1 also reports the share of in-state expenditures by category and fiscal year. This information is also graphically depicted in figure 2, which shows the expenditure distribution between in- and out-of-state.⁴ These calculations are based on the aggregation of in- and out-of-state expenditures of each library. In the fiscal year 2018-19, 20.9% (\$14.7 million) of the total collection expenditures, 63% (\$115.3 million) of all other operating expenditures, and 55.3% (\$26.6 million) of capital expenditures were on inputs within the state of Florida. A similar distribution between in- and out-of-state expenditures is observed for the next fiscal year, 2019-20. Overall, excluding staff expenditures (salaries and wages, and employee benefits), 52% of the remaining total expenditures (including capital expenditures) in the fiscal year 2018-19, and 52.9% in the fiscal year 2019-20, were spent on goods and services produced within the state of Florida. Importantly, these in-state expenditures from the public libraries contribute to the state economy.

The provision of library services requires the purchase of goods and services from businesses located in or outside Florida. The economic contribution of Florida’s public libraries is defined as the gross changes in Florida’s existing economy that can be attributed to the public libraries by tracking the gross economic activity as the dollars cycle through the state’s economy, and thus only the in-state purchases are considered. One of the frequent ways to perform this analysis within a geographical region, in this case the state of Florida, is through the use of a multiplier analysis based on an Input-Output model, such as the Regional Input-Output Modeling System (RIMS-II) provided by the BEA. This method estimates the economic impacts of the public libraries by tracing the path of spending throughout the local economy.

⁴ Figure 2 excludes the employee benefits category because, as explained below in the methodology section, this category is not considered in the calculations of the economic impacts.

The next section explains the methodology and the basics of the model employed to estimate the economic impacts of Florida’s public libraries.

Figure 2. Florida Public Libraries In-state and Out-of-state Expenditure



Source: data is supplied to the Division of Library and Information Services by public libraries.

3. Methodology: Regional Input-Output Modeling System (RIMS II)

Our main results, which correspond to estimates of the impacts of Florida public libraries on Florida’s economy for the fiscal years 2018-19 and 2019-20, use the Regional Input-Output Modeling System (RIMS II) of the Bureau of Economic Analysis. This model allows us to objectively assess the potential economic impacts of government purchases, such as those from Florida public libraries.

The RIMS II regional economic model is based on an accounting framework called an Input-Output (I-O) table. This table consists of a set of national input-output accounts that show the goods and services produced by each industry and the use of these goods and services by industries and final users. That is,

for each industry, the table shows the distribution of the inputs purchased and the outputs sold, tracing the path of spending throughout the local economy.

Similar to other regional models, RIMS II adjusts these national I-O relationships to account for local supply conditions. These adjustments account for local suppliers often not providing all the intermediate inputs needed to produce the region's output.⁵ Thus, organizations must purchase some intermediate inputs from suppliers outside the region. These purchases are often referred to as leakages because they represent expenditures that do not take place within the region, that is, money that no longer circulates in the local economy. In other words, after accounting for leakages, the economic model is built to represent the structure and degree of interconnectedness of the regional economy with the output of each industry broken down and attributed to expenditures on intermediate inputs and to value-added.

Importantly, this model produces final-demand multipliers which capture the effects of input purchases and household spending by employees of the input industries due to a change in final demand in a region's economy. As mentioned before, the model considers all the leakages that may occur, so the multiplier is truly a regional one. These final-demand multipliers when multiplied by a final-demand change (such as those that are generated by government purchases) provide an estimate of the total impacts (ripple effects) across all industries in the region. The impacts can be expressed in terms of gross output, value added, earnings, and employment. Each of these four measures of economic impact represents a different way of capturing economic contributions.

