

**¹Lincoln Teixeira da Silva, ²Ingrid Luquett de Oliveira, ²Tiago Dantas,
^{*1}Vladimir G. Miranda**

*vladimir.miranda@ibge.gov.br

¹Department of Price Indexes / Directorate of Surveys

²Department of Quality and Methods / Directorate of Surveys

Brazilian Institute of Geography and Statistics - IBGE

Studies of new data sources and techniques to improve CPI compilation in Brazil

The advent of new technologies is promoting deep changes in many aspects of society. National Statistical Offices (NSO) are not immune to these transformations and face challenges in how to measure the growing effect of digitalization on consumer habits in an opportune and efficient way.

On the other hand, the digital revolution is also providing new opportunities for Consumer Price Index (CPI) compilers since new data sources are available to increase accuracy and development of methodologies that can be combined with the traditional ones.

Here we present two case studies of usages of web data to improve CPI at the Brazilian Institute of Geography and Statistics. In the first case, we discuss the necessary steps and difficulties to implement a price scraper to replace manual collection for airfares, which are typically purchased in online platforms, by an automatic one. The main idea here is to introduce this analysis as a pilot to replace other web-commercialized components of the CPI basket. Such techniques might also be useful to deal with digital products, such as ride-sharing apps, which present some measurement issues similar to airfares.

The second study deals with the use of web scraping techniques to implement hedonic models for quality adjustment in CPI. These techniques allow the extraction of product characteristics in an easy, cheap and fast way and do not rely on extensive scraping from websites. Moreover, we address the issue of using web prices to provide parameter estimation for the hedonic models considering that online and offline prices may differ. We evaluate if the models applied to both scenarios are consistent with the standard methodology.