



GOVERNMENT OF PUERTO RICO
Puerto Rico Fiscal Agency and Financial
Advisory Authority



Economic Activity Index (“FAFAA-EAI”)

October, November and December 2016

About the interpretation of the FAFAA-EAI

The FAFAA-EAI is an indicator of general economic activity, not a direct measurement of real GNP. The annual growth rate of the FAFAA-EAI **is not** the same as the annual growth rate of real GNP.

- When it is annualized, the **level** of the **FAFAA-EAI** is highly correlated with the **level** of **real GNP** (with a Pearson correlation coefficient of 0.9792, for FY1981-FY2015).
- Annual **growth rates** of both variables are also highly correlated (with a Pearson correlation coefficient of 0.9538, for FY1982-FY2015).
- Nevertheless, the annual growth rate of the FAFAA-EAI **IS NOT** the same as the annual growth rate of real GNP. Being highly correlated does not mean being equal.
- In order to approximate real GNP growth from EAI annual growth, we estimate a linear regression model relating both variables.
- Plugging in FAFAA-EAI annual growth rates into the resulting equation, we obtain estimates for the annual growth rates of real GNP, which approximate real GNP annual growth figures published by the Planning Board.

About the interpretation of the FAFAA-EAI (2)

Real GNP annual growth rates estimated with annual growth rates of the FAFAA-EAI track closely the annual growth rates of real GNP published by the Puerto Rico Planning Board.

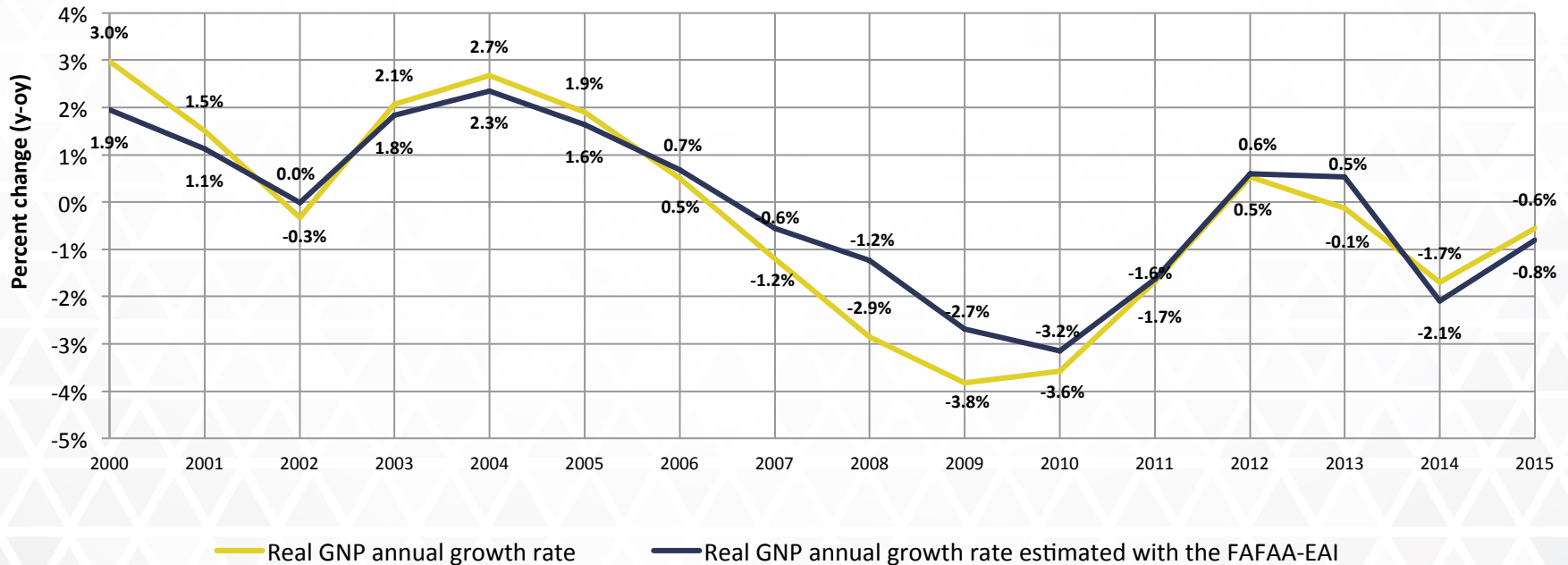
Fiscal Year	FAFAA-EAI annual growth	Real GNP annual growth estimated using the FAFAA-EAI	Current real GNP annual growth
2002	-0.8%	0.0%	-0.3%
2003	1.6%	1.8%	2.1%
2004	2.3%	2.3%	2.7%
2005	1.4%	1.6%	1.9%
2006	0.1%	0.7%	0.5%
2007	-1.5%	-0.6%	-1.2%
2008	-2.3%	-1.2%	-2.9%
2009	-4.2%	-2.7%	-3.8%
2010	-4.8%	-3.2%	-3.6%
2011	-2.8%	-1.6%	-1.7%
2012	0.0%	0.6%	0.5%
2013	-0.1%	0.5%	-0.1%
2014	-3.4%	-2.1%	-1.7%
2015	-1.8%	-0.8%	-0.6%