- **Gross output** (sometimes simply referred to as output) is the broadest measure and refers to the market value of goods and services produced. It corresponds to the sum of value added and intermediate inputs. Importantly, this is not a measure of contribution to the gross domestic product (GDP) because it double counts the value of goods and services used as intermediate inputs.⁶
- **Value added** corresponds to what is left after subtracting the cost of intermediate inputs from output. The exclusion of intermediate inputs makes value added not subject to double-counting and therefore comparable to regional measures of GDP.
- **Earnings** are part of value added and consist of employee compensation and proprietor's income, which is the net earnings of sole proprietors and partnerships. Employer contributions for health insurance are also included, however, employee (and self-employed) withholding for Social Security and Medicare, and employee pension plans are excluded because RIMS II needs to account for only the portion of personal income that is available to spend.
- **Employment** refers to the number of full-time and part-time jobs.

There are two types of multipliers (Type I and Type II) which capture different economic ripple effects.

- **Type I multipliers** capture only the ripple effects on the business side. That is, they account for the direct and indirect impacts of a final-demand change. The *direct impact* relates to the first

⁵ Intermediate inputs of an industry are the goods and services (including energy, raw materials, semi-finished goods, and services that are purchased from all sources) that are used in the production process to produce other goods or services rather than for final consumption (BEA).

⁶ The gross domestic product (GDP) is a comprehensive measure of the economy, which estimates the value of the goods and services produced within a region in a specific time period. Changes in GDP are typically seen as an important indicator of overall economic health.

round of inputs purchased by the final-demand industry. The *indirect impact* relates to the subsequent rounds of inputs purchased by supporting industries. The sum of the direct and indirect impacts is often called the **interindustry effect**.

- **Type II multipliers** not only consider the interindustry effect, but they also account for the **induced impact** of a final-demand change. The induced impact relates to the spending of workers whose earnings are affected by the final-demand change.

The estimation of economic impacts relies on specifying the final-demand change, the final-demand industries, and the final-demand region. First, the final-demand change consists in this case of the different purchases of goods and services incurred by Florida public libraries in a fiscal year as a result of providing its services to the general public. These expenditures were described in the previous section. Moreover, since it is important to consider only the effect of purchases done within the region, in this case the state of Florida, we consider only the in-state expenditure portion. Second, the final-demand industries correspond to the industries that are initially affected by the final-demand change. We identified the industries initially affected by the libraries' purchase of inputs according to the expenditure categories reported. These expenditure categories are broad, involving several industries. When analysts cannot find a suitable industry multiplier, many are tempted to create a multiplier by taking a simple average of multipliers for several industries. However, RIMS II multipliers are derived from detailed I-O tables and regional data, which make them unique to the individual industries and regions and should not be averaged (Bess and Ambargis, 2011). For this reason, we selected the industry that is most likely and most largely affected in each expenditure category. As a robustness check, we estimate bounds for the impacts considering the smallest and largest multipliers among all the industries identified in each expenditure category. The results of this analysis are graphically shown in figure A1 in the appendix. Finally, and for completeness, the final-demand region is the geographic area in which the total impact of the final-demand change is measured, in this case, this region is the state of Florida.

Additional information regarding the RIMS II methodology is available at the BEA website as well as the user's guide (Ambargis and Mead, 2012).⁷

4. Florida Public Libraries Economic Impacts

In this section, we report the economic impacts of Florida public libraries on Florida's economy for the fiscal years 2018-19 and 2019-20 using the BEA's RIMS II multipliers described in the previous section.

Table 2 shows that in the fiscal year 2018-19, the contribution of Florida public libraries to gross output in the state of Florida was \$638.9 million. This value includes the \$156.5 million in purchases made by the libraries in providing its services. The value-added portion of this output, which is equivalent to measures of GDP, was \$356.2 million. The earnings portion of this value added was \$184.7 million. The employment impact, which includes both full- and part-time jobs, was 4,446 jobs. The latter impact does not include the number of library staff jobs, and thus it refers only to the additional jobs created throughout the

⁷ <https://apps.bea.gov/regional/rims/rimsii/>

regional economy.⁸ Similarly, in the fiscal year 2019-20, the contribution to gross output was \$618 million, the value-added portion of this output was \$346.7 million, the earnings portion of this value added was \$179.6 million, and the number of jobs supported across the state was 4,353.

