COMMONWEALTH OF
PUERTO RICO

Puerto Rico Fiscal Agency and
Financial Advisory Authority

July 2016

Economic Activity Index (“FAFAA-EAI”)

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)

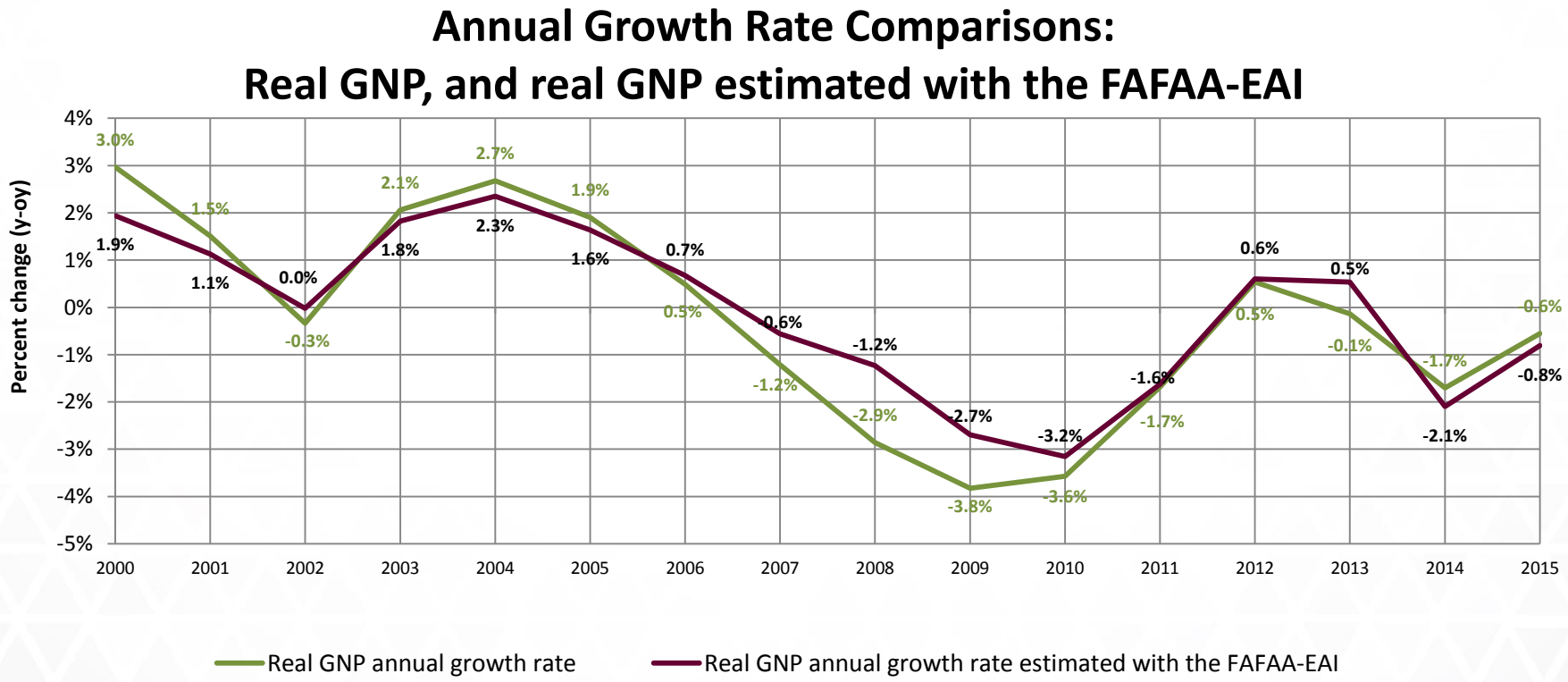
Real GNP annual growth rates estimated with annual growth rates of the FAFAA-EAI track closely the annual growth rates of real GNP published by the Puerto Rico Planning Board.

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.



Real GNP data source: Puerto Rico Planning Board

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Puerto Rico Fiscal Agency and Financial Advisory Authority

