



COMMONWEALTH OF  
PUERTO RICO

Government Development Bank  
for Puerto Rico

March 2015

# Economic Activity Index (“GDB-EAI”)

# Objectives of the GDB-EAI

The GDB-EAI was developed as a tool to summarize the behavior of several monthly economic indicators.

The objectives of the GDB-EAI are:

- To summarize the behavior of several monthly economic indicators.
- To be able to publish it in a timely manner.
- That its annual values are highly correlated to the real GNP in two dimensions:
  - On the levels
  - On the growth rates
- Saying that the GDB-EAI is highly correlated to the real GNP is not the same as saying that the Index directly estimates the behavior of the real GNP. In other words, the GDB-EAI is not a monthly estimate of the real GNP.
- It is important to update the index in order to better follow the targeted behavior.

# Objectives of the GDB-EAI (2)

Composite indexes should be updated to improve their reliability and the manner in measuring the targeted behavior.

- The original GDB-EAI was developed to make year-over-year (y-o-y) comparisons. So, the volatility during the same year was not a big concern in its original design.
- However, too much attention to the very short-run behavior of the index requires a solution that diminish the volatility during the same year, to make month-over-month (m-o-m) measurements more reliable.

# Changes to the GDB-EAI

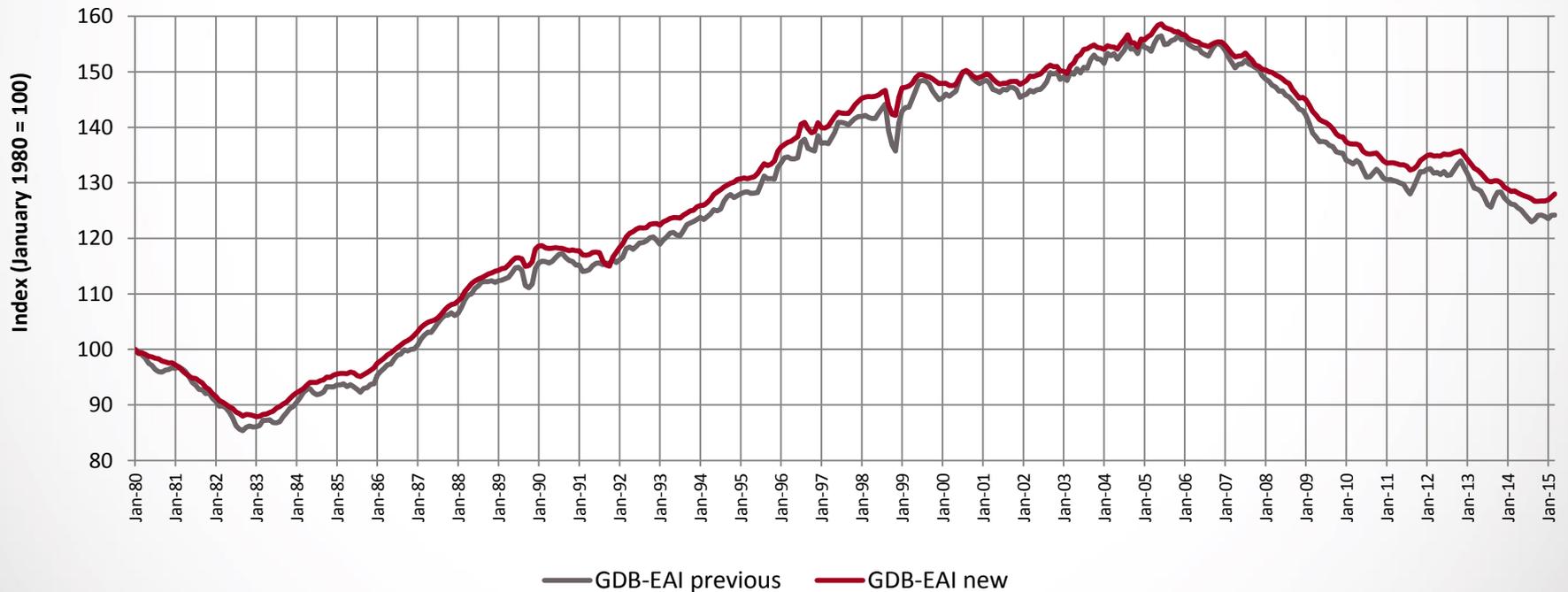
In order to reduce the volatility and to improve the measurement, the seasonal adjustment method to estimate the GDB-EAI was changed.

- The seasonal adjustment method of the components of the new GDB-EAI was changed from the multiplicative moving average method to the tramo-seats method. Among other advantages, this procedure estimates seasonal factors that can vary across different years.
- The method reduces the volatility of the seasonal adjusted series, consequently diminishing the volatility of the composite index.
- In order to facilitate a transition to the new GDB-EAI, the previous version of the index will be published until June 2015 simultaneously with the new version.
- Beginning on July 2015, the new version will be the only one available for the GDB-EAI.

# Changes to the new GDB-EAI (2)

The level of the new index increased slightly while ...

