



INTERNATIONAL MONETARY FUND

Caucasus, Central Asia, and Mongolia
Regional Capacity Development Center



DEVELOPMENT PARTNERS: ASIAN DEVELOPMENT BANK | CHINA | KOREA | POLAND | SWITZERLAND

MEMBER COUNTRIES: ARMENIA | AZERBAIJAN | GEORGIA | KAZAKHSTAN | THE KYRGYZ REPUBLIC | MONGOLIA | TAJIKISTAN | TURKMENISTAN | UZBEKISTAN

CCAMTAC Regional Webinar on “Developing an Inflation Proxy Index via Web-scraping”

Thursday, September 28, 2022

Introduction and Moderation:

Mr. Norbert Funke, Director, CCAMTAC

Presenters:

Mr. Ansar Seidakhmetov, Senior Specialist-Analyst, Monetary Policy Department, National Bank of Kazakhstan

Mr. Islam Yerzhan, Chief Economist, Payment and Financial Technologies Development Center of the National Bank of Kazakhstan

Intervention:

Mr. Levan Karsaulidze, Senior Economist, Statistics Department, IMF

Inflation has been remaining a significant concern for policymakers and households for months. From the policy perspective, it is extremely important to have a clear understanding of current inflation developments, as well as inflation expectations. However, the official consumer price index (CPI) is usually published with a time lag and tends to lack granular data, which imposes limitations on the economic analysis. To solve this issue, several statistical agencies in the world started using web-scraping or scanned data to generate high-frequency price indicators.

In the first part of presentation, Ansar Seidakhmetov elaborated on the motivation and progress in the development of the National Bank of Kazakhstan (NBK) Price Tracker, which is a system generating inflation proxy indices with web-scraping, which is essentially retrieving price data from the web pages. It was pointed out that the low frequency of official CPI statistics slows down the decision-making process, especially in shock periods. The development of the NBK Price Tracker started in 2018 with a daily collection of prices for 395 types of food and non-food products in the two largest cities of Kazakhstan, while administering the tool was labor intensive. The next version of the NBK Price Tracker provided greater autonomy and coverage by increasing the number of products, as well as the number of online stores and cities for data collection. The NBK developers also integrated Tableau into the system for immediate visualization of the results of web-scraping. At the time NBK started leveraging its Price Tracker data to analyze price controls imposed by the fiscal authorities.

As was explained by Islam Yerzhan, the current version of the NBK Price Tracker allows collecting and processing prices of 6 million products from over 350 major online stores,



INTERNATIONAL MONETARY FUND

Caucasus, Central Asia, and Mongolia
Regional Capacity Development Center



DEVELOPMENT PARTNERS: ASIAN DEVELOPMENT BANK | CHINA | KOREA | POLAND | SWITZERLAND

MEMBER COUNTRIES: ARMENIA | AZERBAIJAN | GEORGIA | KAZAKHSTAN | THE KYRGYZ REPUBLIC | MONGOLIA | TAJIKISTAN | TURKMENISTAN | UZBEKISTAN

covering all regional centers and large cities of the country. At this stage, NBK Price Tracker can follow more than 80 percent of CPI products. The NBK developers plan to continue enhancing the tool by introducing scanned data, parsing services inflation, and adding data from electronic vouchers. The results of the NBK Price Tracker suggest that there is a high level of convergence between official figures of the Bureau of National Statistics and online data over time, although some discrepancies may take place in the short term. For instance, in the case of Kazakhstan, these discrepancies are related to the volatility of non-food inflation, which tends to be sensitive to internal and external shocks.

The IMF expert in price statistics Levan Karsaulidze outlined some benefits and caveats of using web scrapping and scanned data for price statistics. Automated data collection, increased frequency of data collection, and faster identification of new and disappearing products are considered to be the main advantages of web-scrapping. On the other hand, the limitations of web scrapping are related to the underrepresentation of stores on the web, IT maintenance, and the abundance of products and web pages for large retailers. Web-scrapping system developers may also find it challenging to deal with product churning, change in quality, and price reductions. IMF supports and provides technical assistance in developing methodology and integrating new data sources (scanner data, web scrapped data) to the official statistics.

During the general discussion, the questions to the speakers covered (i) the amount of time and technical qualifications necessary to develop a web scrapping system from the scratch; (ii) current implementation of web scrapped data in monetary policy decision making; (iii) methodological approach to price discounts; and (iv) differentiating the size of stores and products selection.

Aliya Kistaubayeva,
Economic Analyst, CCAMTAC