



COMMONWEALTH OF  
PUERTO RICO

Government Development Bank  
for Puerto Rico

December 2013

# Economic Activity Index (“GDB-EAI”)

# 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. Moreover, the GDB-EAI annual growth rates are not the same as the real GNP growth rates, because the former are more volatile than the latter.

- When it is annualized, the level of the EAI is highly correlated with the **level** of the real GNP (with a Pearson correlation coefficient of 0.9883, for FY1981-FY2012).
- The annual **growth rates** of both variables are also highly correlated (with a Pearson correlation coefficient of 0.9461, for FY1982-FY2012).
- Nevertheless, the annual growth rate of the EAI **IS NOT** the same as the annual growth rate of the real GNP. Being highly correlated does not mean being equal.
- In order to approximate real GNP growth from the EAI annual growth, we estimate a linear regression model relating both variables.
- Plugging in the EAI annual growth rates into the resulting equation we obtain estimates for the annual growth rates of the real GNP.
- This transformation generates an approximation of the actual real GNP growth figures.

# Clarification about the interpretation of the GDB-EAI figures (2)

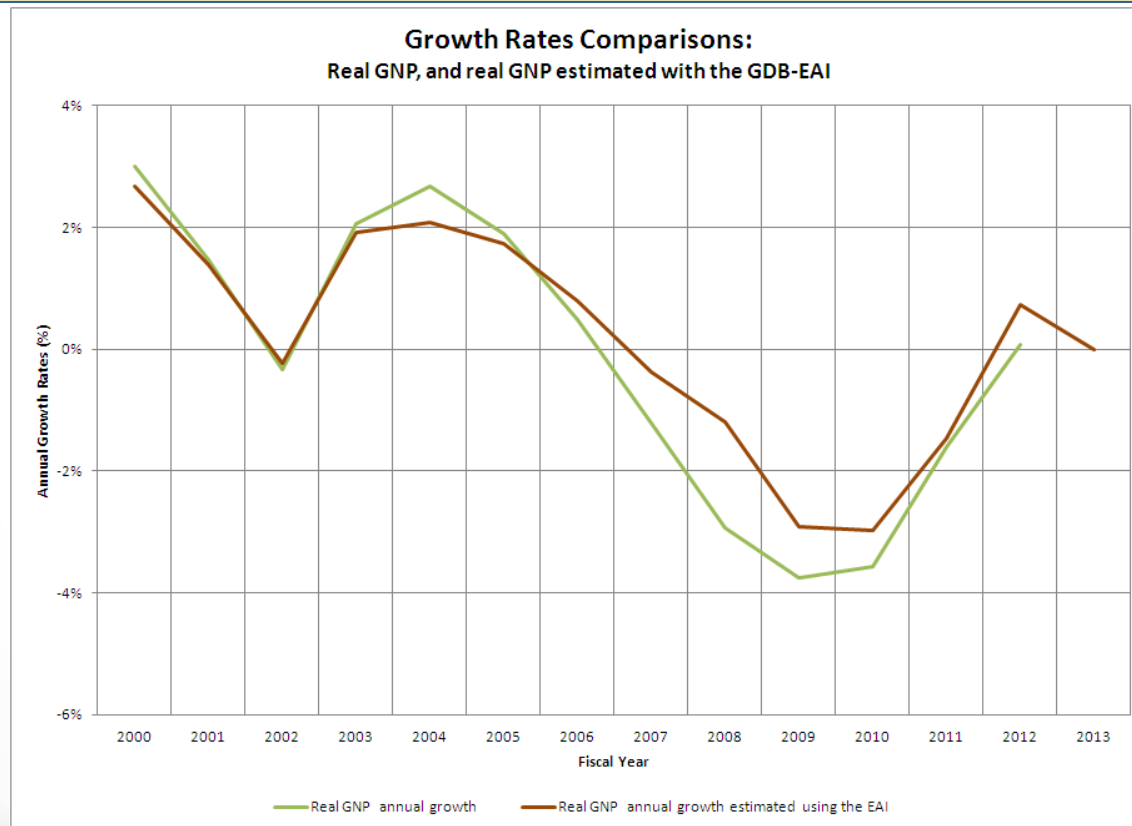
Here is a comparison of the annual growth rates of the GDB-EAI with the actual real GNP figures. There are also estimates of the annual growth of the real GNP using the figures coming from the GDB-EAI.