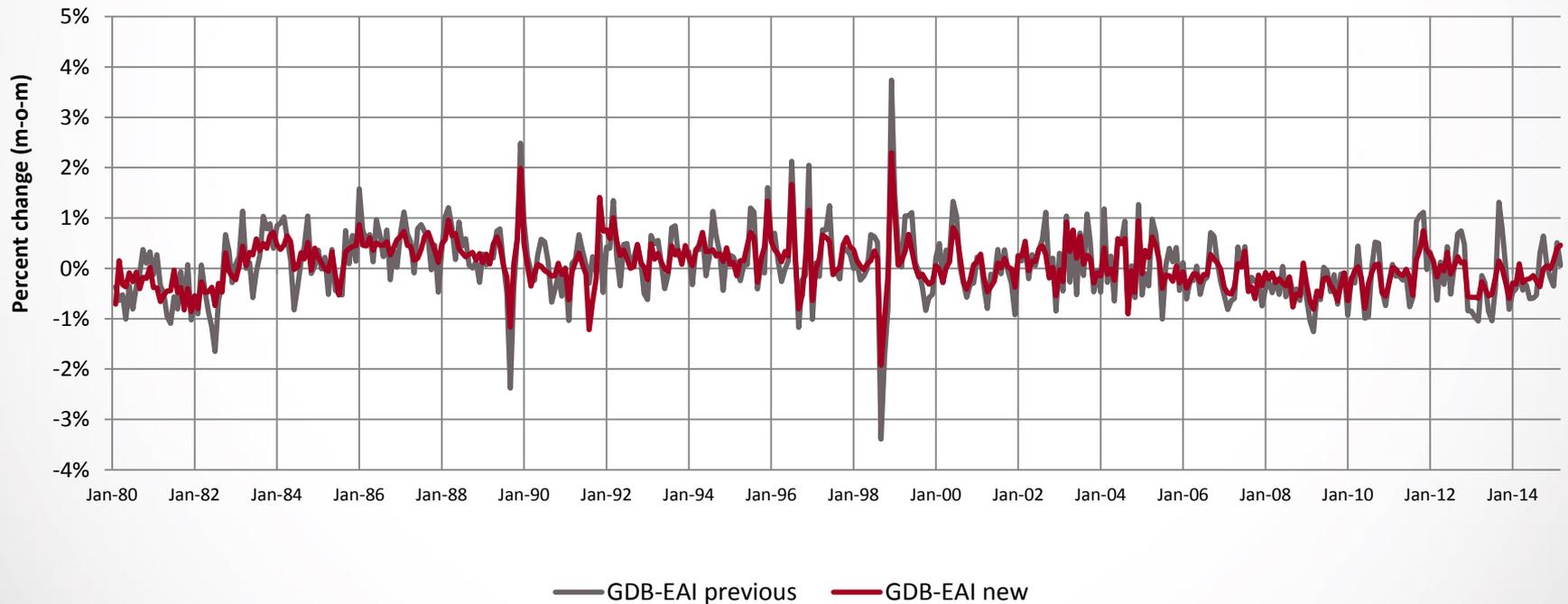
## GDB Economic Activity Index (Previous and New Version)



# Changes to the new GDB-EAI (3)

...the volatility was reduced in terms of the month-over-month percent changes (remaining around  $\pm 2\%$ ) and...

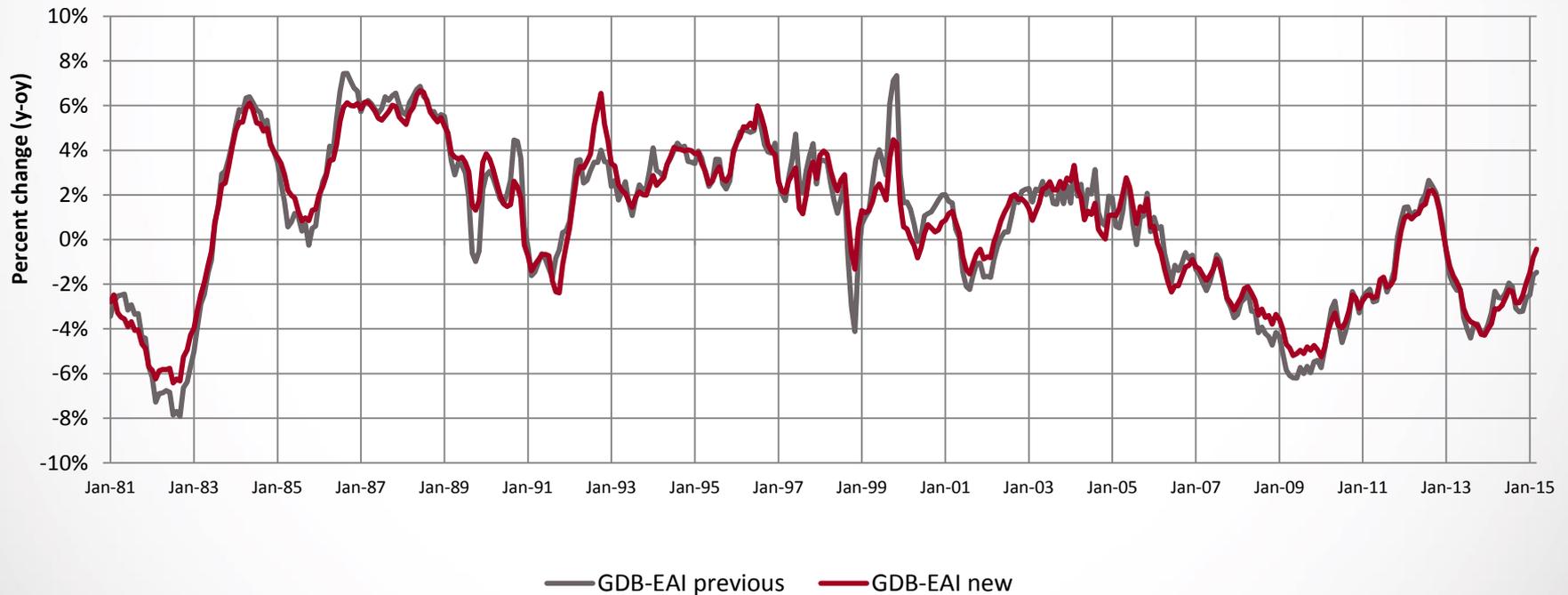
**Economic Activity Index  
(Month-over-month growth rate)**



# Changes to the new GDB-EAI (4)

...in terms of the year-over-year percent changes. The y-o-y percent changes remained similar to the previous estimates for the past three years.

**Economic Activity Index  
(Year-over-year growth rate)**



# Changes to the new GDB-EAI (5)

The month-over-month and year-over-year changes of the new index are smoother than the corresponding changes of the previous index.

- The table shows the value for the last 27 months of both indexes.
- The last quarter has shown slight positive growth on a m-o-m basis, mainly due to increased gasoline consumption.
- To view the complete series, please visit our website.