- However, real GNP growth estimates based on the FAFAA-EAI are relatively close (**although not identical**) to actual real GNP growth figures.
- Real GNP growth for FY2015 was estimated at -0.8% using a regression equation with the growth of the FAFAA-EAI as the independent variable. The index's annual growth is calculated as the annual percentage change of the twelve-month average.
- For FY2014, the index-based estimate for real GNP growth showed a slightly larger decline than the actual official measure of the Puerto Rico Planning Board; while for FY2015, that index-based estimate was closer to the Planning Board measure.

About the interpretation of the FAFAA-EAI (3)

The graph compares actual real GNP growth rates with projected real GNP growth rates based on the FAFAA-EAI.

Annual Growth Rate Comparisons: Real GNP, and real GNP estimated with the FAFAA-EAI



Real GNP data source: Puerto Rico Planning Board

Special Commentary – Oct-Dec 2016

- Discrepancies with gasoline consumption data delayed the publication of the index by three months.
 - Data were finally verified to make sure they are accurate to our best knowledge.
- The December 2016 publication (released in February 2017) includes data for October, November and December. The FAFAA-EAI graphs and the monthly indicators include the last month available.

Overview – October 2016

In October 2016, the FAFAA-EAI registered a 1.7% y-o-y reduction, and a month-over-month (m-o-m) decrease of 0.7%.

- The October 2016 figure for the FAFAA-EAI was 122.8, a 1.7% reduction compared to October 2015, and a 0.7% decrease compared to September 2016. On a fiscal year-to-date basis (July to October 2016) the decline was of 1.4% with respect to the same period of the previous fiscal year.
- Total non-farm payroll employment for October 2016 averaged 889,100, an annual decrease of 1.0%.
- Electric power generation for October 2016 totaled 1,805.1 million kWh, an annual decrease of 3.4%.
- The preliminary number for gasoline consumption* in October 2016 was 76.8 million gallons, 8.6% below October 2015.
- Cement sales for October 2016 totaled .93 million bags, registering an annual decrease of 14.3%.

Overview – November 2016

In November 2016, the FAFAA-EAI registered a 2.8% y-o-y reduction, and a month-over-month (m-o-m) decrease of 1.3%.

- The November 2016 figure for the FAFAA-EAI was 121.3, a 2.8% reduction compared to November 2015, and a 1.3% decrease compared to October 2016. On a fiscal year-to-date basis (July to November 2016) the decline was of 1.7% with respect to the same period of the previous fiscal year.
- Total non-farm payroll employment for November 2016 averaged 897,000, an annual decrease of 1.2%.
- Electric power generation for November 2016 totaled 1,640.6 million kWh, an annual decrease of 2.1%.
- The preliminary number for gasoline consumption* in November 2016 was 74.8 million gallons, 7.6% below November 2015.
- Cement sales for November 2016 totaled .81 million bags, registering an annual decrease of 14.0%.