Fiscal Year	EAI annual growth	Real GNP annual growth estimated using the EAI	Actual Real GNP annual growth
2000	2.9%	2.7%	3.0%
2001	1.1%	1.4%	1.5%
2002	-1.2%	-0.2%	-0.3%
2003	1.8%	1.9%	2.1%
2004	2.0%	2.1%	2.7%
2005	1.6%	1.7%	1.9%
2006	0.3%	0.8%	0.5%
2007	-1.4%	-0.4%	-1.2%
2008	-2.5%	-1.2%	-2.9%
2009	-4.9%	-2.9%	-3.8%
2010	-5.0%	-3.0%	-3.6%
2011	-2.9%	-1.5%	-1.6%
2012	0.2%	0.7%	0.1%

- Notice that the real GNP growth estimates coming from the EAI are relatively close to the actual real GNP growth figures.

# Clarification about the interpretation of the 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 GDB-EAI.



# General Commentary - December 2013

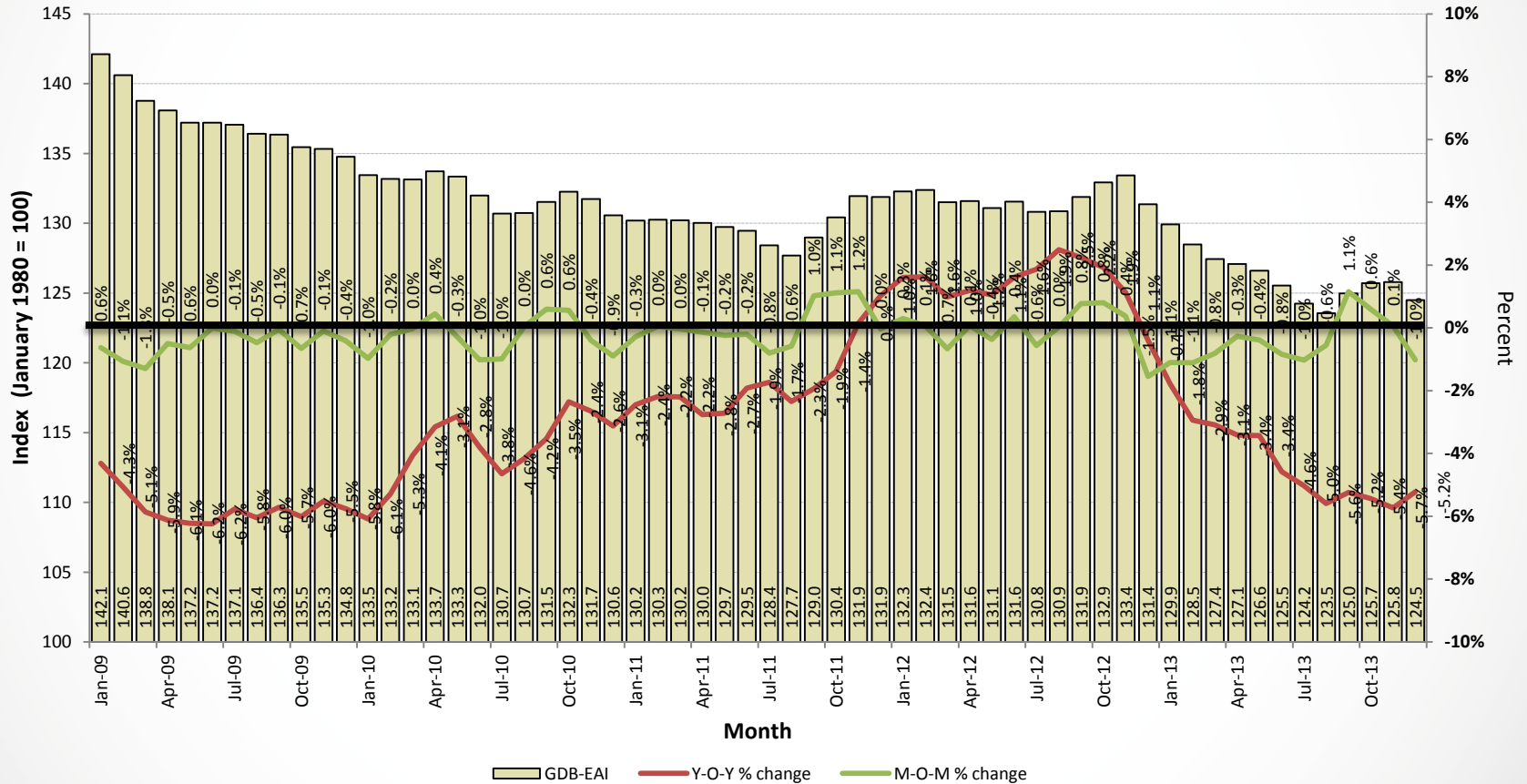
GDB-EAI for the month of December registered a decrease of 1.0% on a month-over-month basis and a 5.2% reduction compared to December 2012

