

## Box 2

# Banco de la República's New Classification of the CPI basket and Review of Core Inflation Indicators in Colombia

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This box summarizes the paper by González et al. (2020)<sup>1</sup>, which condenses the results and characteristics of the new CPI classification and the new core inflation indicators that will be used from the fourth quarter on by the technical staff at *Banco de la República* for its various analyses. It is important to highlight that this disaggregation does not intend to replace the official classification used by the DANE and, although it will be the center of analysis and monitoring by the technical staff at the Central Bank, it will not limit the use of other disaggregations of the CPI that allow to deepen on relevant analyses of the economic situation or for research purposes.

### 1. Banco de la República's New Classification of the CPI

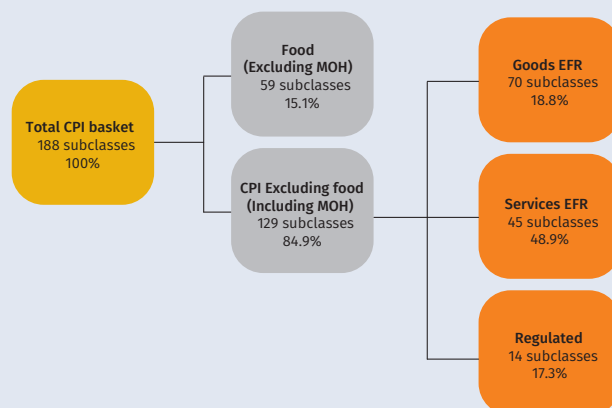
The implementation of the new CPI methodology by the DANE in 2019 raised the need to update the current classification employed by the Central Bank. The classification proposed will contribute to the timely identification of different inflationary pressures, and is in harmony with international practices; also, it is compatible with the COICOP nomenclature (adopted by the DANE for the production of the CPI starting January 2019), and it is clear and easy to communicate. The elaboration of this new disaggregation of the CPI was based on a rigorous analysis guided by the expert judgment of the technical staff at *Banco de la República*, focusing on international experience, the COICOP classification, and the analysis of the performance of the CPI. It is

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1 González, E.; Hernández, R.; Caicedo, E.; Martínez-Cortés, N.; Grajales, A.; Romero, J. (2020). "Nueva clasificación del Banrep de la canasta del IPC y revisión de las medidas de inflación básica en Colombia", *Borradores de Economía*, No. 122, *Banco de la República*, available at: <https://investigacion.banrep.gov.co/es/be-1122>.

also supported by the study of the current price regulations in the Colombian economy, the information available in the supply-use matrix, and the relationship of the CPI subclasses with possible explanatory variables by using econometric statistics and techniques (see Diagram B2.1).

Diagram B2.1  
 Banco de la República's New Classification of the CPI



Note: Within each column, baskets are exclusive; i.e., they do not share subclasses. The third line of each sub-basket table indicates its weight in the total CPI.  
 MOH: Meals outside the home.  
 EFR: Excluding food and regulated items.  
 Source: DANE; elaborated by the authors.

In summary, the classification proposed is relatively similar to the one previously used and published by the Central Bank (see Table B2.1), but with the following main changes<sup>2</sup>:

- i. The classification for EFR (i.e., excluding food and regulated items) and non-tradables EFR is replaced by goods EFR and services EFR, respectively.
- ii. The sub baskets for regulated items and food continue, but adopting the methodological changes of the COICOP nomenclature, i.e., the food group only includes perishable and processed foods and excludes meals out-of-home (MOH), which become part of the EFR services group.
- iii. The regulated segment includes pre-school, primary and middle school services, among others.

In this classification, EFR services have a predominant role, with 48.9% representation in the total CPI (within which lease-related items stand out with 25.2% of the total CPI), while food weighs 15.1%, this being the sub basket with the lowest share in the total CPI (See Table B2.1). Finally, another feature of this classification is that it facilitates additional disaggregations that are more intuitive, clearer, and easy to communicate than the classification currently in use, as it is easier to talk about tradable or non-tradable goods and services than non-tradable items affected by the exchange rate.

2 For further details, the classification of each CPI subclass is presented in Annex 4: Details of the new classification by *Banco de la República* and its correlation with the previous classification, from the base document (González et al., 2020).

