Box 2

The new shopping basket and its implications

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Since January 2019, the *Departamento Administrativo Nacional de Estadística* (National Administrative Department of Statistics, DANE) adopted a new methodology to calculate the consumer price index (CPI), which will replace the CPI basis December 2008 = 100, in force since January 2009. The purpose of this box is to describe the main changes introduced in the new shopping basket (CPI December 2018 = 100 base) and make some remarks on the implications of the new CPI to be considered by the monetary authority.

1.1 The importance of the CPI

The CPI is a statistical, periodical research, the contents of which allow to calculate the variations in prices experienced by a representative set of final goods and services consumed by households in a specific geographic area. Given its importance, it is considered to be one of the most relevant and most analyzed macroeconomic indicators globally. The spectrum of use of the CPI is broad: for example, the monetary authority follows and studies the CPI in order to implement policies to control consumer inflation[1]. Besides, the CPI is also an input for setting the rates of several services as well as to determine the adjustment of wages and tax rates in the economy. In Colombia, it is used to fix the real value unit (UVR) and to adjust the consolidated financial statements of the companies for inflation, among many other uses. Due to its statistical transcendence and its economic and financial importance, the agencies responsible for it and its dissemination worldwide periodically review its methodology.

1.2 A Brief History of the changes in the CPI in Colombia

The first advances to measure the evolution of consumer prices began in 1923 with the creation of the Central Bank of Colombia and the office of the Comptroller General of Colombia. With the creation of the issuer, the importance of developing a CPI as a tool to make follow-up and thus exercise the control of prices became clear. In this way, the task of structuring a number of statistical research was assigned to the office of the Comptroller General, one of which was the construction of a CPI. In 1937, the first steps were taken to define a shopping basket for the working class in Bogotá. This initiative was extended to other cities individually, but no national CPI was calculated.

Only since 1954, the National Administrative Department of Statistics (DANE) built the first national CPI, which (included seven cities: Bogotá, Medellín, Cali, Barranquilla, Bucaramanga, Manizales, and Pasto), defining their basis for calculation as the average from July 1954 or June 1955 = 100. This first basket, called "IPC20," was in force since July 1954 to December 1978. Since then, DANE has been updating the CPI methodology every ten years. For the methodology based on December 1978 = 100, DANE maintained the same seven cities. A decade later, with the new update (CPI December 1988 = 100), geographical coverage was extended to 13 cities, including Pereira, Cartagena, Montería, Villavicencio, Cúcuta, and Neiva. Subsequently, the CPI based on December 1998 = 100 maintained the same geographical coverage. The penultimate basket (CPI based on December 2008 = 100) expanded the number of cities to twenty-four, including Riohacha, San Andrés, Valledupar, Santa Marta, Quibdó, Popayán, Armenia, Tunja, Ibagué, Sincelejo, and Florencia[2].

1.3 The new basket

For the calculation of the CPI based on December 2018 = 100, DANE defined a new basket from the most recent *national household budget survey*, 2016-2017 (ENPH). The new basket excluded 71 articles, as they are currently not representative of the consumption habits of Colombians. At the same time, it included 84 new items that are part of the consumption patterns of households today. Based on the ENPH, the weights of the goods and services selected were defined. Besides, such a survey allowed to include the major demographic changes observed in the country in the last few years. As a novelty, single-person households will begin to be included in the measurement, whereas the

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1 When the monetary authority estimates that inflation is diverting from the long-term target not due to transitory shocks, it decides to change its monetary policy stance, adjusting its main instrument, which is the benchmark interest rate of intervention in the money market. This ensures price stability and helps to maintain a sustained economic growth rate that generates employment and improves the standard of living of the population.

2 In this regard, see: DANE (2009). *Metodología índice de precios al consumidor, actualización* 2009, Colección Documentos, núm. 62, Bogotá, Colombia.

previous methodology only took into account households with more than one person (so-called *traditional*).

The new methodology expanded the geographical coverage from 24 to 32 departmental capital cities by adding Leticia, Arauca, Yopal, Puerto Inírida, San José del Guaviare, Mocoa, Mitú, and Puerto Carreño, in addition to six priority municipalities: Barrancabermeja, Buenaventura, Rionegro, Soledad, Tumaco, and Yumbo. It is important to note that DANE will only disseminate the CPI for twenty-three geographical areas, namely: twenty-two capitals and other urban areas (which will include the six priority municipalities, along with San Andrés and Quibdó). Additionally, DANE updated the criteria for the formation of the population groups following international guidelines. Thus, they went from three groups (low, medium, and high) to four (poor, vulnerable, middle class, and upper class)[3]. With these changes, low income, if the poor and vulnerable segments of the new basket are assumed as such, now represent 17.42% (before, 31.6%), the medium income 57.50% (54.0% before), and the high 25.08% (previously 14.4%).

Despite the importance of these changes in the new CPI, the main innovation was in the field of nomenclatures. The new family shopping basket abandoned the traditional classification of nine groups of expenditure (food, shelter, clothing, education, etc.), and adapted the classification nomenclature for individual consumption by purpose of 1998 (Coicop-1998, by its acronym in English)[4]. This classification, endorsed by the United Nations (UN), will allow the international comparison of our CPI, which is now conformed by 12 divisions for spending, 42 groups, 84 classes, and 188 subclasses (Table A.2.1).