- On a month-to-month basis, December is the first decline since August and consistent with a stabilization scenario. December 2013 EAI was 124.5, a 5.2% reduction compared to December 2012.
- The preliminary number of gasoline consumption\* was 82.1 million gallons in December 2013, 8.9% below December 2012.
- Total non-farm payroll employment for December 2013 averaged 922,600, an annual reduction of 2.6%. However, employment has grown in every single month since August 2013.
- Electric power generation for December 2013 totaled 1,695.3 million kWh, an annual decrease of 4.7%.
- Cement sales for December 2013 totaled 1.02 million bags, registering an annual reduction of 18.0%. Rainfall in December 2013 was 43% higher than in December 2012 and probably contributed to the decline.

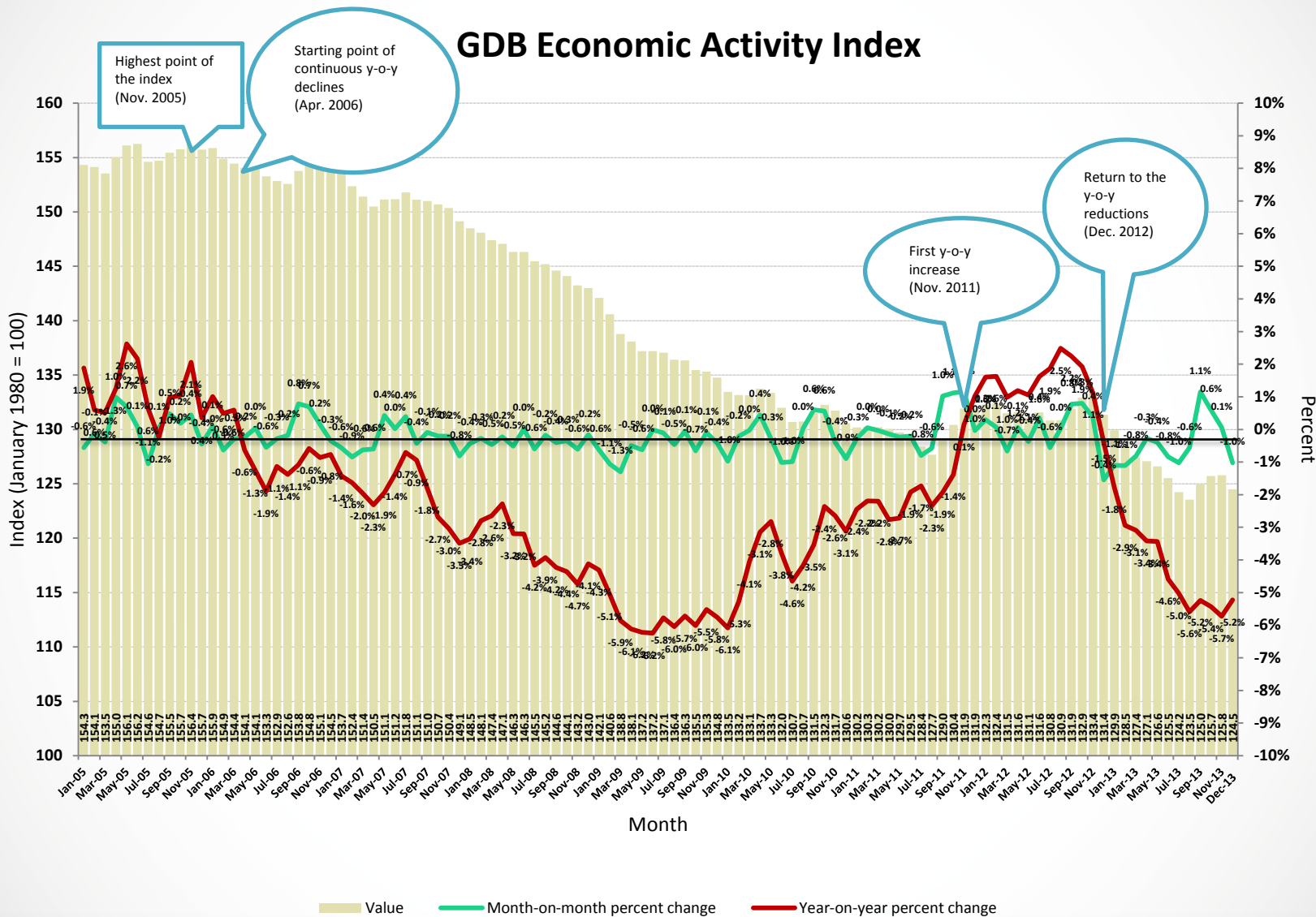
\* The monthly gasoline consumption is estimated by the GDB from the Treasury Department's monthly gasoline excise tax collections paid by importers which are transferred to P.R. Highways and Transportation Authority. These collections fluctuate due to changes in inventories and purchases, which do not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