Table 2. Florida Public Libraries Economic Impacts

Fiscal Year	Effects	In-state Expenditures (millions of dollars)	Output (millions of dollars)	Value-added (millions of dollars)	Earnings (millions of dollars)	Employment (# of jobs)
2018-19		\$156.5				
	Interindustry effect (Direct + Indirect)		\$245.6	\$118.3	\$63.0	1,095
	Induced effect		\$75.7	\$45.8	\$23.4	645
	Subtotal		\$321.4	\$164.1	\$86.5	1,740
	Library employees' earnings	\$264.3				
	Library employees' spending impact		\$317.5	\$192.1	\$98.3	2,706
	Total impacts		\$638.9	\$356.2	\$184.7	4,446
2019-20		\$143.8				
	Interindustry effect (Direct + Indirect)		\$225.4	\$109.2	\$58.2	1,008
	Induced effect		\$69.9	\$42.3	\$21.6	595
	Subtotal		\$295.3	\$151.5	\$79.8	1,603
	Library employees' earnings	\$268.6				
	Library employees' spending impact		\$322.7	\$195.2	\$99.9	2,749
	Total impacts		\$618.0	\$346.7	\$179.6	4,353

Note: the economic impacts are derived using BEA's RIMS II multipliers. The calculations use expenditure data that is supplied to the Division of Library and Information Services by public libraries in Florida. The in-state expenditures for each fiscal year has two numbers: the first is the sum of total collection expenditures, all other operating expenditures and capital outlays; the second is salaries and wages for all employees (library employees' earnings).

5. Conclusions

Florida public libraries not only provide valuable materials and services to Florida residents across the state, but also contribute to the state economy in several ways through the purchase of inputs (goods and services) from suppliers in Florida. This report quantitatively describes the economic impact of Florida public libraries for the 2018-19 and 2019-20 fiscal years and provides a sense of how much Florida's economy is supported by the annual spending of its public libraries.

According to our results that were derived using BEA's RIMS II multipliers, the libraries' expenditure supports economic activity and employment in the state of Florida. In particular, in terms of value added,

⁸ The total paid FTE library staff in the fiscal year 2018-19 was 6,467.

which is an economic measure comparable to GDP, the economic impacts reached \$356.2 million in the fiscal year 2018-19 and \$346.7 million in the fiscal year 2019-20. In terms of employment, in addition to the library staff positions across the state, the jobs supported by Florida's public libraries were 4,446 jobs in the fiscal year 2018-19 and 4,353 in 2019-20.

Additional potential economic benefits derived from Florida public libraries are not accounted for in this study. For instance, the study does not consider the potential impacts of the library services and materials provided to Florida residents that can help them increase their productivity. Moreover, the study does not consider the potential economic impacts outside the state of Florida. These impacts could be sizable given that an important portion of the libraries' expenditure is on goods and services from out-of-state suppliers.