The monthly gasoline consumption is estimated by the FAFAA from the Treasury Department's monthly gasoline excise tax collections paid by importers which are transferred to P.R. Highways and Transportation Authority. These collections fluctuate due to changes in inventories and purchases, which do not necessarily reflect the actual monthly consumption reported by retailers.

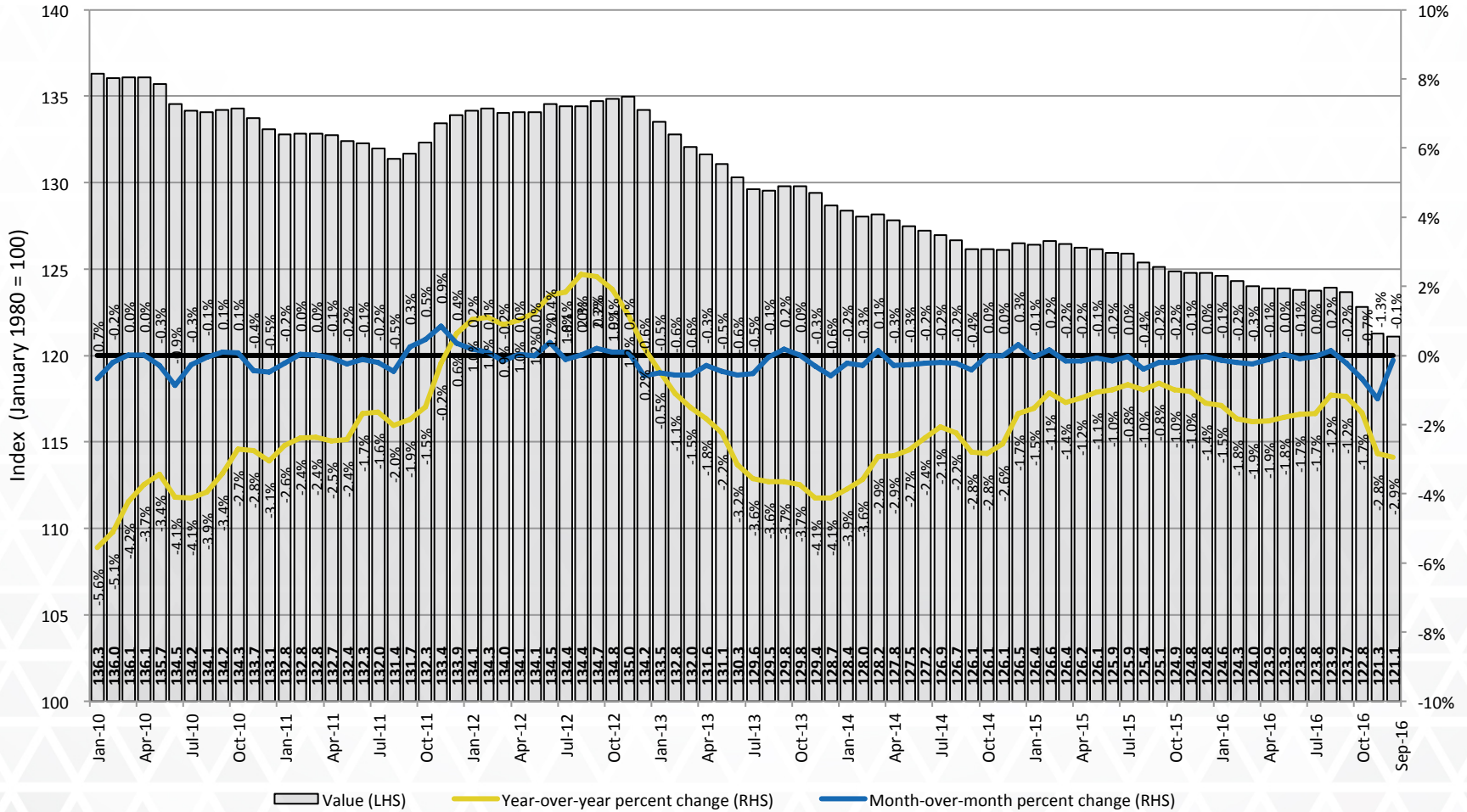
Overview – December 2016

In December 2016, the FAFAA-EAI registered a 2.9% y-o-y reduction, and a month-over-month (m-o-m) decrease of 0.1%.