Overview - July 2016

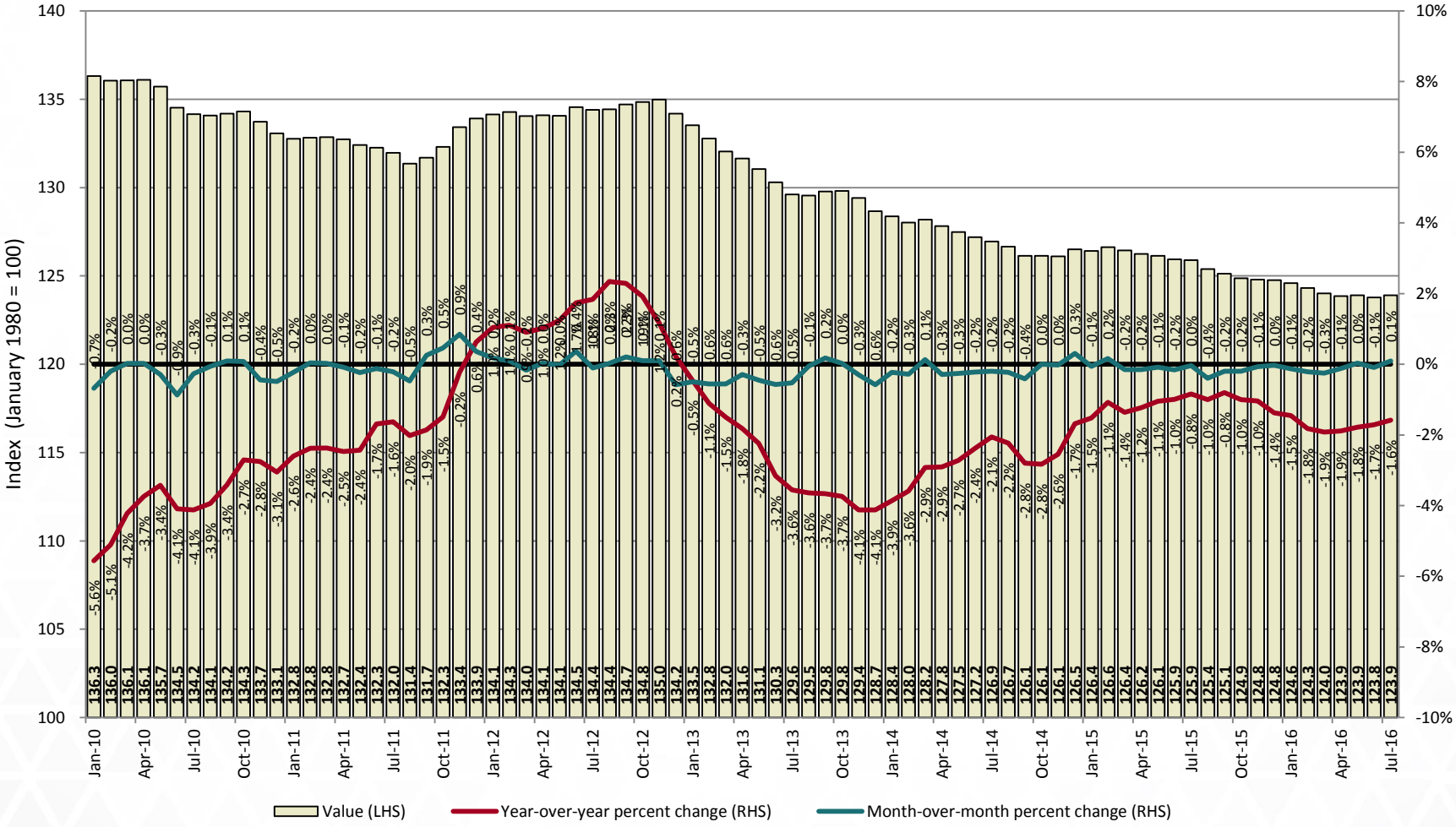
In July 2016, the FAFAA-EAI registered a 1.6% y-o-y reduction, and a month-over-month (m-o-m) increase of 0.1%.

- The July 2016 figure for the FAFAA-EAI was 123.9, a 1.6% reduction compared to July 2015, and a 0.1% increase compared to June 2016.
- Total non-farm payroll employment for July 2016 averaged 877,800, an annual decrease of 0.2%.
- Electric power generation for July 2016 totaled 1,820.7 million kWh, an annual decrease of 2.1%.
- The preliminary number for gasoline consumption* in July 2016 was 83.0 million gallons, 3.7% above June 2015.
- Cement sales for July 2016 totaled 0.92 million bags, registering an annual decrease of 23.2%.

* 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.