Table B2.1  
Comparison between Banco de la República's previous and new Classification of the CPI

Previous Classification			New Classification		
Group	Weight in total (percent)	Number of subclasses	Group	Weight in total (percent)	Number of subclasses
Food (including MOH)	23.8	64	Food (excluding MOH)	15.1	59
Excluding food	76.2	124	CPI Excluding food	84.9	129
Tradables EFR	19.2	71	Goods EFR	18.8	70
Non-tradables EFR	42.3	44	Services EFR	48.9	45
Regulated	14.7	9	Regulated	17.3	14

MOH: Meals outside the home.  
EFR: Excluding food and regulated items.  
Source: DANE; elaborated by the authors.

In order to illustrate the changes, a graphical comparison was made between the evolution of the annual variation of the sub baskets with the previous and the new classifications (Graph B2.1).

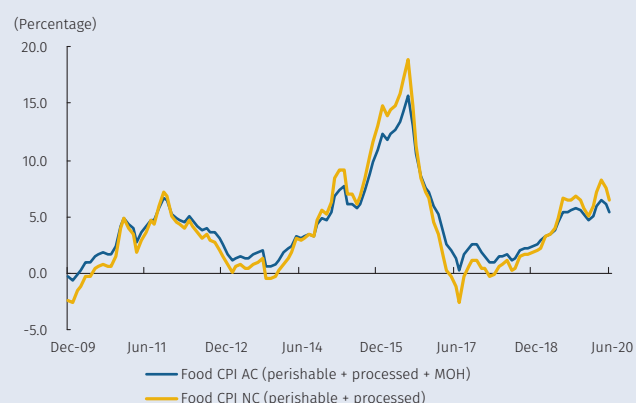
## 2. Review of core inflation indicators in Colombia and update of those used by Banco de la República

The recent change in the basket by the DANE included an update on household consumption patterns, which may lead to

the need for updating core inflation indicators as well. In response, nearly fifty core inflation measures were constructed, including those currently used by Banco de la República, and they were assessed according to the selection criteria most commonly used by international literature. The results suggest that there is no best indicator, in absolute terms, among all the dimensions considered. In this regard, the four core inflation indicators currently used by the Bank exhibit a relatively good performance when comparing their properties with those of a broad set of core inflation indicators.

Chart B2.1  
Graphical Comparison of Banco de la República's previous (OC) and the new Classification (NC) Annual Variation

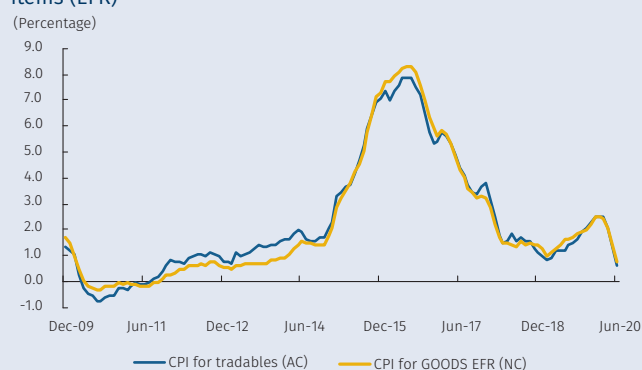
### A. Food CPI



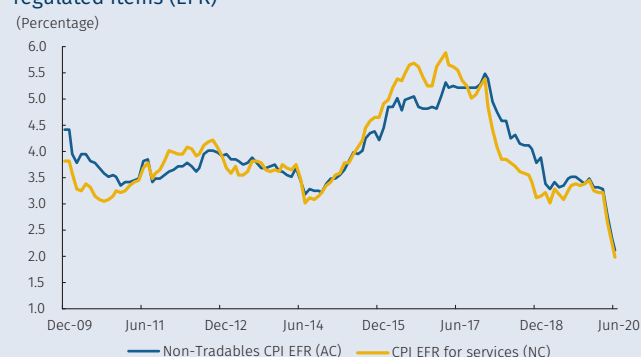
### B. Regulated Items CPI



### C. CPI for goods and tradable CPI, excluding food and regulated items (EFR)



### D. CPI for services and non-tradable CPI, excluding food and regulated items (EFR)



Source: DANE; calculations by the authors.