- The December 2016 figure for the FAFAA-EAI was 121.1, a 2.9% reduction compared to December 2015, and a 0.1% decrease compared to November 2016. On a fiscal year-to-date basis (July to December 2016) the decline was of 1.9% with respect to the same period of the previous fiscal year.
- Total non-farm payroll employment for December 2016 averaged 910,400, an annual decrease of 1.2%.
- Electric power generation for December 2016 totaled 1,670.6 million kWh, an annual decrease of 2.3%.
- The preliminary number for gasoline consumption* in December 2016 was 77.5 million gallons, 11.1% below December 2015.
- Cement sales for December 2016 totaled .93 million bags, registering an annual decrease of 2.7%.

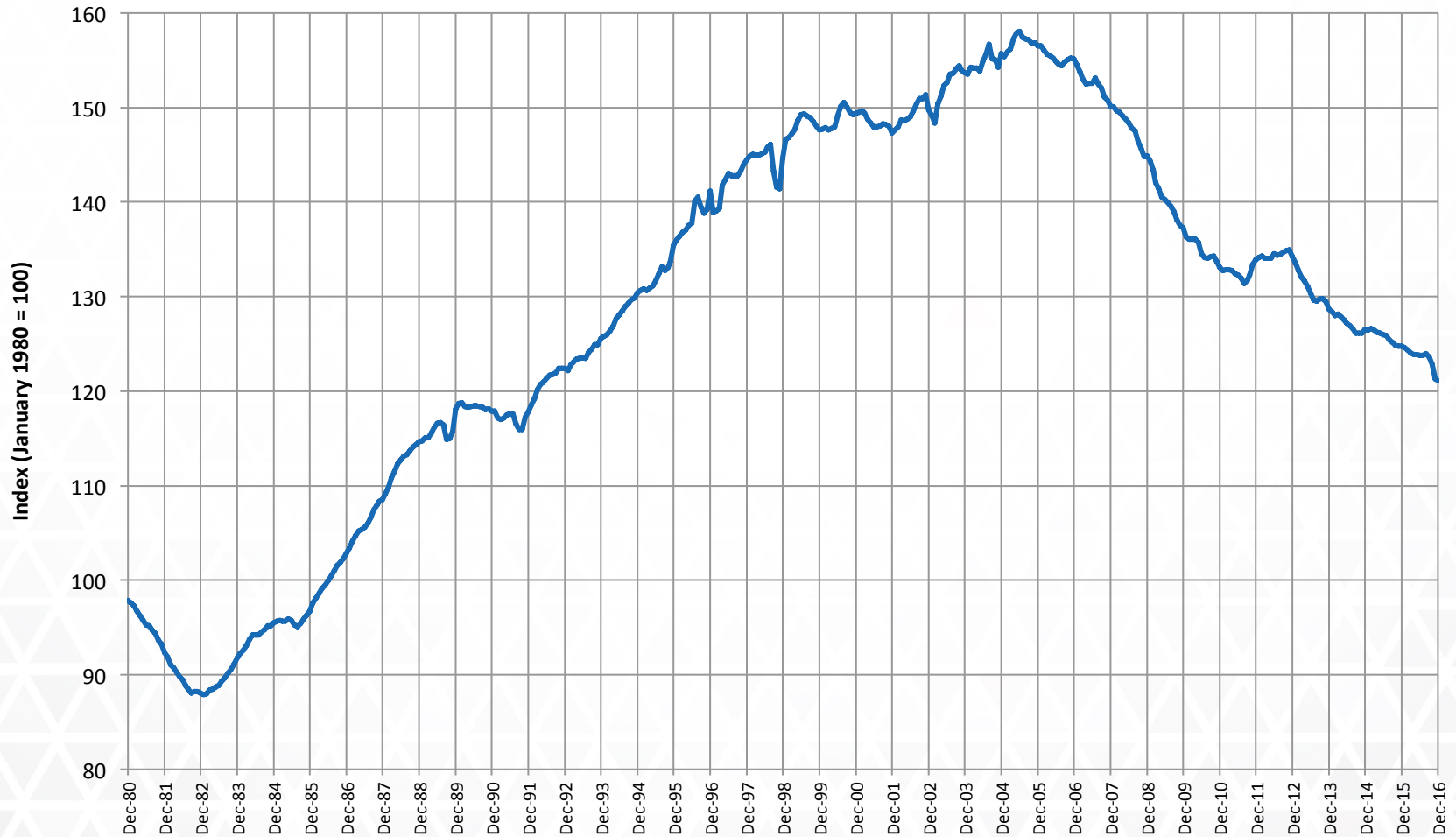
In December 2016, the FAFAA-EAI registered a 2.9% year-over-year (y-o-y) reduction, and a month-over-month (m-o-m) decrease of 0.1%.