Table B2.1
Levels of Disaggregation

Previous CPI		New CPI	
Level	Amount	Level	Amount
Groups	9	Divisions	12
Subgroups	34	Groups	42
Class	88	Classes	84
Basic Expenditures	181	Subclasses	188
Items	483	Items	443

Source: DANE.

3 DANE follows the methodology by López-Calva, Luis F.; Ortiz-Juárez, Eduardo (2011). "A Vulnerability Approach to the definition of the Middle Class," Policy Research Working Paper, No. WPS 5902, World Bank; which allows to perform international comparisons and characterize the expenditure of each group.

4 See: https://unstats.un.org/unsd/iiss/Classification-of-Individual-Consumption-According-to-Purpose-COICOP.ashx; The UN is currently developing a new revision, the COICOP-2018, which, according to that institution, is partially completed, so unfortunately DANE could not adapt this classification to the new CPI.

The Coicop nomenclature allows structuring the CPI baskets based on the classification of types of expenditure on services, which weigh 57.46%, and in goods, which weigh the remaining 42.54%. According to the Coicop nomenclature, the latter are subdivided into durable goods (weighing 4.92%), durables (5.19%), and non-durables (32.44%). Compared with the previous CPI, services earn participation in the new basket (from 51.25% to 57.46%), while goods lose importance (from 48.75% to 42.54%).

When comparing the divisions of the new basket with the expenditure groups of the previous one, other changes of great importance can be identified (Table B2.2). In the first place, the new methodology excludes meals outside the home from the group *food*. The latter are incorporated to *restaurants and hotels*. As a result, the weight of food in the CPI is reduced from 28.21% to 15.05%. The second noticeable change is on housing, which is now split into two divisions: *accommodation, water, electricity, gas, and other fuels* (weighing 33.12%), and *furniture and household items* (with a weight of 4.19%). With this, the items that had been grouped under *housing* won participation in the new CPI basket, increasing from 30.1% to 37.31%. Also, it is important to note that leases won participation in the new family shopping basket. Now, actual rentals—paid by tenants—plus imputed rentals make up 25.16% of the total CPI, compared to 18.58% before.

1.4 Implications of the new CPI

By analyzing the changes in the structure of the old and new basket weights, it may be seen that the CPI calculation will be more sensitive to price movements in services. Housing, restaurants, and information technologies contributed with a greater relative importance to services in the new CPI. These items tend to incorporate the inflationary inertia of the past in their prices with greater force, which may have an impact on the formulation of the monetary policy stance. Also, the volatility that food prices usually bring to total inflation will tend to be reduced, on account of the lower weight of this group in the new consumption basket. Additionally, soccer tickets will be excluded from the new basket, thereby reducing the inflationary impact that this item imprints on the CPI each semester with the finals of the national tournament. For example, due to this over-valuation, the inflationary shock for the tournament at the end of 2017 was estimated close to 13 basis points (bp)[5].

Finally, it is important to note that periodic updates of the CPI reduce the different biases in the measurement of inflation that accumulate over the years (new goods, new retail outlets, quality, and substitution in consumption). For example, every time the basket is updated, the bias

5 See Caicedo, Edgar and Salazar, Andrea (2018), "Soccer in Inflation", in *Inflation Report*, June 2018, *Banco de la República*, Bogotá, Colombia.

for substitution decreases, which limits the increase in consumer prices[6]. In this sense, not attempting to calculate the true cost of life (e.g., by means of a superlative index), the calculation of yearly inflation can be approximated with the old basket. In order to accomplish this, identical baskets[7] were compared in terms of the number of basic expenses (or subclasses). Then, the CPI for January 2019 was calculated with the old methodology and the new methodology. The exercise shows that, in January 2019, the annual CPI variation would not have been 3.14%, in those baskets, but 3.23%. In other words, not changing the basket, annual consumer inflation in January would have been 9 bp higher.

Table B2.2
Comparison between CPI weights for 2008 and 2018.

Division (COICOP)	2018 CPI Weights	Groups	2008 CPI Weights
Food and Non-Alcoholic Beverages	15.05	Food	28.21
Restaurants and Hotels	9.43		
Clothing and Footwear	3.98	Clothing	5.16
Housing, Water, Electricity, Gas and Other Fuels	33.12	Housing	30.1
Furnishings, Household Equipment and Routine Household Maintenance	4.19		
Health	1.71	Health	2.43
Transport	12.93	Transportation	15.19
Information and Communication	4.33	Communications	3.72
Recreation and Culture	3.79	Recreation	3.1
Education	4.41	Education	5.73
Alcoholic Beverages and Tobacco	1.7	Other goods and services	6.35
Miscellaneous Goods and Services	5.36		
Total	100.0	Total	100.0

Source: DANE.

6 See Box 1 of the September 2018 *Inflation Report*, entitled: "The measurement bias in the CPI: An update", available at http://repositorio.banrep.gov.co/bitstream/handle/20.500.12134/9535/Informe%20sobre%20Inflaci%C3%B3n%20septiembre%20de%202018.pdf?sequence=8&isAllowed=y

7 For this exercise, subclasses of the new basket corresponding to basic expenses in the old CPI were identified. With this, the CPI for January 2019 was calculated using the old methodology (without changing the statistical base nor the weights). Then, the CPI was estimated for the same basket with the new methodology, i.e., updating the weights and the statistical base. The official annual inflation in January 2019 was 3.15%, while the one calculated with identical items in the old CPI, but with the new weights and the new basis for calculation was 3.14%. This was done to compare identical baskets.