- For December 2013 the GDB-EAI reflected year-over-year (y-o-y) reductions of 5.2%.
- After showing three consecutive months of positive month-over-month (m-o-m) growth rates the Index exhibited in December a reduction of 1%, on a m-o-m basis.

## GDB Economic Activity Index



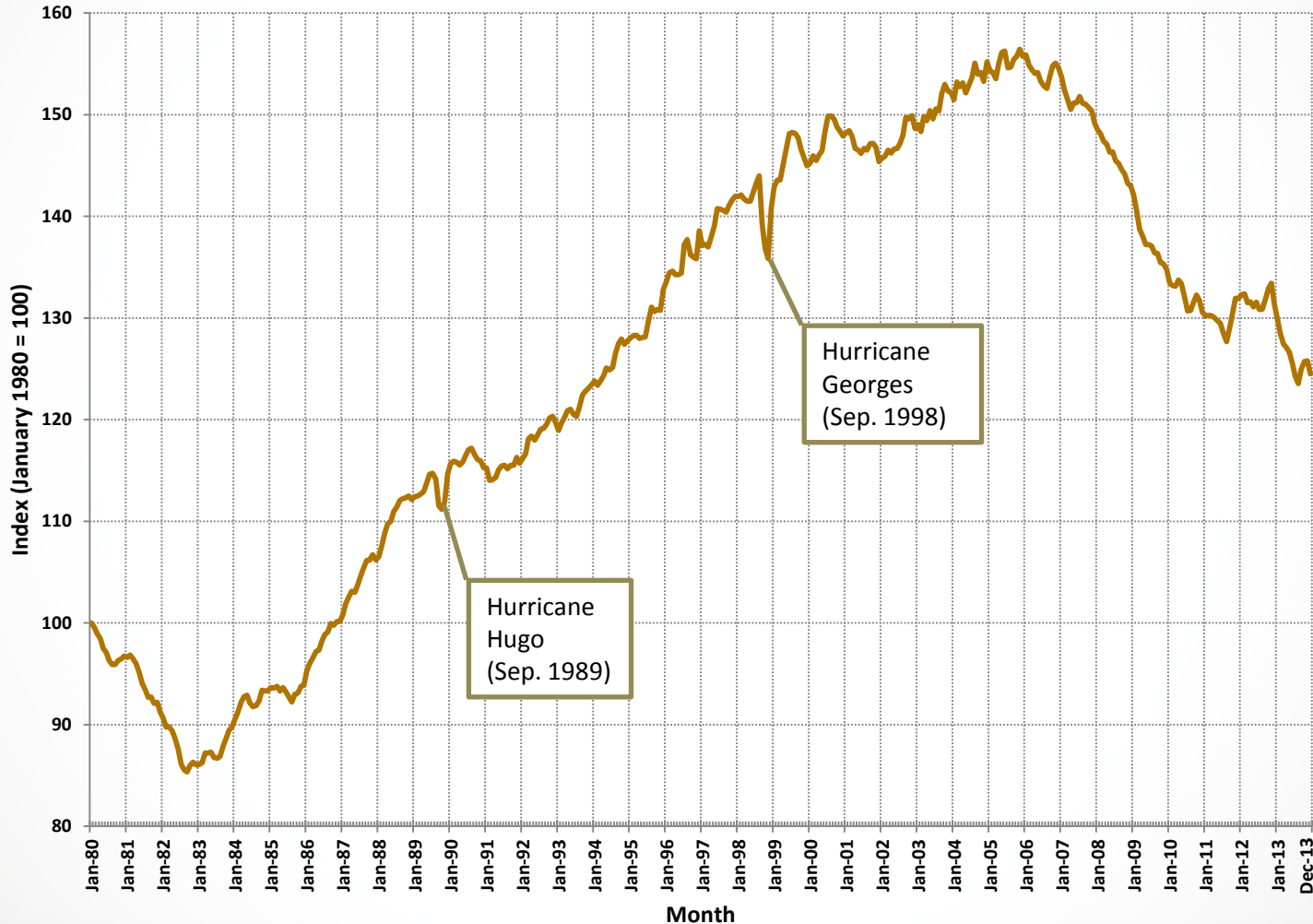
- The behavior of the EAI may be observed here since January 2005. During 2005 the EAI reached its highest level, and during 2006 it started to show significant year-over-year reductions.