FAFAA Economic Activity Index



The complete series of the FAFAA-EAI, which starts in January 1980, shows the recessions of FY1982 and FY1983, the mild recession of FY1991, and the recession of 2001. It also shows the downward path of the Index since the beginning of the current recession.

FAFAA Economic Activity Index



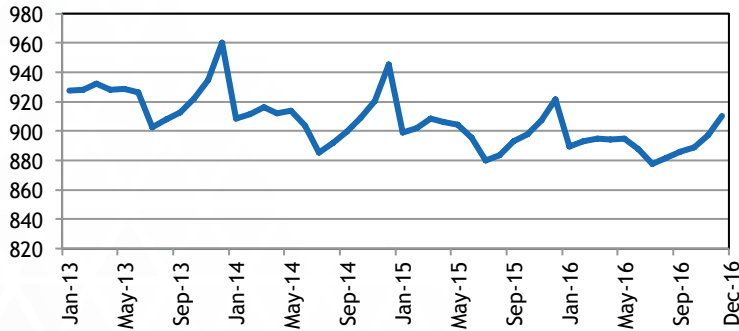
FAFAA Economic Activity Index: Data for the past decade

PUERTO RICO ECONOMIC INDICATORS FAFAA Economic Activity Index (January 1980 = 100)					PUERTO RICO FISCAL AGENCY AND FINANCIAL ADVISORY AUTHORITY Economic Analysis Division						
FISCAL YEAR *	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	
JULY	153.1	147.8	139.9	134.2	132.0	134.4	129.6	126.9	125.9	123.8	
AUGUST	152.5	147.5	139.6	134.1	131.4	134.4	129.5	126.7	125.4	123.9	
SEPTEMBER	152.1	146.4	138.9	134.2	131.7	134.7	129.8	126.1	125.1	123.7	
OCTOBER	151.1	145.7	138.1	134.3	132.3	134.8	129.8	126.1	124.9	122.8	
NOVEMBER	150.8	144.8	137.5	133.7	133.4	135.0	129.4	126.1	124.8	121.3	
DECEMBER	150.2	144.9	137.3	133.1	133.9	134.2	128.7	126.5	124.8	121.1	
JANUARY	150.0	144.3	136.3	132.8	134.1	133.5	128.4	126.4	124.6		
FEBRUARY	149.7	143.4	136.0	132.8	134.3	132.8	128.0	126.6	124.3		
MARCH	149.5	142.1	136.1	132.8	134.0	132.0	128.2	126.4	124.0		
APRIL	149.1	141.4	136.1	132.7	134.1	131.6	127.8	126.2	123.9		
MAY	148.8	140.5	135.7	132.4	134.1	131.1	127.5	126.1	123.9		
JUNE	148.3	140.3	134.5	132.3	134.5	130.3	127.2	125.9	123.8		
YEAR OVER YEAR PERCENTAGE CHANGE											
FISCAL YEAR *	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	
JULY	-1.0	-3.5	-5.3	-4.1	-1.6	1.8	-3.6	-2.1	-0.8	-1.7	
AUGUST	-1.3	-3.3	-5.4	-3.9	-2.0	2.3	-3.6	-2.2	-1.0	-1.2	
SEPTEMBER	-1.8	-3.7	-5.1	-3.4	-1.9	2.3	-3.7	-2.8	-0.8	-1.2	
OCTOBER	-2.6	-3.6	-5.2	-2.7	-1.5	1.9	-3.7	-2.8	-1.0	-1.7	
NOVEMBER	-2.9	-4.0	-5.0	-2.7	-0.2	1.2	-4.1	-2.6	-1.0	-2.8	
DECEMBER	-3.2	-3.5	-5.3	-3.1	0.6	0.2	-4.1	-1.7	-1.4	-2.9	