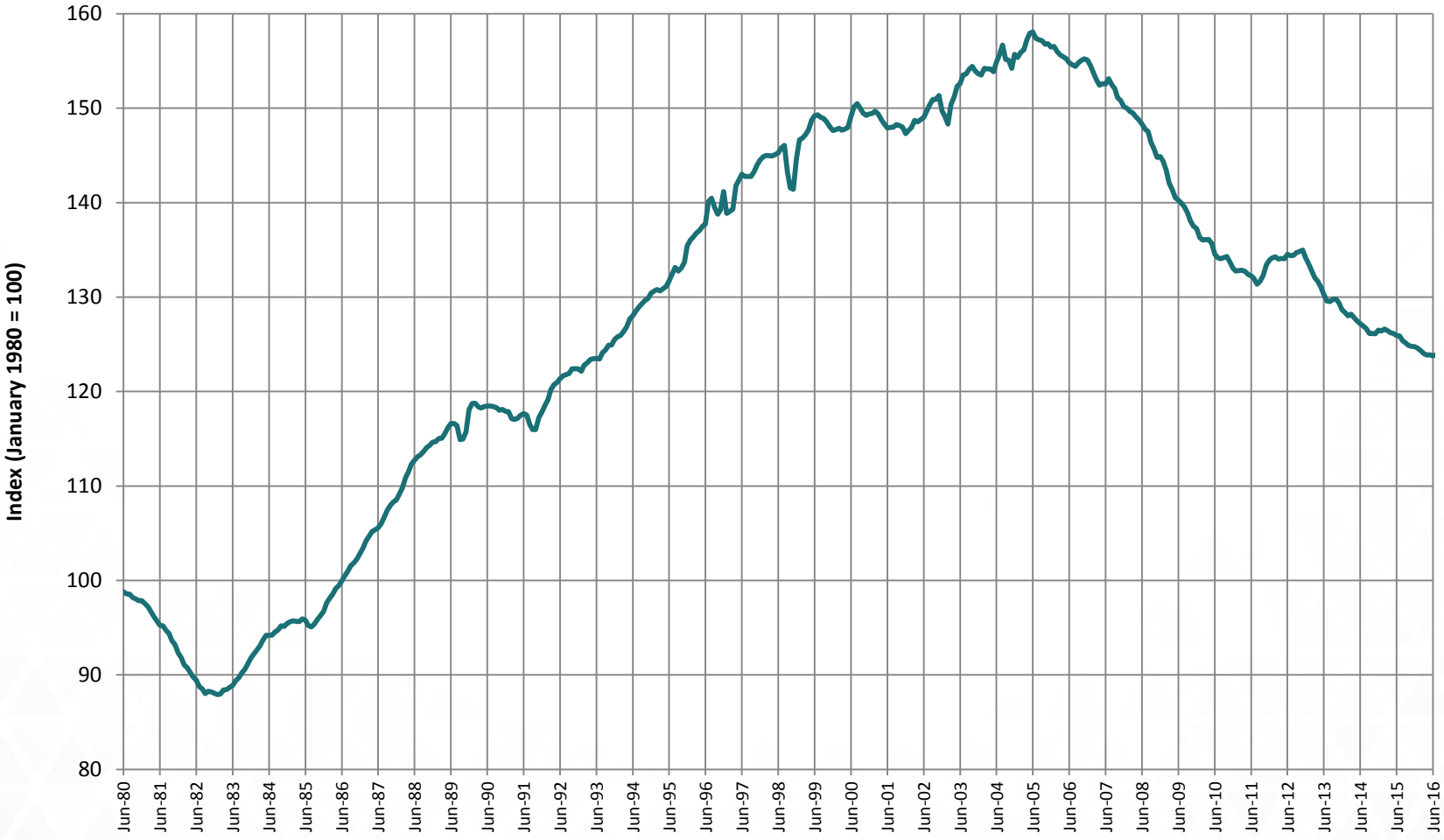
In July 2016, the FAFAA-EAI registered a 1.6% year-over-year (y-o-y) reduction, and a month-over-month (m-o-m) increase of 0.1%.

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



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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	123.9
AUGUST	152.5	147.5	139.6	134.1	131.4	134.4	129.5	126.7	125.4	
SEPTEMBER	152.1	146.4	138.9	134.2	131.7	134.7	129.8	126.1	125.1	
OCTOBER	151.1	145.7	138.1	134.3	132.3	134.8	129.8	126.1	124.9	
NOVEMBER	150.8	144.8	137.5	133.7	133.4	135.0	129.4	126.1	124.8	
DECEMBER	150.2	144.9	137.3	133.1	133.9	134.2	128.7	126.5	124.8	
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	-1.6
AUGUST	-1.3	-3.3	-5.4	-3.9	-2.0	2.3	-3.6	-2.2	-1.0	
SEPTEMBER	-1.8	-3.7	-5.1	-3.4	-1.9	2.3	-3.7	-2.8	-0.8	
OCTOBER	-2.6	-3.6	-5.2	-2.7	-1.5	1.9	-3.7	-2.8	-1.0	
NOVEMBER	-2.9	-4.0	-5.0	-2.7	-0.2	1.2	-4.1	-2.6	-1.0	
DECEMBER	-3.2	-3.5	-5.3	-3.1	0.6	0.2	-4.1	-1.7	-1.4	
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	-2.0
AUGUST	-1.9	-5.0	-8.0	-5.5	-2.7	3.1	-4.9	-2.9	-1.3	
SEPTEMBER	-2.8	-5.7	-7.4	-4.8	-2.5	3.0	-4.9	-3.6	-1.0	
OCTOBER	-4.0	-5.4	-7.6	-3.7	-2.0	2.5	-5.0	-3.7	-1.3	
NOVEMBER	-4.4	-6.0	-7.3	-3.8	-0.3	1.6	-5.6	-3.3	-1.3	
DECEMBER	-5.0	-5.3	-7.6	-4.2	0.8	0.3	-5.5	-2.2	-1.7	
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