- The complete series of the EAI, which starts in January 1980, shows the recessions of FY1982 and FY1983, the mild recession of FY1991, the recession of 2001, and the sharp but temporary effects of two hurricanes. It also shows the path of the Index since the beginning of the current recession.

**GDB Economic Activity Index**

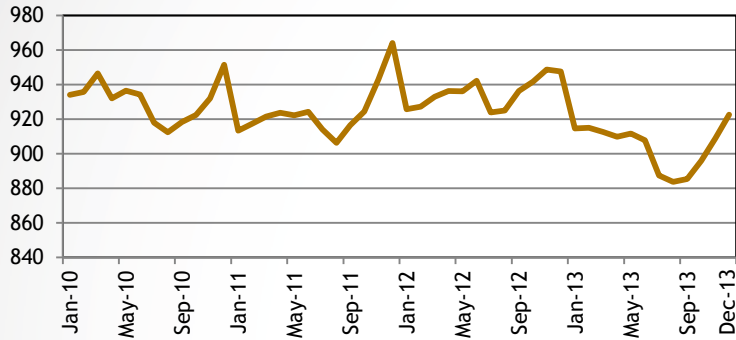




# GDB Economic Activity Index Components

## Total Non-Farm Payroll Employment\*

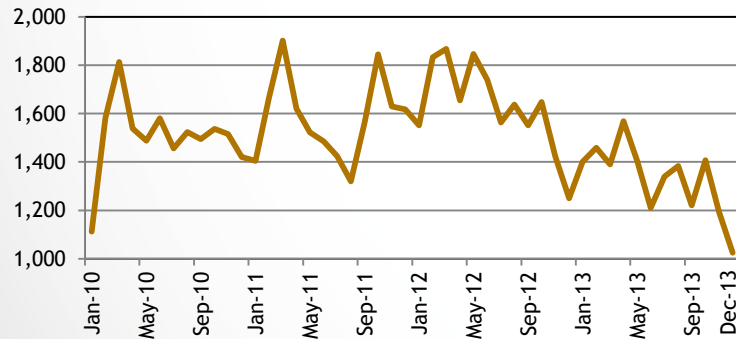
(Thousands of jobs)



- Total non-farm payroll employment for December 2013 averaged 922,600, an annual reduction of 2.6%. Employment has been recovering from 883,400 in August.

## Cement Sales

(Cement bags sold, in thousands)



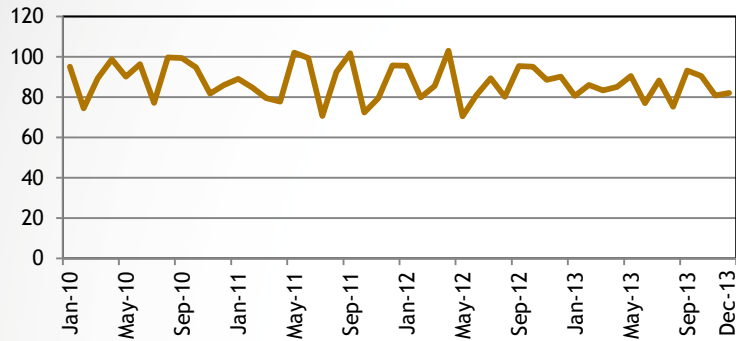
- Cement Sales for December 2013 totaled 1.02 million bags, an annual decrease of 18.0%. Heavy rains were a factor in this decline. The rainfall in San Juan in December 2012 was 5.3 inches while in 2013 it reached 7.6 inches or 43% more

Sources: BLS and GDB  
\* Not seasonally adjusted.