JANUARY	-2.9	-3.8	-5.6	-2.6	1.0	-0.5	-3.9	-1.5	-1.4		
FEBRUARY	-2.6	-4.2	-5.1	-2.4	1.1	-1.1	-3.6	-1.1	-1.8		
MARCH	-2.3	-5.0	-4.2	-2.4	0.9	-1.5	-2.9	-1.4	-1.9		
APRIL	-2.2	-5.2	-3.7	-2.5	1.0	-1.8	-2.9	-1.2	-1.9		
MAY	-2.5	-5.5	-3.4	-2.4	1.2	-2.2	-2.7	-1.1	-1.8		
JUNE	-2.8	-5.4	-4.1	-1.7	1.7	-3.2	-2.4	-1.0	-1.7		
YEAR OVER YEAR DIFFERENCE											
FISCAL YEAR *	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	
JULY	-1.5	-5.3	-7.9	-5.8	-2.2	2.4	-4.8	-2.7	-1.1	-2.1	
AUGUST	-1.9	-5.0	-8.0	-5.5	-2.7	3.1	-4.9	-2.9	-1.3	-1.4	
SEPTEMBER	-2.8	-5.7	-7.4	-4.8	-2.5	3.0	-4.9	-3.6	-1.0	-1.5	
OCTOBER	-4.0	-5.4	-7.6	-3.7	-2.0	2.5	-5.0	-3.7	-1.3	-2.1	
NOVEMBER	-4.4	-6.0	-7.3	-3.8	-0.3	1.6	-5.6	-3.3	-1.3	-3.5	
DECEMBER	-5.0	-5.3	-7.6	-4.2	0.8	0.3	-5.5	-2.2	-1.7	-3.7	
JANUARY	-4.5	-5.7	-8.0	-3.6	1.4	-0.6	-5.2	-1.9	-1.8		
FEBRUARY	-4.1	-6.3	-7.3	-3.2	1.5	-1.5	-4.8	-1.4	-2.3		
MARCH	-3.5	-7.5	-6.0	-3.2	1.2	-2.0	-3.9	-1.7	-2.4		
APRIL	-3.4	-7.7	-5.3	-3.4	1.4	-2.4	-3.8	-1.6	-2.4		
MAY	-3.8	-8.2	-4.8	-3.3	1.6	-3.0	-3.6	-1.3	-2.2		
JUNE	-4.2	-8.1	-5.7	-2.3	2.3	-4.2	-3.1	-1.3	-2.2		
SUMMARY DATA											
FISCAL YEAR *	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	
AVERAGE	150.4	144.1	137.2	133.3	133.3	133.2	128.7	126.4	124.6		
DIFFERENCE	-3.6	-6.3	-6.9	-3.9	0.0	-0.1	-4.6	-2.3	-1.7		
% CHANGE	-2.3	-4.2	-4.8	-2.8	0.0	-0.1	-3.4	-1.8	-1.4		
JUL-DEC											
AVERAGE	151.6	146.2	138.5	133.9	132.4	134.6	129.5	126.4	125.1	122.8	
DIFFERENCE	-3.3	-5.4	-7.6	-4.6	-1.5	2.1	-5.1	-3.1	-1.3	-2.4	
% CHANGE	-2.1	-3.6	-5.2	-3.3	-1.1	1.6	-3.8	-2.4	-1.0	-1.9	
CALENDAR YEAR											
AVERAGE	147.7	140.3	134.9	132.5	134.4	130.7	127.1	125.7	123.4		
DIFFERENCE	-4.7	-7.4	-5.4	-2.3	1.9	-3.7	-3.6	-1.4	-2.3		
% CHANGE	-3.1	-5.0	-3.9	-1.7	1.4	-2.8	-2.7	-1.1	-1.8		
JAN-DEC											
AVERAGE	147.7	140.3	134.9	132.5	134.4	130.7	127.1	125.7	123.4		
DIFFERENCE	-4.7	-7.4	-5.4	-2.3	1.9	-3.7	-3.6	-1.4	-2.3		
% CHANGE	-3.1	-5.0	-3.9	-1.7	1.4	-2.8	-2.7	-1.1	-1.8		