The exercise was to select and analyze several types of core inflation indicators that not only met the technical criteria, but that would also: 1) be easy to interpret and replicate, and 2) have no frequent revisions. Although these two criteria do not necessarily suggest that the measurement is adequate, they do ensure better communication. In this context, the indicators built were grouped into three sets: exclusion measures (not including some expenditure items in order to build an aggregate price index), core measures (excluding sub-classes of the CPI basket whose prices have been more volatile over a given period), and rigid price measures with exclusion (seeking a basket of rigid prices, understood as those that remain unchanged for longer periods). Additionally, the median for the annual variation was considered (this is a monthly record of annual inflation for the subclass which, in that month, and ordered by variations from low to high, stands at 50% of the cumulative weighting), which is not affected by extreme price changes<sup>3</sup>.

These indicators were later analyzed under the desirable criteria: 1) Unbiasedness; 2) Variance lower than headline inflation; 3) Follow-up of the long-term component, estimated in two ways: using the Kalman filter and as a centered moving average; 4) Good forecasting capacity of headline inflation (assessed at six and twelve-month horizons); 5) Relationship to their macroeconomic determinants (Phillips Curves and cross-correlations with the gap and unemployment); and 6) Scarce reaction to transitory supply shocks.

The results of the assessment are presented in Table B2.2, in which the eleven best indicators were selected and ranked according to the final score<sup>4</sup>. In the table, core inflation indicators currently published by the Central Bank are

3 For further details, the list of the indicators assessed is presented in Annex 6: Core inflation indicators assessed from the main document (González et al., 2020).

4 The following scoring procedure is used to assess the core inflation indicators: a) each indicator is rated according to its performance in each of the dimensions assessed, assigning scores between 1 (best performance or compliance with criteria) and 4 (non-compliance with criteria); b) the final score for each indicator is the sum of the scores obtained in all dimensions. Thus, the core inflation indicators that show better performance will be those with the lowest scores.

Table B2.2  
Assessment Results of Core Inflation Indicators

Dimension/ Indicator	DANE excluding food and regulated items	DANE excluding food and regulated items 2019 <sup>a/</sup>	Core 10 (p08)	Core 15 (p08)	Banrep excluding food and regulated items	Expert Criteria	Banrep excluding food	DANE excluding food	Core 30 (p08)	CPI excluding perishable food, fuels, and public utilities	Core 20 (p98)
Cross Correlations (Gap)	1	1	2	3	1	1	2	3	3	2	3
Cross- correlations (Unemployment)	1	1	3	3	1	2	2	2	4	3	3
Phillips Curve	1	1	1	1	1	1	1	1	1	1	1
Unbiasedness	3	3	1	1	3	3	2	1	2	3	3
Variance	2	2	2	2	2	2	2	2	2	3	2
LP1 Tracking	3	3	2	2	3	2	2	2	3	2	3
LP2 Tracking	2	3	2	2	3	3	2	2	3	2	2
Forecasting capacity H = 6	2	2	2	2	2	2	4	4	2	3	1
Forecasting capacity H = 12	2	3	2	2	2	3	3	3	2	3	2
Supply shock	2	1	4	3	3	2	2	2	1	1	3
Score	19	20	21	21	21	21	22	22	23	23	23
Ranking	1	2	3	4	5	6	7	8	9	10	11

Notes:

- Banrep Foods refers to perishable, processed and out-of-home foods.

- DANE Foods refers to perishable and processed foods.

- Regulated items refers to the previous classification for regulated items.

- As an additional robustness exercise, a core inflation indicator was constructed using expert criteria (Expert Criteria column). For this indicator, the subclasses that were most sensitive to demand were selected; according to the authors' view, those affected by transitory shocks were excluded.

a/ This refers to the new classification for regulated items proposed in this box.

