

## Box 2

# Soccer and Inflation

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The playoffs of the Colombian soccer championship last year in December<sup>1</sup> generated an unexpected increase in the entertainment component of the Consumer Price Index (CPI), which includes soccer tickets, among other items.<sup>2</sup> In this short analysis, we will assess the inflationary impact of soccer and then discuss its measurement in the CPI, taking advantage of the fact that the National Bureau of Statistics (DANE) is scheduled to implement a new CPI methodology as of next year.

Annual consumer inflation was 4.09% at the end of 2017, exceeding the long-term target of 3.0%, set by the Board of Directors of *Banco de la República* (BDR). Several factors brought upward pressures to bear on inflation last year, the most prominent ones being the increase in indirect taxes (VAT and carbon tax), as a result of the latest tax reform, and the rebound in annual food inflation, which was due more to an unfavorable base of statistical comparison than to a limited food supply. The airline strike at the end of 2017, plus price increases for several regulated goods and services (fuels and transportation), also contributed to the rise in inflation. Ultimately, at the end of the year, soccer proved to be the protagonist, generating upward pressure on the CPI.

Market expectations several quarters ago with respect to inflation was not met because of the aforementioned inflationary pressures. Analysts had forecast inflation under 4.0% for 2017. In the end, annual inflation was 4.09% by the end of that year, exceeding the long-term inflation target (3.0%).

Without going into a deep analysis as to which of the aforementioned factors contributed most to the failure to meet the target for inflation, we only want to point out how the boost the CPI received from entertainment-related services (including soccer) at the end of last year led to a rise in inflation above 4.0%.

The Colombian professional soccer playoffs in mid-December of 2017, which were part of the closing tournament that year and involved two teams with the most important fan base in the nation's capital, generated a monthly increase of 18.13% in the CPI for entertainment-related services (the component that includes soccer). This adjustment is much higher than the one observed a year ago (1.34%). The increase in the price of tickets for the playoffs in the 2017 closing tournament led to an annual change of 23.4% in this item, which is much higher than what was observed twelve months earlier (6.86%), when the final playoffs in Colombia soccer featured a team from the nation's capital and a team from the city of Ibagué<sup>3</sup> (Table B2.1).

### 1. What was the inflationary impact of the final Colombian soccer playoffs in 2017?

To answer this question, one must assume the 18.13% monthly increase in December 2017 in spending on "entertainment-related services" was due entirely to soccer. The statistical evidence shows a great deal of volatility in the CPI for entertainment-related services, which include soccer, during the months when there are soccer playoffs. Also, it is important to point out that the largest monthly adjustments in the CPI for entertainment-related services occurred when teams from the major cities faced each other in the final playoffs (Table B2.1, Column 3).

There are three ways to estimate the bullish impact of soccer on annual consumer inflation. The first is to calculate headline inflation excluding soccer. The second is to work out its contribution to annual inflation. The third is to calculate annual inflation for 2017 with a regular rise in ticket prices for the national playoffs. The following are the results of these estimates.<sup>4</sup>

*Headline inflation excluding soccer.* This calculation is obtained by subtracting the CPI for entertainment-related services (soccer) from the total CPI. The new index

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1 Since 2002, the Colombian soccer tournament has been divided into two segments: the open tournament and the closing tournament. The open tournament is played during the first half of the year, while the closing tournament is played in the second half of each calendar year.

2 In this respect, see DANE (2017). "Metodología general del "Índice de precios al consumidor (IPC)"; available at: [www.dane.gov.co/files/investigaciones/fichas/precios-y-costos/DSO-IPC-MET-001-V5.pdf](http://www.dane.gov.co/files/investigaciones/fichas/precios-y-costos/DSO-IPC-MET-001-V5.pdf), p. 21.

3 Bogota is the city that carries the most weight in the CPI (42.47%). Consequently, a soccer final featuring two teams from the nation's capital implies a major change in the total CPI.

4 Due to limited space, the formulas for calculating the three estimates of the inflationary impact of soccer are not included herein. For more information in this respect, see Section 2.2.3 entitled "Metodología de cálculo del IPC" (pp. 31-37) in *Metodología del índice de precios al consumidor*, DANE (2009).