DATE	GDB EAI previous	Δ%/m	Δ%/y	GDB EAI new	Δ%/m	Δ%/y
Jan-13	131.7	-0.8%	-0.6%	134.2	-0.6%	-0.5%
Feb-13	130.4	-1.0%	-1.6%	133.5	-0.6%	-1.2%
Mar-13	129.1	-1.0%	-2.0%	132.7	-0.6%	-1.6%
Apr-13	128.9	-0.1%	-2.3%	132.3	-0.3%	-1.9%
May-13	128.5	-0.3%	-2.3%	131.8	-0.4%	-2.2%
Jun-13	127.4	-0.8%	-3.5%	131.1	-0.5%	-3.1%
Jul-13	126.1	-1.0%	-4.0%	130.4	-0.5%	-3.5%
Aug-13	125.6	-0.4%	-4.4%	130.2	-0.2%	-3.7%
Sep-13	127.3	1.3%	-3.8%	130.4	0.1%	-3.8%
Oct-13	128.3	0.8%	-3.8%	130.4	0.0%	-3.9%
Nov-13	128.3	0.0%	-4.2%	130.0	-0.3%	-4.2%
Dec-13	127.3	-0.8%	-4.2%	129.2	-0.6%	-4.3%
Jan-14	126.7	-0.5%	-3.8%	128.8	-0.3%	-4.0%
Feb-14	126.2	-0.4%	-3.3%	128.4	-0.3%	-3.8%
Mar-14	126.1	-0.1%	-2.3%	128.5	0.1%	-3.1%
Apr-14	125.5	-0.4%	-2.6%	128.2	-0.3%	-3.1%
May-14	125.1	-0.3%	-2.6%	127.9	-0.2%	-3.0%
Jun-14	124.4	-0.6%	-2.4%	127.6	-0.2%	-2.6%
Jul-14	123.6	-0.6%	-1.9%	127.4	-0.1%	-2.3%
Aug-14	123.0	-0.5%	-2.1%	127.1	-0.2%	-2.3%
Sep-14	123.3	0.3%	-3.1%	126.7	-0.4%	-2.8%
Oct-14	124.1	0.6%	-3.2%	126.7	0.0%	-2.8%
Nov-14	124.2	0.1%	-3.2%	126.7	0.0%	-2.5%
Dec-14	124.0	-0.2%	-2.6%	126.7	0.0%	-1.9%
Jan-15	123.5	-0.4%	-2.5%	126.9	0.2%	-1.5%
Feb-15	124.2	0.5%	-1.6%	127.4	0.4%	-0.8%
Mar-15	124.2	0.1%	-1.5%	128.0	0.5%	-0.4%

# Clarification about the interpretation of the GDB-EAI figures

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

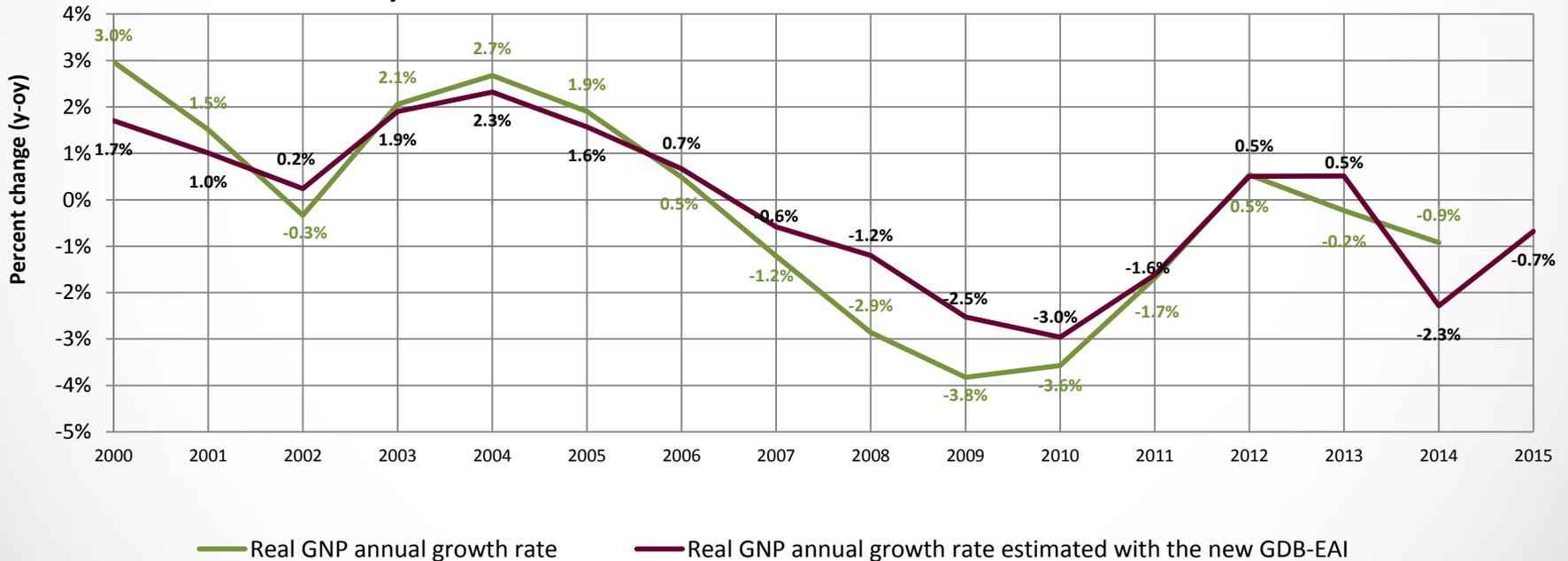
Fiscal Year	New GDB-EAI annual growth	Real GNP annual growth estimated using the new GDB-EAI	Actual real GNP annual growth
2002	-0.4%	0.2%	-0.3%
2003	1.7%	1.9%	2.1%
2004	2.2%	2.3%	2.7%
2005	1.3%	1.6%	1.9%
2006	0.1%	0.7%	0.5%
2007	-1.5%	-0.6%	-1.2%
2008	-2.3%	-1.2%	-2.9%
2009	-4.0%	-2.5%	-3.8%
2010	-4.5%	-3.0%	-3.6%
2011	-2.8%	-1.6%	-1.7%
2012	-0.1%	0.5%	0.5%
2013	-0.1%	0.5%	-0.2%
2014	-3.7%	-2.3%	-0.9%
2015	-1.6%	-0.7%	

- Nevertheless, notice that with some exceptions, the real GNP growth estimates coming from the new EAI are relatively close (although not identical) to the actual real GNP growth figures.
- The annual growth for FY2015 was estimated using the average of the first nine months of the index, and comparing it to the average value for FY2014.
- With FY2014 data of the new GDB-EAI, the real GNP growth estimate shows a larger reduction than the actual figures published by the Planning Board, while the estimates for FY2015 would reflect a decline of 0.7%.

# Clarification about the interpretation of the new GDB-EAI figures (3)

Here is a comparison graph of the actual real GNP figures and the estimates of the annual growth of the real GNP using the figures coming from the new GDB-EAI.