FAFAA Economic Activity Index Components

Total Non-Farm Payroll Employment*

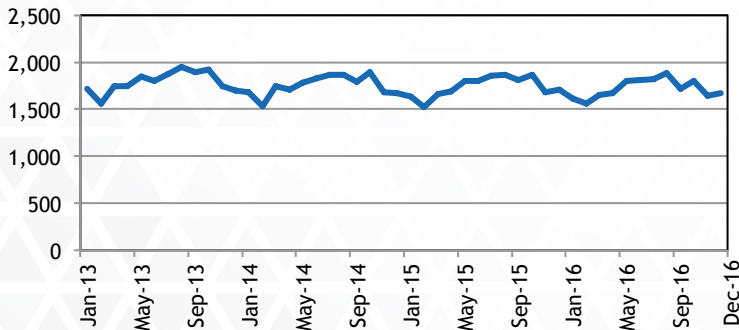
(Thousands of jobs)



- Total non-farm payroll employment for December 2016 averaged 910,400, an annual decrease of 1.2%.

Electric Power Generation*

(Millions of kWh)



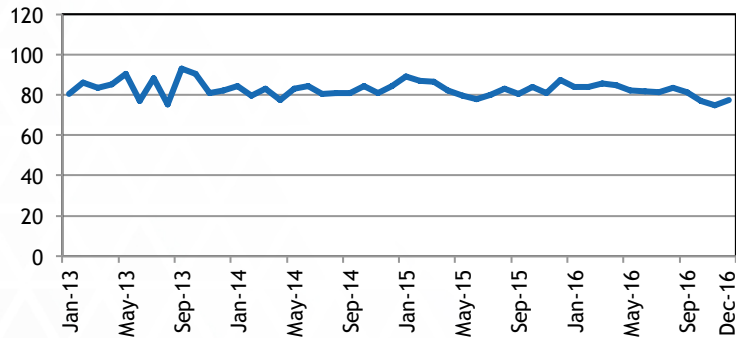
- Electric power generation for December 2016 averaged 1,670.6 million kWh, an annual decrease of -2.3%.

Sources: BLS and PREPA
* Not seasonally adjusted.

FAFAA Economic Activity Index Components

Gasoline Consumption*

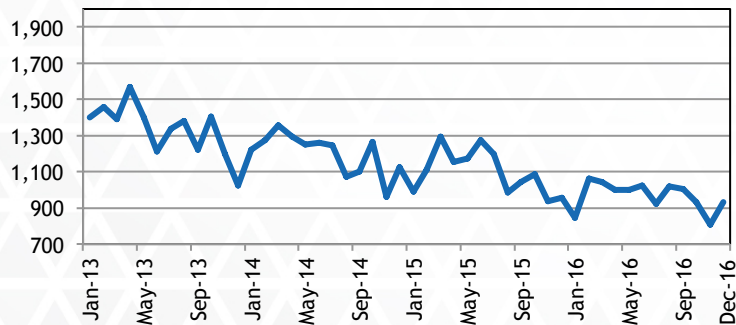
(Millions of gallons)



- The preliminary estimate of gasoline consumption for December 2016 was 77.5 million gallons, for an annual decrease of 11.1%.