# GDB Economic Activity Index Components

## Gasoline Consumption

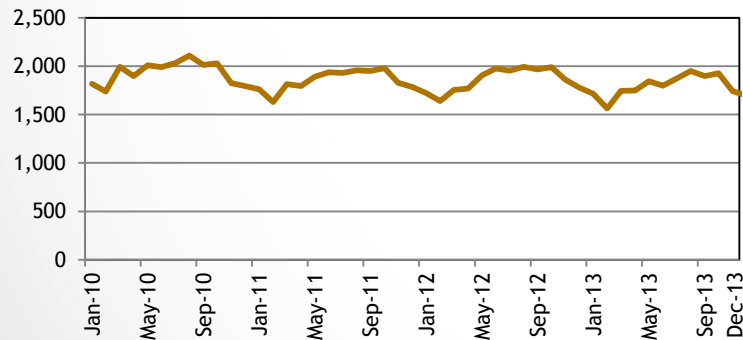
(Millions of gallons)



- The preliminary estimate of gasoline consumption\* for December 2013 was 82.1 million gallons, for an annual decrease of 8.9%.

## Electric Power Generation

(Millions of kWh)



- Electric power generation for December averaged 1,695.3 million kWh, an annual decline of 4.7%.

\*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: GDB, PRHTA and PREPA

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

# GDB-EAI Highlights and Composition

## GDB Economic Activity Index Highlights

### Advantages of the GDB-EAI:

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

### The GDB-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)

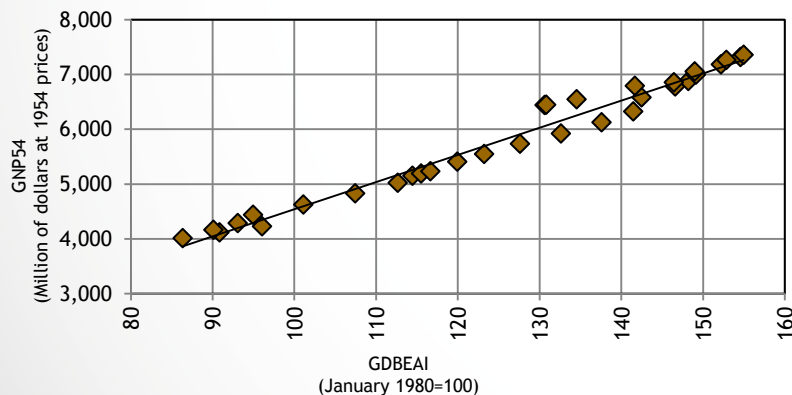
# Description of the GDB-EAI

- The GDB-EAI is a coincident index for the economic activity of Puerto Rico. It is highly correlated to the 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 GDB Economic Activity Index

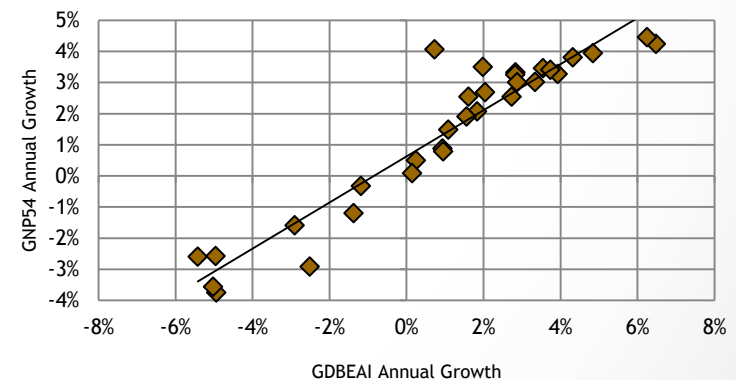
Relationship on the levels: FY1981-FY2012

$$y = 49.551x - 413.49 \quad R^2 = 0.9768$$



Relationship on the growth rates: FY1982-FY2012

$$y = 0.741x + 0.0062 \quad R^2 = 0.8953$$



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.