## Annual Growth Rate Comparisons: Real GNP, and real GNP estimated with the new GDB-EAI



Real GNP data source: Puerto Rico Planning Board

# General Commentary - March 2015

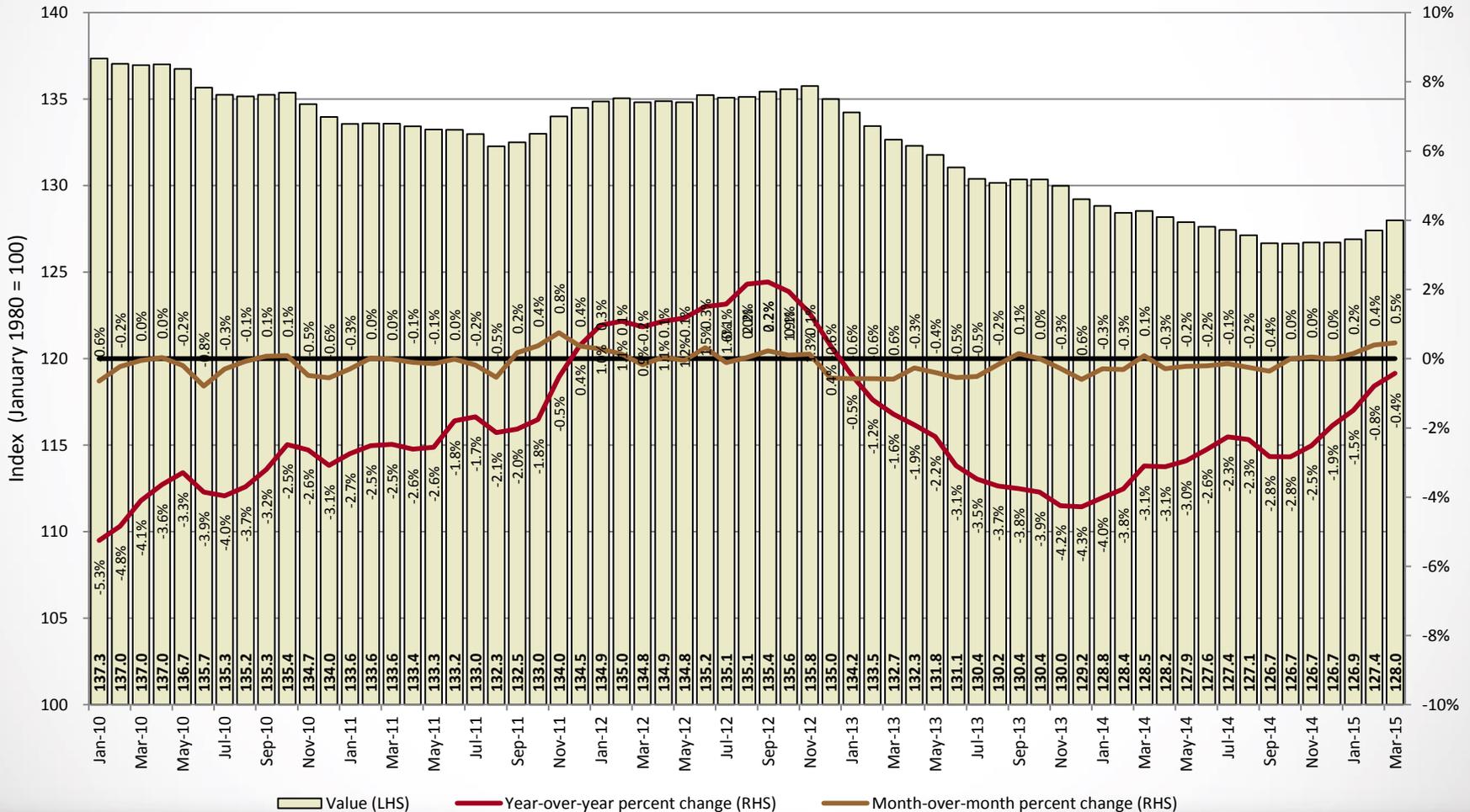
In March 2015, the new GDB-EAI registered a -0.4% year-over-year (y-o-y) reduction, and a month-over-month (m-o-m) increase of 0.5%.

- The March 2015 figure for the **new** EAI was 128.0, a -0.4% reduction compared to March 2014, and an increase of 0.5% compared to February 2015. On a year-to-date basis (July-March) the new EAI shows a reduction of 1.9% with respect the same period of the previous year.
- On the other hand, the March 2015 figure for the **previous** EAI was 124.2, a 1.5% reduction compared to March 2014, and an increase of 0.1% compared to February 2015. Moreover, the FY2015 YTD (July-March) EAI showed a reduction of 2.4% with respect to the corresponding figure for FY2014.
- Total non-farm payroll employment for March 2015 averaged 910,800, an annual decrease of 0.6%. On a YTD, total non-farm payroll employment has declined by 1.5%.
- Electric power generation for March 2015 totaled 1,665.3 million kWh, an annual reduction of 4.6%. On a YTD basis, electric power generation has declined by 2.7%.
- The preliminary number for gasoline consumption\* in March 2015 was 90.7 million gallons, 9.3% above March 2014. On a YTD basis, gasoline consumption has increased by 0.5%.
- Cement sales for March 2015 totaled 1.30 million bags, registering an annual decrease of 4.6%. On a YTD basis, cement sales were down by 11.0%.

\* The monthly gasoline consumption is estimated by the GDB 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.