Cement Sales*

(Cement bags sold, in thousands)



- Cement Sales for December 2016 totaled .93 million bags, an annual decrease of 2.7%.

Sources: PRHTA and FAFAA

* Not seasonally adjusted.

*The monthly gasoline consumption is estimated by the FAFAA from the Treasury Department's monthly gasoline excise tax collections paid by importers which are transferred to P.R. Highways and Transportation Authority.

Description of the FAFAA-Economic Activity Index

FAFAA-EAI Highlights and Composition

FAFAA Economic Activity Index Highlights

Advantages of the FAFAA-EAI:

- Readily available
- Highly correlated to Puerto Rico's real GNP
- Reliable tool to monitor actual trend of Puerto Rico economy

The FAFAA-EAI is made up of 4 indicators:

- Total Payroll Employment (Establishment Survey/ Thousands of employees)
- Total Electric Power Generation (Millions of kWh)
- Cement Sales (Millions of bags)
- Gas Consumption (Millions of gallons)

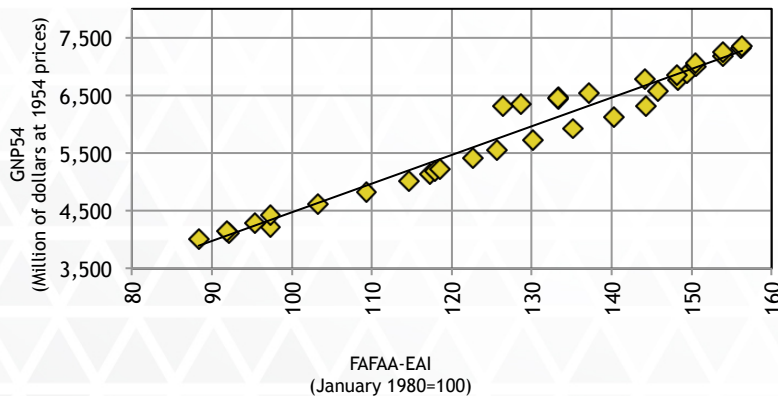
Description of the FAFAA-EAI

- The FAFAA-EAI is a coincident index for the economic activity of Puerto Rico. It is highly correlated to Puerto Rico's real GNP in both, levels and annual growth rates.
- This index's methodology is similar to that used in The Conference Board's coincident index of the US economy. This methodology follows a standard procedure to adjust the data for seasonality and volatility factors.

Real Gross National Product as a function of the FAFAA Economic Activity Index

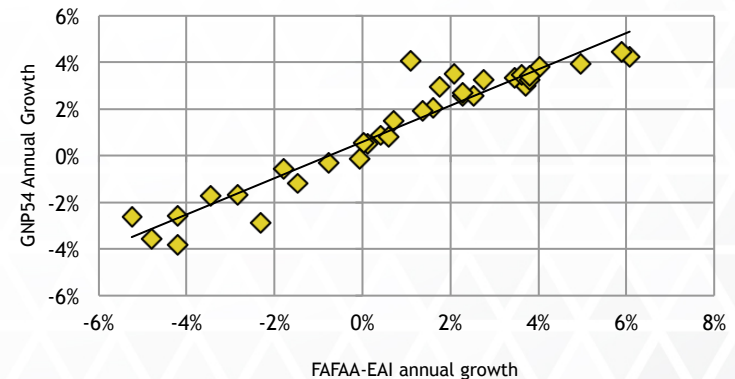
Relationship on the levels: FY1981-FY2015

$$y = 49.683x - 492.72 \quad R^2 = 0.9588$$



Relationship on the growth rates: FY1982-FY2015

$$y = 0.774x + 0.0058 \quad R^2 = 0.9098$$



Sources: FAFAA

Disclaimer

The FAFAA-EAI and its indicators are subject to revisions. While the information comprising the FAFAA-EAI has been obtained from sources FAFAA believes to be reliable, FAFAA is not responsible for any errors or omissions, or for the results obtained from the use of this information.