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
FISCAL YEAR *										
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	-1.8	
% CHANGE	-2.3	-4.2	-4.8	-2.8	0.0	-0.1	-3.4	-1.8	-1.4	
JUL-JUL										
AVERAGE	153.1	147.8	139.9	134.2	132.0	134.4	129.6	126.9	125.9	123.9
DIFFERENCE	-1.5	-5.3	-7.9	-5.8	-2.2	2.4	-4.8	-2.7	-1.1	-2.0
% CHANGE	-1.0	-3.5	-5.3	-4.1	-1.6	1.8	-3.6	-2.1	-0.8	-1.6
CALENDAR YEAR										
AVERAGE	147.7	140.3	134.9	132.5	134.4	130.7	127.1	125.7		
DIFFERENCE	-4.7	-7.4	-5.4	-2.3	1.9	-3.7	-3.6	-1.4		
% CHANGE	-3.1	-5.0	-3.9	-1.7	1.4	-2.8	-2.7	-1.1		
JAN-JUL										
AVERAGE	149.0	141.7	135.6	132.5	134.2	131.6	127.7	126.2	124.1	
DIFFERENCE	-4.1	-7.3	-6.1	-3.0	1.7	-2.7	-3.9	-1.5	-2.2	
% CHANGE	-2.7	-4.9	-4.3	-2.2	1.3	-2.0	-2.9	-1.2	-1.7	

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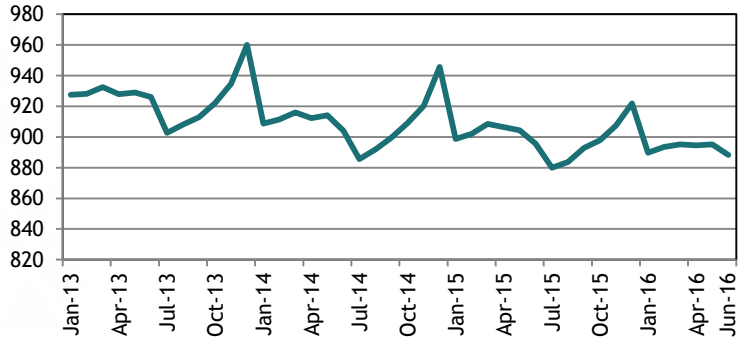
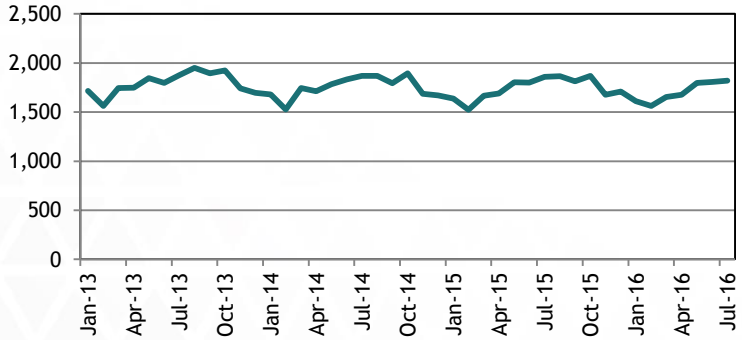
FAFAA Economic Activity Index Components

Total Non-Farm Payroll Employment*
(Thousands of jobs)



- Total non-farm payroll employment for July 2016 averaged 877,800, an annual decrease of 0.2%.

Electric Power Generation*
(Millions of kWh)



- Electric power generation for July 2016 averaged 1,820.7 million kWh, an annual decrease of 2.1%.

Sources: BLS and PREPA
* Not seasonally adjusted.