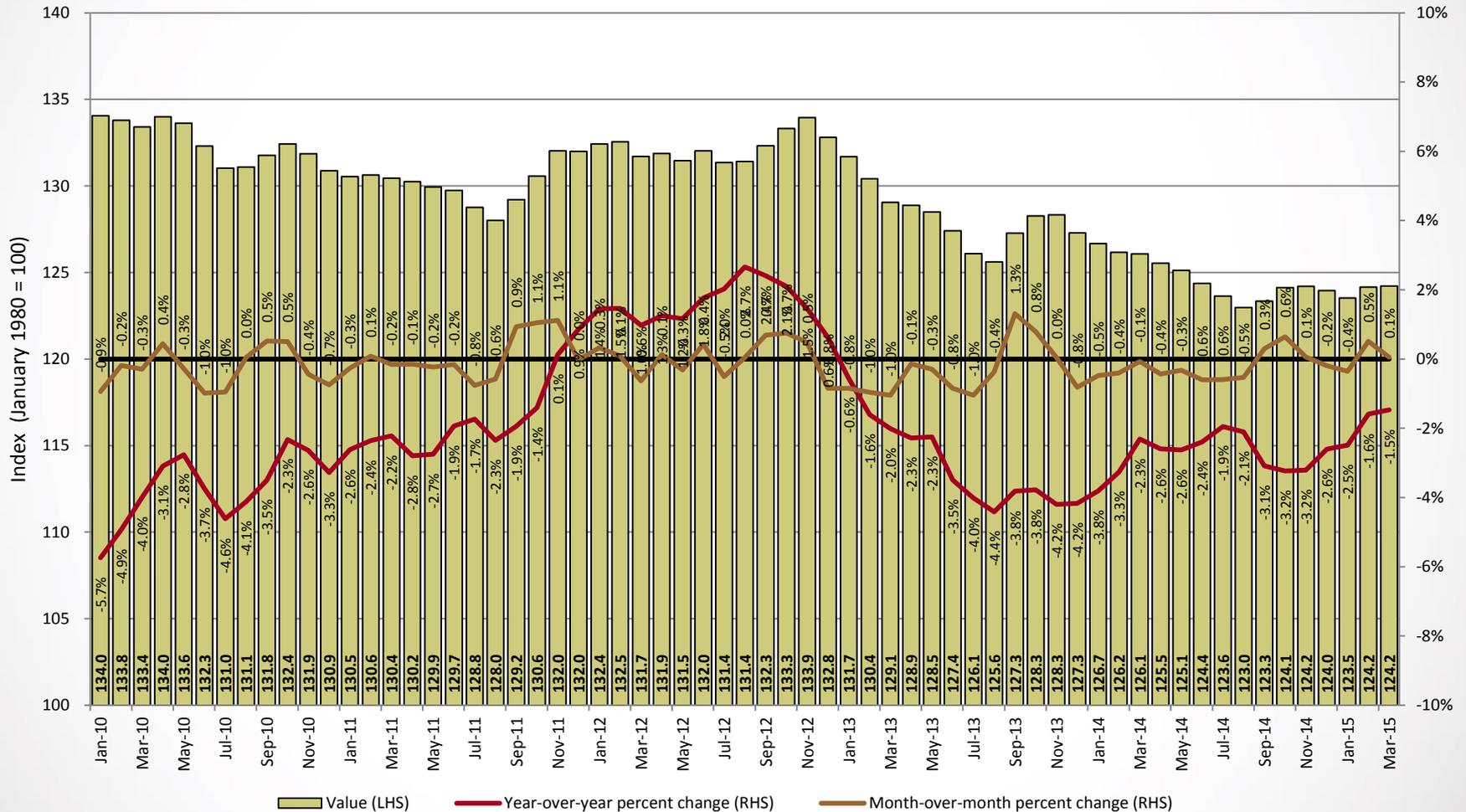
- The new GDB-EAI registered a 0.4% year-over-year reduction in March, after showing a 0.8% y-o-y decrease in February 2015. On a month-over-month basis, the new GDB-EAI increased by 0.5% in March 2015, after an increase of 0.4% in February.

## New GDB Economic Activity Index



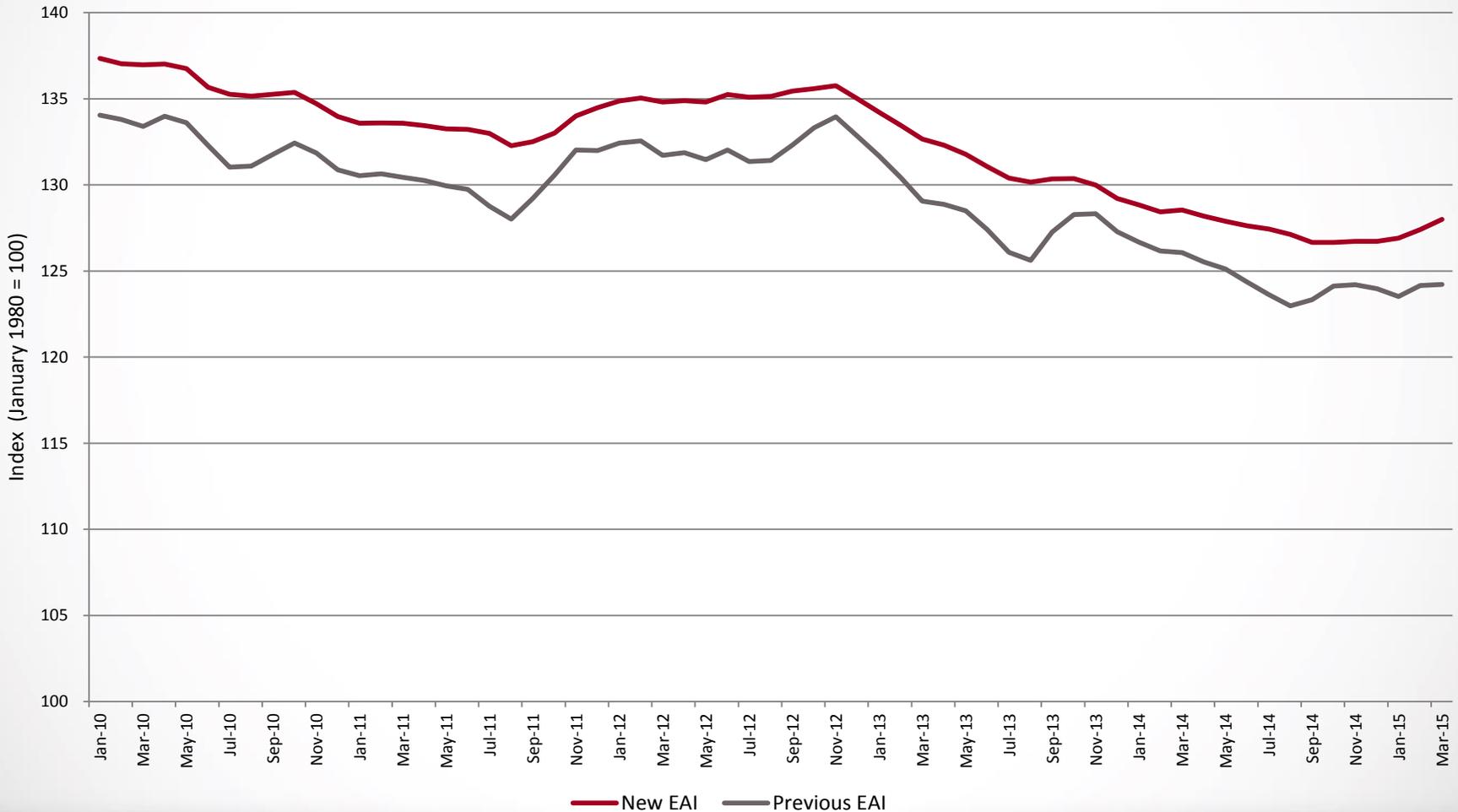
- The previous GDB-EAI registered a 1.5% year-over-year reduction in March, after showing a 1.6% y-o-y decrease in February 2015. On a month-over-month basis, the old GDB-EAI increased by 0.1% in March 2015, after an increase of 0.5% in February.