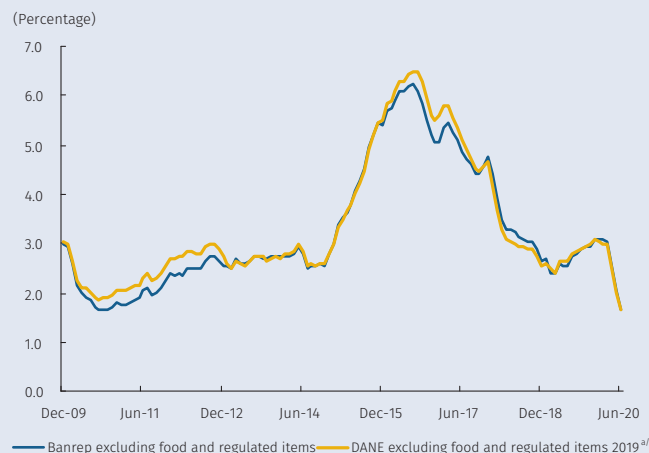
Source: Sources external to Banco de la República; prepared by the authors.

highlighted in gray, while those proposed in this document are highlighted in blue.

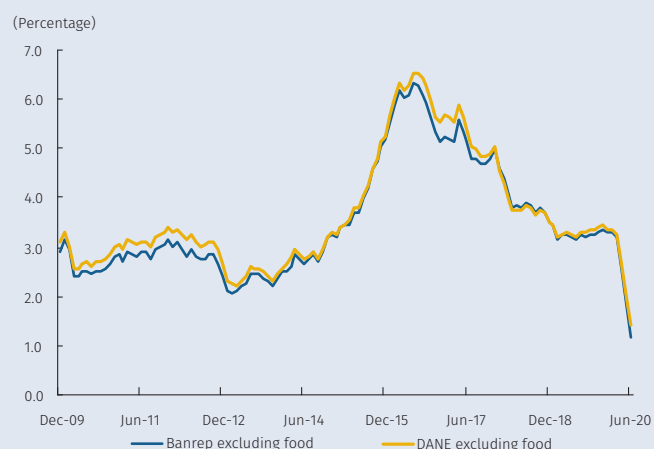
In conclusion, although no single core inflation indicator was found to be better in absolute terms in all the dimensions used to assess them, it has been proposed that the indicators used by the Central Bank be changed for indicators that represent the most recent changes in the CPI (2019), since they consider the update to the COICOP nomenclature and thus facilitate communication of their behavior and comparability with headline inflation and other sub baskets. Thus, the indicators selected to replace the existing ones were: CPI excluding food (CPI excluding perishable and processed foods), CPI excluding food and regulated items (CPI excluding perishable, processed and the new definition of regulated items), and Core 15 (excluding items that are at 15% of the most volatile weight of the CPI basket). Finally, Graph B2.2 shows a graphical comparison between the evolution of the core inflations indicators that *Banco de la República* has followed and those proposed in this document.

**Graph B2.2**  
Graphical Comparison between previous and new Core Inflation Indicators by *Banco de la República*.  
Annual Variation

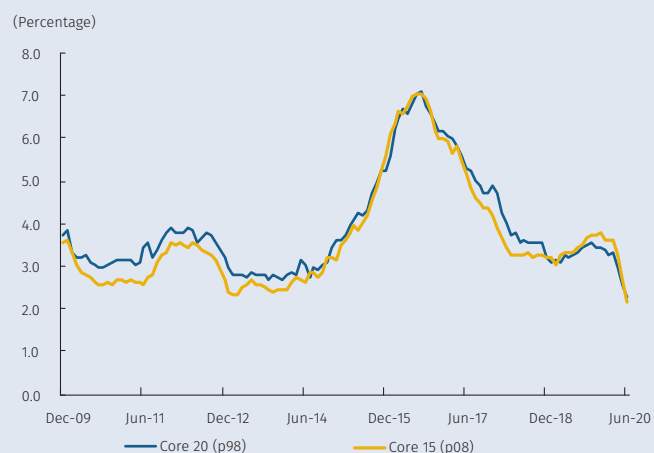
**A. CPI excluding food and regulated items**



**B. CPI excluding food**



**C. Core**



Note: Banrep Food refers to perishable, processed, and out-of-home foods.  
DANE Food refers to perishable and processed foods.  
Regulated items refers to the previous classification of regulated items.  
a/ This refers to the new classification for regulated items proposed in this box.  
Source: DANE; calculations by the authors.