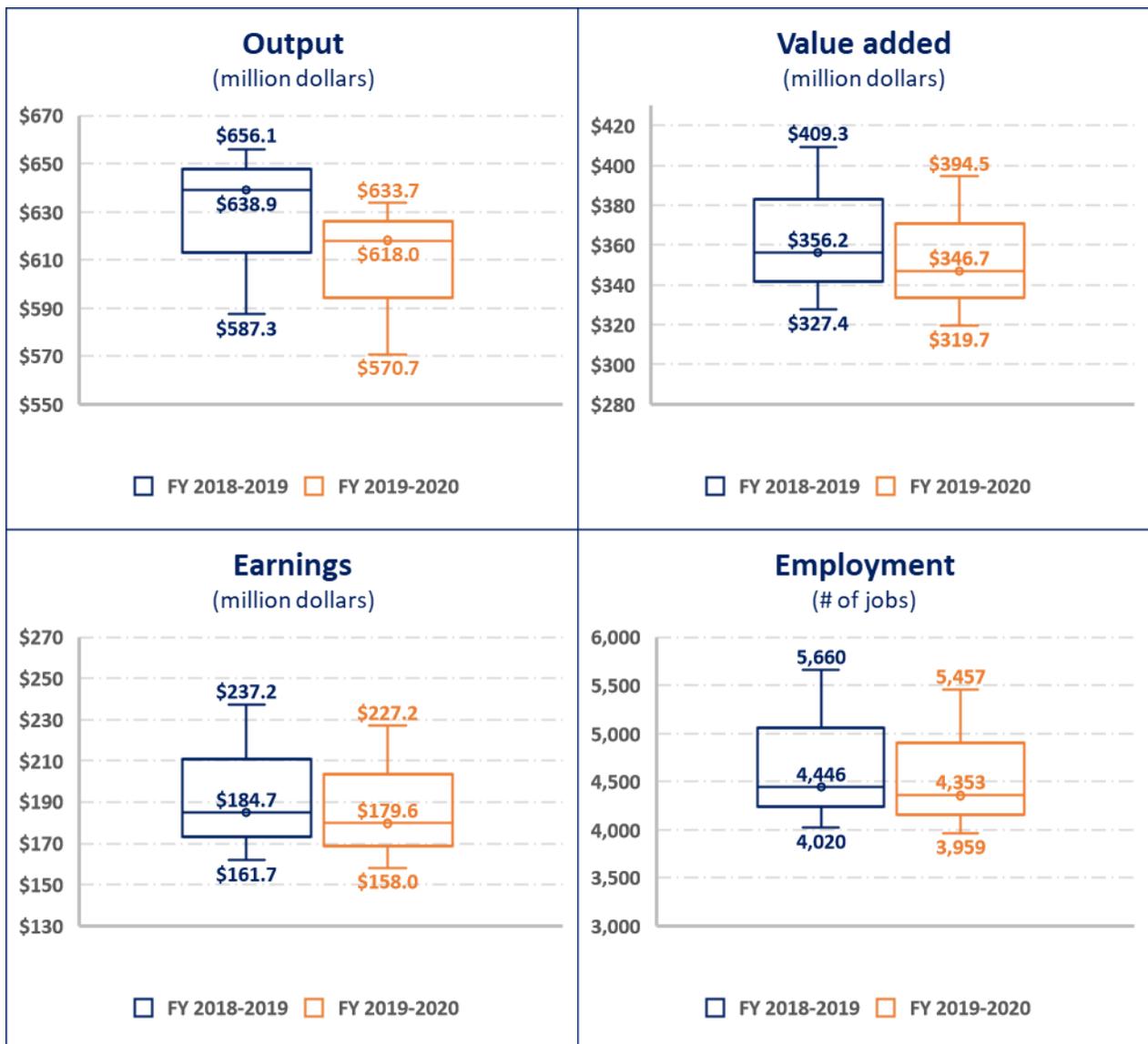
References

- 1) Ambargis, Z. O., & Mead, C. I. (2012). RIMS II. An essential tool for regional developers and planners. Bureau of Economic Analysis.
- 2) Bess, R., & Ambargis, Z. O. (2011, March). Input-output models for impact analysis: Suggestions for practitioners using RIMS II multipliers. In *50th Southern Regional Science Association Conference* (pp. 23-27). Southern Regional Science Association Morgantown WV.

Appendix

As a robustness check of our estimates of the economic impact of Florida public libraries on the state economy, we constructed lower and upper bounds for the total impacts for each fiscal year considering the smallest and largest multipliers available among all the industries we identified as affected in each expenditure category. Each panel in figure A1 plots our main estimate of the total impact (middle point) reported in section 4, as well as lower and upper bounds of this estimate for gross output, value added, earnings, and employment. All bounds are not wide, giving us confidence in our estimates.

Figure A1. Florida Public Libraries Economic Impacts (Upper and Lower Bounds)



Note: the economic impacts are derived using BEA's RIMS II multipliers. The calculations use expenditure data that is supplied to the Division of Library and Information Services by public libraries in Florida.