Applying the daily inflation to forecast the Broad Consumer Price Index (IPCA)

Pedro Costa Ferreira
Juliana Carneiro
André Braz

May, 2015

Agenda

o **Motivation**

o **Inflation Monitor**

   Ardeo, Quadros and Picchetti (2013) – A daily frequency inflation measure and its information content on forecasts

o **Monitor "limitation"**

o **Proposed Idea**

o **Results**

o **Conclusions and Future studies**

FGV IBRE

Motivation

o   The importance of Consumer Price Index

    o   It is used by the Brazilian Central Bank as the guideline for achieving its inflation targets policy;

    o   In Brazil, owing to the hyperinflation episode in the 1980s, there have been many studies done on this issue.

o   Monitor inflation and first six days forecasts issue

o   The importance of CPI predictability and the SARIMA models

Inflation Monitor

- **What is the Inflation Monitor?**
    - It's a daily inflation estimate of the Broad Consumer Price Index (IPCA), the official inflation index in Brazil.

- **How does it work?**
    - The inflation rates estimations are calculated for moving periods of 30 days based on the preceding 30 days.
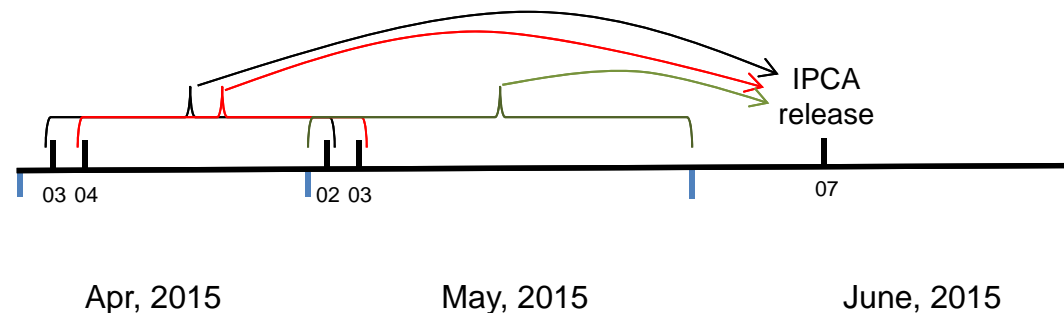
- **What is the obvious problem?**

FGV
IBRE

Proposed Idea

o We have used the one step ahead forecast by employing **SARIMA models;**

o But, we didn't make daily forecasts. We have built 6 month TS with the daily information
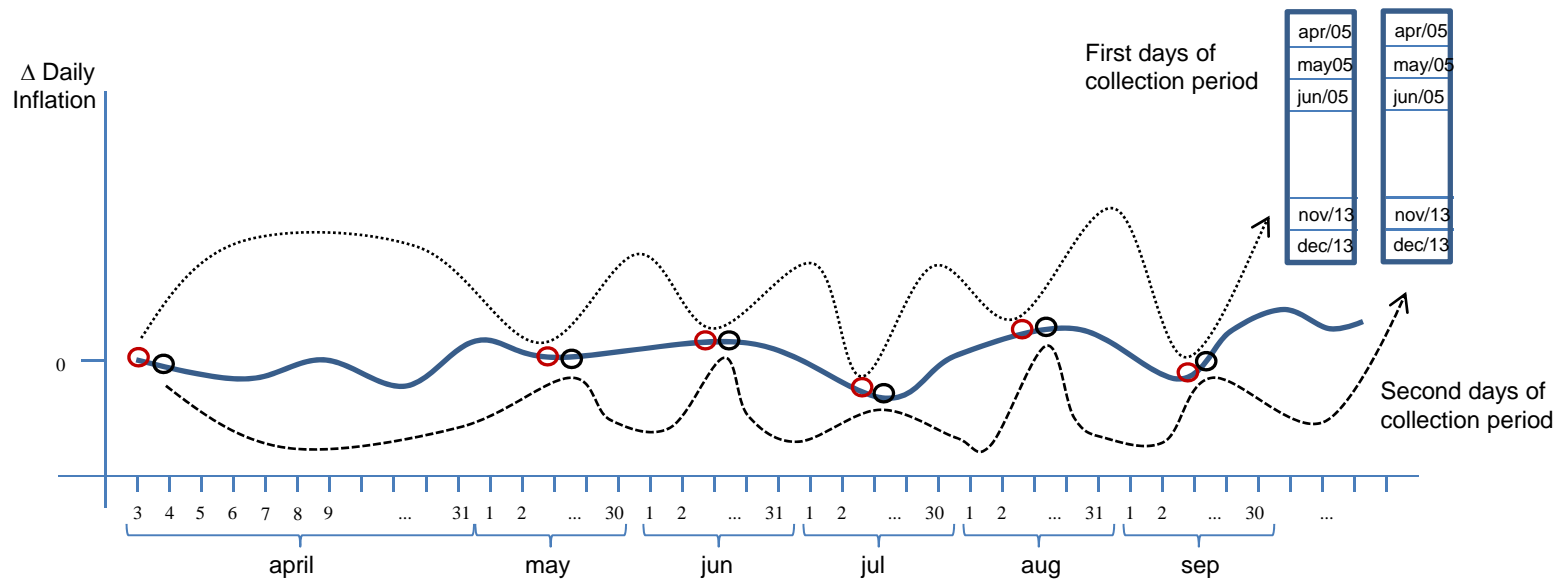
Results

Adjusted models

Days of collection period	SARIMA Model
1	$(0,0,2)(0,1,1)_{12}$
2	$(0,0,1)(0,1,2)_{12}$
3	$(0,0,2)(0,1,1)_{12}$
4	$(0,0,2)(0,1,1)_{12}$
5	$(0,0,2)(0,1,1)_{12}$
6	$(0,0,2)(0,1,1)_{12}$

Mean Absolute Error (MAE)

Days of collection period	Monitor	SARIMA
1	0,048	0,043
2	0,044	0,031
3	0,041	0,037
4	0,044	0,038
5	0,042	0,039
6	0,039	0,038

o SARIMA model had best results for every six days.

FGV
IBRE

Conclusion and future studies

o We achieved the core purpose of this work, that is: we reduced the forecast error of daily IPCA done by the Inflation Monitor

o We keep working on this research problem;

o **Better results can be achieved by:**

   o forecasting the components of the index themselves and, afterwards, by aggregating them in an index as a whole

   o Estimating the SARIMA using daily data

FGV
IBRE

FGV
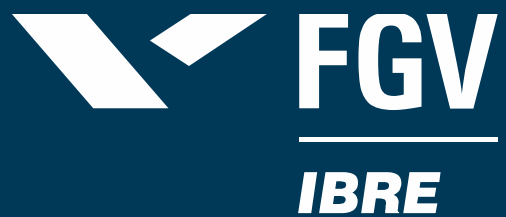
IBRE

www.fgv.br/ibre

Rio de Janeiro
Rua Barão de Itambi, 60
22231-000 - Rio de Janeiro - RJ

São Paulo
Av. Paulista, 548 - 6º andar
01310-000 - São Paulo - SP