## Previous GDB Economic Activity Index



- The previous GDB-EAI registered a 1.5% year-over-year reduction in March, after showing a 1.6% y-o-y decrease in February 2015. The new GDB-EAI shows a reduction of 0.4% y-o-y in March, after a reduction of 0.8% y-o-y in February 2015.

## Comparison of the GDB-EAI: Previous and New



# Previous Index

# New Index

**PUERTO RICO MONTHLY ECONOMIC INDICATORS**  
GDB Economic Activity Index, Previous  
(January 1980 = 100)

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
JULY	153.9	154.9	153.1	152.1	145.7	137.4	131.0	128.8	131.4	126.1	123.6
AUGUST	155.3	155.0	152.8	151.4	145.5	136.7	131.1	128.0	131.4	125.6	123.0
SEPTEMBER	154.1	155.6	153.9	151.1	144.8	136.6	131.8	129.2	132.3	127.3	123.3
OCTOBER	154.2	155.8	154.9	150.7	144.2	135.6	132.4	130.6	133.3	128.3	124.1
NOVEMBER	153.3	156.4	155.1	150.4	143.3	135.4	131.9	132.0	133.9	128.3	124.2
DECEMBER	155.2	155.8	154.7	149.3	143.1	135.3	130.9	132.0	132.8	127.3	124.0
JANUARY	154.4	155.9	153.8	148.7	142.2	134.0	130.5	132.4	131.7	126.7	123.5
FEBRUARY	154.2	155.0	152.6	148.3	140.7	133.8	130.6	132.5	130.4	126.2	124.2
MARCH	153.7	154.6	151.6	147.6	139.0	133.4	130.4	131.7	129.1	126.1	124.2
APRIL	155.2	154.2	150.7	147.2	138.3	134.0	130.2	131.9	128.9	125.5	
MAY	156.3	154.3	151.3	146.5	137.4	133.6	129.9	131.5	128.5	125.1	
JUNE	156.5	153.5	151.4	146.5	137.4	132.3	129.7	130.2	127.4	124.4	

**YEAR OVER YEAR PERCENTAGE CHANGE**

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
JULY	2.0	0.6	-1.1	-0.7	-4.2	-5.7	-4.6	-1.7	2.0	-4.0	-1.9
AUGUST	3.1	-0.2	-1.4	-0.9	-3.9	-6.0	-4.1	-2.3	2.7	-4.4	-2.1
SEPTEMBER	1.2	1.0	-1.1	-1.8	-4.2	-5.7	-3.5	-1.9	2.4	-3.8	-3.1
OCTOBER	0.7	1.1	-0.6	-2.7	-4.4	-6.0	-2.3	-1.4	2.1	-3.8	-3.2
NOVEMBER	0.6	2.1	-0.9	-3.0	-4.7	-5.5	-2.6	0.1	1.5	-4.2	-3.2
DECEMBER	1.9	0.4	-0.7	-3.5	-4.2	-5.4	-3.3	0.9	0.6	-4.2	-2.6
JANUARY	1.9	1.0	-1.3	-3.4	-4.3	-5.7	-2.6	1.4	-0.6	-3.8	-2.5
FEBRUARY	0.6	0.5	-1.6	-2.8	-5.1	-4.9	-2.4	1.5	-1.6	-3.3	-1.6
MARCH	0.5	0.6	-1.9	-2.7	-5.8	-4.0	-2.2	1.0	-2.0	-2.3	-1.5
APRIL	1.3	-0.6	-2.3	-2.3	-6.1	-3.1	-2.8	1.3	-2.3	-2.6	
MAY	2.6	-1.3	-1.9	-3.2	-6.2	-2.8	-2.7	1.2	-2.3	-2.6	
JUNE	2.2	-1.9	-1.3	-3.2	-6.2	-3.7	-1.9	1.8	-3.5	-2.4	

**SUMMARY DATA**

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
<b>FISCAL YEAR</b>											
AVERAGE	154.7	155.1	153.0	149.2	141.8	134.8	130.9	131.1	130.9	126.4	
DIFFERENCE	2.4	0.4	-2.1	-3.8	-7.4	-6.9	-4.0	0.2	-0.1	-4.5	
% CHANGE	1.6	0.3	-1.3	-2.5	-4.9	-4.9	-2.9	0.1	-0.1	-3.5	
<b>JUL-MAR</b>											
AVERAGE	154.2	155.4	153.6	149.9	143.2	135.4	131.2	130.8	131.8	126.9	123.8
DIFFERENCE	2.1	1.2	-1.8	-3.7	-6.8	-7.8	-4.2	-0.4	1.0	-5.0	-3.1
% CHANGE	1.4	0.8	-1.2	-2.4	-4.5	-5.4	-3.1	-0.3	0.8	-3.8	-2.4
<b>CALENDAR YEAR</b>											
AVERAGE	155.3	154.3	151.4	145.9	137.7	132.5	130.2	132.3	128.2	124.7	
DIFFERENCE	1.8	-1.0	-3.0	-5.4	-8.3	-5.2	-2.3	2.1	-4.0	-3.6	
% CHANGE	1.2	-0.6	-1.9	-3.6	-5.7	-3.7	-1.8	1.6	-3.1	-2.8	
<b>JAN-MAR</b>											
AVERAGE	154.1	155.2	152.7	148.2	140.6	133.7	130.5	132.2	130.4	126.3	124.0
DIFFERENCE	1.5	1.1	-2.5	-4.5	-7.5	-6.9	-3.2	1.7	-1.8	-4.1	-2.3
% CHANGE	1.0	0.7	-1.6	-2.9	-5.1	-4.9	-2.4	1.3	-1.4	-3.1	-1.9