Table B2.1  
Final Playoffs in Colombian Professional Soccer and Inflation

Date	Final Playoffs	Monthly change in services related to entertainment in the final playoffs of the final tournament	Annual inflation (1)	Inflation excluding services related to entertainment (2)	Inflation range and target		Dif. (1 - 2)
2001	América de Cali vs. Independiente de Medellín	0.87	7.65	7.64	8.00	8.00	0.01
2002	Independiente de Medellín vs. Deportivo Pasto	0.78	6.99	6.97	6.00	6.00	0.02
2003	Deportes Tolima vs. Deportivo Cali	0.10	6.49	6.47	5.00-6.00	5.50	0.02
2004	Junior vs. Atlético Nacional	1.69	5.50	5.46	5.00-6.00	5.50	0.04
2005	Deportivo Cali vs. Real Cartagena	1.30	4.86	4.83	4.50-5.50	5.00	0.03
2006	Cúcuta Deportivo vs. Deportes Tolima	0.51	4.48	4.54	4.00-5.00	4.50	-0.06
2007	Atlético Nacional vs. La Equidad	0.39	5.69	5.67	3.50-4.50	4.00	0.02
2008	América de Cali vs. Independiente Medellín	1.33	7.67	7.76	3.50-4.50	4.00	-0.09
2009	Independiente Medellín vs. Atlético Huila	1.40	2.00	1.99	4.50-5.50	5.00	0.01
2010	Once Caldas vs. Deportes Tolima	6.15	3.17	3.12	2.00-4.00	3.00	0.05
2011	Junior vs. Once Caldas	6.74	3.73	3.70	2.00-4.00	3.00	0.03
2012	Millonarios vs. Independiente Medellín	10.03	2.44	2.36	2.00-4.00	3.00	0.08
2013	Atlético Nacional vs. Deportivo Cali	4.28	1.94	1.92	2.00-4.00	3.00	0.02
2014	Santa Fe vs. Independiente Medellín	20.38	3.66	3.59	2.00-4.00	3.00	0.07
2015	Atlético Nacional vs. Junior	3.22	6.77	6.79	2.00-4.00	3.00	-0.02
2016	Santa Fe vs. Deportes Tolima	1.34	5.75	5.74	2.00-4.00	3.00	0.01
2017	Millonarios vs. Santa Fe	18.13	4.09	3.98	2.00-4.00	3.00	0.11

Sources: DANE and Banco de la República

resulting from this exercise allows us to estimate total annual inflation without soccer. As illustrated in Column 5 of Table 1, annual inflation without soccer in 2017 would have been 3.98%; that is, 11 basis points (bp) less than the official figure for inflation published by DANE (4.09%). Therefore, having two teams from the capital classify for the final soccer playoffs at the end of last year led to an increase in total annual inflation from 3.98% to 4.09%.

*The contribution of soccer to inflation.* This calculation is obtained by multiplying three components: the annual change in the CPI for entertainment-related services (soccer) at December 2017, the weight of soccer in the CPI, and the proportion of the soccer CPI with respect to

the total CPI twelve months ago. Hence, soccer's contribution to annual consumer inflation in 2017 was 13 bp. As a result, due to soccer, inflation last year did not end at 3.96%, but at 4.09%.

*Inflation in 2017 with different teams in the final playoffs.* An alternative is to assume the increase in the component for entertainment, culture and leisure (which includes soccer) in December 2017 was equal to what it was in December 2016 (6.86%) and not the one actually on record (23.4%). In other words, it is suggested the final tournament in December 2017 would have been less inflationary without one of the two teams from the nation's capital. The playoffs between Santa Fe and Tolima in December 2016 are an example. The result shows

consumer inflation would have been 4.00% at the end of the year and not 4.09%.

The conclusion derived from these estimates is that annual consumer inflation was above 4.0% at the end of 2017, partly because of the way soccer ticket prices are captured in the CPI. As *Banco de la República* has emphasized, any deviation in inflation from its target can have macroeconomic costs. One example is the cost in terms of controlling inflation by the central bank due to a loss of credibility, whose functional mission is to maintain the purchasing power of domestic currency. The rise in inflation also worsens inflation expectations and leads to higher indexing because many items in the economy adjust to past inflation, either directly or indirectly. Such is the case with wages, public utilities, real estate leases, transportation rates, educational services, taxes and commercial contracts, among others. Inflationary inertia also is accentuated and makes this phenomenon more persistent.

## 2. Some Methodological Considerations for Calculating Soccer in the CPI

As noted, the CPI for entertainment-related services (affected by soccer) is highly seasonal at mid-year and at the end, when the finals of the Colombian soccer championship are played. This effect can be either less or quite pronounced, depending on the teams that reach the finals. In particular, the price of soccer tickets lends an upward bias (of at least 7.0 bp) to consumer inflation when the teams from the major cities reach the final, as verified in 2012 (Millonarios- Medellín), 2014 (Santa Fe-Medellín) and 2017 (Millonarios-Santa Fe).

To reduce this bias and its effects, soccer should be treated the same as goods and services that change in quality. Any final playoff, in any sport, is a differentiated product, with added intrinsic value. In this case, the recommendation of the IMF (2006) is very clear: “[...] it is important to ensure that the quality of goods and services for which prices are collected does not change during the process [...]”<sup>5</sup> This recommendation is intended to encourage national bureaus of statistics to collect prices of identical products and to avoid heterogeneous products. In this sense, a soccer final is a differentiated product with a significant increase in quality. The CPI manual published by the IMF outlines several techniques that can be used to correct price hikes that stem from an increase in quality,<sup>6</sup> one of which should be considered so that an unforeseen event such as soccer does not have the inflationary impact described in this box.

5 See the International Monetary Fund (2006). *Manual del índice de precios al consumidor, teoría y práctica*, 31-35.

6 In this respect, see Chapter 7, *ibidem*.