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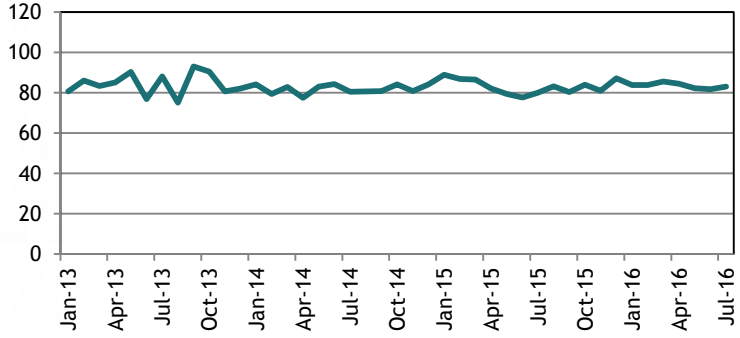
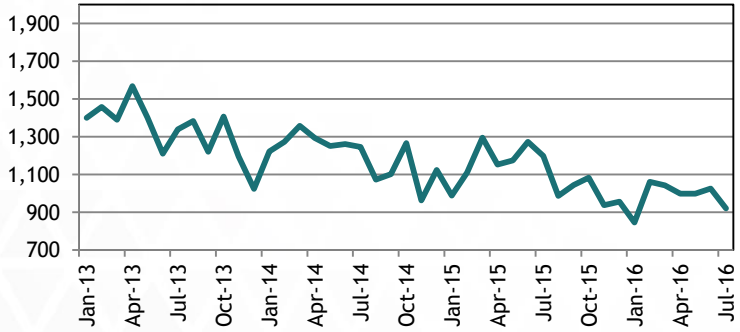
FAFAA Economic Activity Index Components

Gasoline Consumption*
(Millions of gallons)



- The preliminary estimate of gasoline consumption for July 2016 was 83.0 million gallons, for an annual increase of 3.7%.

Cement Sales*
(Cement bags sold, in thousands)



- Cement Sales for July 2016 totaled 0.92 million bags, an annual decrease of 23.2%.

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.

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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/ Thousand of employees)
- Total Electric Power Generation (Millions of kWh)
- Cement Sales (Millions of bags)
- Gas Consumption (Millions of gallons)

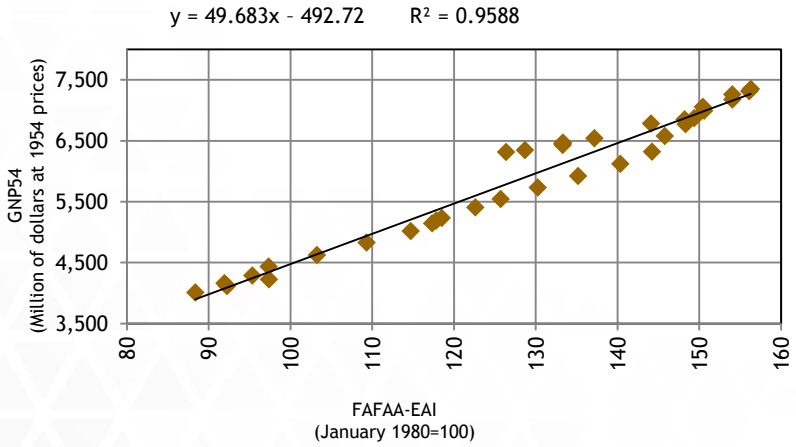
Description of the FAFAA-EAI

- 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.

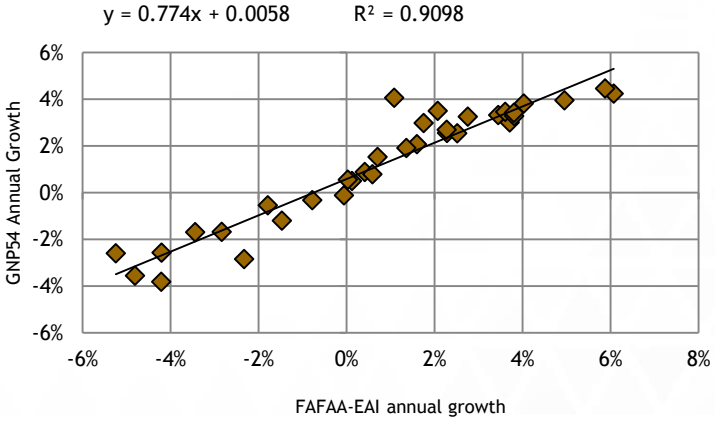
- This index's methodology is similar to that used in The Conference Board's coincident index of the US economy. This methodology follows a standard procedure to adjust the data for seasonality and volatility factors.

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

Relationship on the levels: FY1981-FY2015



Relationship on the growth rates: FY1982-FY2015



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.