**PUERTO RICO MONTHLY ECONOMIC INDICATORS**  
GDB Economic Activity Index, New  
(January 1980 = 100)

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
JULY	155.8	158.0	154.7	153.4	148.2	140.8	135.3	133.0	135.1	130.4	127.4
AUGUST	156.7	157.8	154.5	152.7	147.9	140.4	136.2	132.3	135.1	130.2	127.1
SEPTEMBER	155.3	157.6	155.0	152.1	146.8	139.7	135.3	132.5	135.4	130.4	126.7
OCTOBER	155.2	157.2	155.2	151.2	146.0	138.8	135.4	133.0	135.6	130.4	126.7
NOVEMBER	154.5	157.2	155.4	151.0	145.3	138.4	134.7	134.0	135.8	130.0	126.7
DECEMBER	155.9	156.8	155.4	150.5	145.4	138.2	134.0	134.5	135.0	129.2	126.7
JANUARY	155.7	156.7	154.8	150.3	145.0	137.3	133.6	134.9	134.2	128.8	126.9
FEBRUARY	156.3	156.1	154.0	150.0	144.0	137.0	133.6	135.0	133.5	128.4	127.4
MARCH	156.6	155.7	153.2	149.9	142.8	137.0	133.6	134.8	132.7	128.5	128.0
APRIL	157.6	155.5	152.7	149.4	142.2	137.0	133.4	134.9	132.3	128.2	
MAY	158.4	155.3	152.8	149.1	141.4	136.7	133.3	134.8	131.8	127.9	
JUNE	158.6	154.9	152.9	148.7	141.1	135.7	133.2	135.2	131.1	127.6	

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
JULY	1.1	1.4	-2.1	-0.9	-3.4	-5.0	-4.0	-1.7	1.6	-3.5	-2.3
AUGUST	1.6	0.7	-2.1	-1.2	-3.1	-5.1	-3.7	-2.1	2.2	-3.7	-2.3
SEPTEMBER	0.5	1.5	-1.7	-1.8	-3.5	-4.8	-3.2	-2.0	2.2	-3.8	-2.8
OCTOBER	0.2	1.3	-1.2	-2.6	-3.4	-5.0	-2.5	-1.8	1.9	-3.9	-2.8
NOVEMBER	0.0	1.8	-1.2	-2.9	-3.8	-4.7	-2.6	-0.5	1.3	-4.2	-2.5
DECEMBER	1.1	0.6	-0.9	-3.2	-3.4	-4.9	-3.1	0.4	0.4	-4.3	-1.9
JANUARY	1.1	0.6	-1.2	-2.9	-3.6	-5.3	-2.7	1.0	-0.5	-4.0	-1.5
FEBRUARY	1.1	-0.2	-1.3	-2.6	-4.0	-4.8	-2.5	1.1	-1.2	-3.8	-0.8
MARCH	1.4	-0.6	-1.6	-2.2	-4.7	-4.1	-2.5	0.9	-1.6	-3.1	-0.4
APRIL	2.0	-1.3	-1.8	-2.1	-4.9	-3.6	-2.6	1.1	-1.9	-3.1	
MAY	2.8	-1.9	-1.6	-2.4	-5.2	-3.3	-2.6	1.2	-2.2	-3.0	
JUNE	2.3	-2.3	-1.3	-2.7	-5.1	-3.9	-1.8	1.5	-3.1	-2.6	

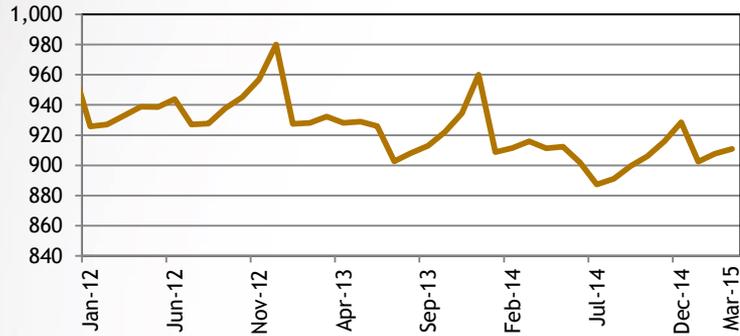
**SUMMARY DATA**

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
<b>FISCAL YEAR</b>											
AVERAGE	156.4	156.6	154.2	150.7	144.7	138.1	134.2	134.1	134.0	129.2	
DIFFERENCE	2.0	0.2	-2.3	-3.5	-6.0	-6.6	-3.9	-0.1	-0.1	-4.8	
% CHANGE	1.3	0.1	-1.5	-2.3	-4.0	-4.5	-2.8	-0.1	-0.1	-3.6	
<b>JUL-MAR</b>											
AVERAGE	155.8	157.0	154.7	151.2	145.7	138.6	134.5	133.8	134.7	129.6	127.1
DIFFERENCE	1.4	1.2	-2.3	-3.5	-5.5	-7.1	-4.1	-0.7	0.9	-5.1	-2.5
% CHANGE	0.9	0.8	-1.5	-2.2	-3.6	-4.9	-3.0	-0.5	0.7	-3.8	-1.9
<b>CALENDAR YEAR</b>											
AVERAGE	157.3	155.4	152.6	148.1	141.1	135.9	133.3	135.1	131.3	127.6	
DIFFERENCE	2.3	-2.0	-2.8	-4.5	-7.0	-6.2	-2.6	1.8	-3.8	-3.8	
% CHANGE	1.5	-1.2	-1.8	-3.0	-4.7	-3.7	-1.9	1.4	-2.8	-2.9	
<b>JAN-MAR</b>											
AVERAGE	156.2	156.1	154.0	150.1	143.9	137.1	133.6	134.9	133.4	128.6	127.4
DIFFERENCE	1.8	-0.1	-2.1	-3.9	-6.1	-6.8	-3.5	1.3	-1.5	-4.8	-1.2
% CHANGE	1.2	-0.1	-1.4	-2.6	-4.1	-4.7	-2.6	1.0	-1.1	-3.6	-0.9

# GDB Economic Activity Index Components

## Total Non-Farm Payroll Employment\*

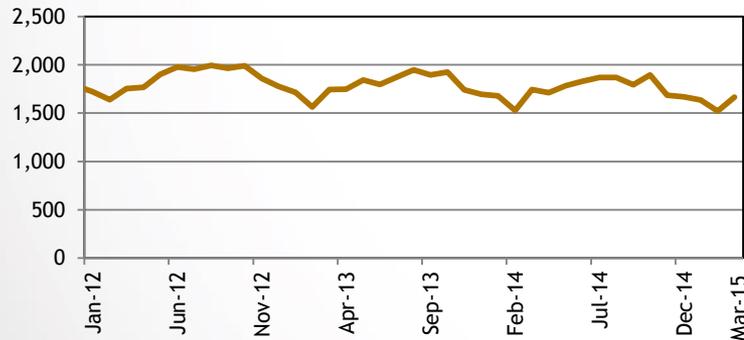
(Thousands of jobs)



- Total non-farm payroll employment for March 2015 averaged 910,800, an annual decrease of 0.6%.

## Electric Power Generation\*

(Millions of kWh)



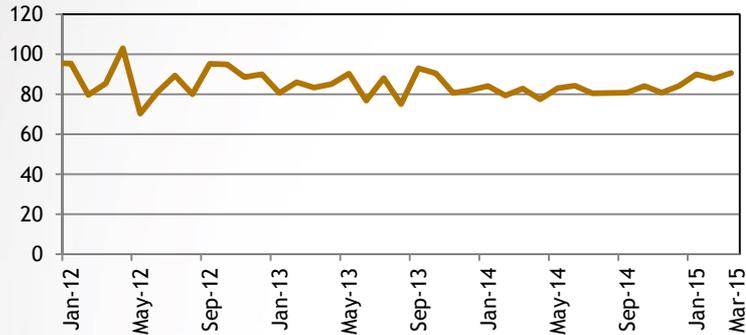
- Electric power generation for March 2015 averaged 1,665.3 million kWh, an annual decrease of 4.6%.

Sources: BLS and PREPA  
\* Not seasonally adjusted.

# GDB Economic Activity Index Components

## Gasoline Consumption\*

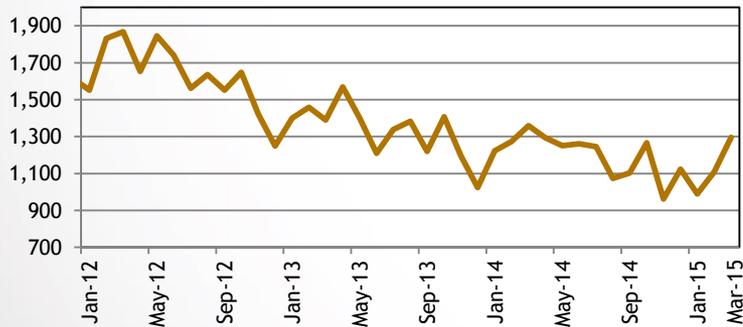
(Millions of gallons)



- The preliminary estimate of gasoline consumption for March 2015 was 90.7 million gallons, for an annual increase of 9.3%.

## Cement Sales\*

(Cement bags sold, in thousands)



- Cement Sales for March 2015 totaled 1.30 million bags, an annual decrease of 4.6%.

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

Sources: PRHTA and GDB  
\* Not seasonally adjusted.

# **Description of the GDB-Economic Activity Index**

# GDB Economic Activity Index Highlights and Composition

## Advantages of the new GDB-EAI:

- Readily available
- Highly correlated to Puerto Rico's real GNP
- Reliable tool to monitor actual trend of Puerto Rico economy
- **Month-over-month comparisons are now more reliable**

## The GDB-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)

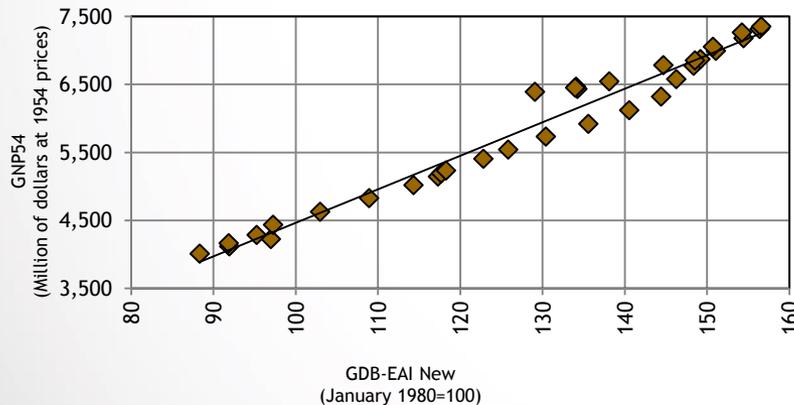
# Description of the New GDB-EAI

- The new GDB-EAI is a coincident index for the economic activity of Puerto Rico. It is highly correlated to Puerto Rico's real GNP not only on the levels, but also on the annual growth rates.
- This index was developed following the methodology similar to that used by The Conference Board in their coincident index. This methodology follows a standard procedure to adjust the data for seasonality and volatility factors.

## Real Gross National Product as a function of the New GDB Economic Activity Index

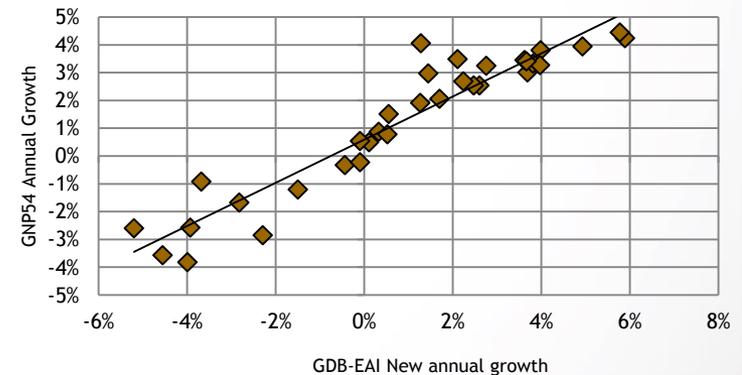
Relationship on the levels: FY1981-FY2014

$$y = 49.328x - 469.61 \quad R^2 = 0.99679$$



Relationship on the growth rates: FY1981-FY2014

$$y = 0.7769x + 0.0058 \quad R^2 = 0.8963$$



Sources: GDB

# Disclaimer

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