

Box 1

A Historical Decomposition of the Consumer Confidence Index in Colombia

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The Consumer Confidence Index (CCI), published by Fedesarrollo, summarizes the perception and expectations of consumers with regard to the country's economic conditions and those of households, as well as the willingness of individuals to spend on durable goods, such as furniture, appliances, vehicles, and even longer-term decisions, such as the purchase of a home. This indicator aims to closely monitor the behavior of demand and to register changes in the preferences and consumption habits of Colombian families. The CCI is monthly, in terms of its frequency, and is calculated as the average of the balances of five questions¹ in the *Consumer Opinion Survey* (EOC in Spanish). Two complementary indicators are also constructed on the basis of these questions: the *Household Economic Conditions Index* (ICE in Spanish) and the *Consumer Expectations Index* (IEC in Spanish).

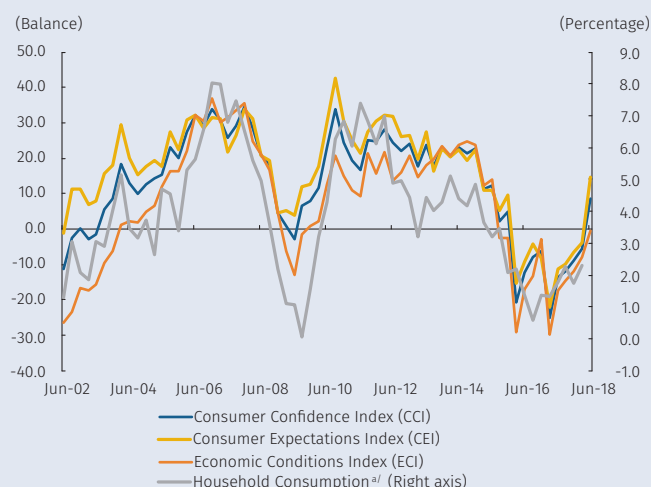
The CCI plays an important role in the decision-making process of the economic authorities. *Banco de la República's* technical staff and its Board of Directors follow this indicator because, given the frequency with which it is published and its high correlation with the dynamics of private consumption, it provides relevant information

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1 The balance is defined as the percentage of positive responses minus the percentage of negative responses. Its range goes from -100% to +100%. The questions on which the CCI is constructed deal with perceptions and expectations concerning the household (questions 1 and 2), the country (questions 3 and 5), and the willingness to purchase durable goods (question 11), as identified by the household head who is surveyed. For further details on the EOC methodology, consult <https://www.fedesarrollo.org.co/encuestas/consumidor-eoc>

that can be used to analyze the state of economic activity. In fact, studies such as those by Carroll et al. (1994) and Ludvigson (2004), and Julio and Grajales (2011) for the Colombian case, show the confidence index helps to predict growth in the gross domestic product (GDP) and its components, with household consumption being the most relevant one. The coefficients of contemporaneous correlation between the EOC indexes and the annual rate of growth in private consumption are 84.0%, 80.6% and 80.5% for the CCI, the IEC and ICE, in that order, taking into account the figures for the first quarter of 2018 (Chart B1.1).

Chart B1.1
Consumer Confidence Index and Growth in Household Consumption



a/ Unofficial linking using the national accounts with base year 2005 and 2015.
Sources: Fedesarrollo; authors' calculations

1. The Macroeconomic Environment and Recent Performance of the CCI

In the most recent four-year period, the Colombian economy faced a variety of shocks that severely and persistently affected its equilibrium. The most relevant one was the unwinding of the international price of oil in mid-2014. As explained in previous editions of the *Inflation Report*, this plunge had macroeconomic consequences that included 1) a significant drop in terms of trade; 2) a deterioration in the dynamics of disposable income; 3) a sharp depreciation of the exchange rate and, through the effects of the second round, 4) the appearance of inflationary pressures on tradable goods, which impaired the purchasing power of Colombian families. The drop in the price of oil and its secondary effects on the economy were compounded by those derived from the impact El Niño weather had on food prices throughout 2015. This implied an additional increase in the cost of the consumer basket of goods and services.

In the context described above, the momentum in the CCI was consistent with the cycle of economic activity.

Therefore, it fell sharply as of the third quarter of 2014, before bottoming out towards the end of 2016. Since then, it has shown a tendency to recover, even in times of political uncertainty and in the presence of shocks associated with the announcement and subsequent implementation of the latest tax reform. The recovery in household confidence occurred in a scenario that was marked by an orderly adjustment in the Colombian economy at levels consistent with lower terms of trade, but also by partial reversal of some of the shocks and the convergence of the pace of economic activity towards its potential level and inflation towards its the long-term target of 3%.

The rise in the CCI was more noticeable in recent months, propelled largely by the expectations component of the indicator (Chart B1.2). The country's economic authorities and its market analysts have taken this as a sign of economic recovery and as an indication of acceleration in the rate of growth in private consumption in the short term.

That being said, one can wonder about the reasons for the recent recovery in household confidence. This rebound would have different implications for the design of economic policy, depending on if it originates with an improvement in its fundamentals, or if it obeys new or isolated events unrelated to its determinants. It is, therefore, important to pinpoint what these fundamental variables are and how they have influenced the behavior of consumer confidence in Colombia.

To that end, this box identifies some of the variables that are recognized in the international literature as determinants of consumer confidence. Then, a historical decomposition of the structural shocks to the fundamentals that determine movement in the CCI is developed by means of an econometric exercise. The results of the

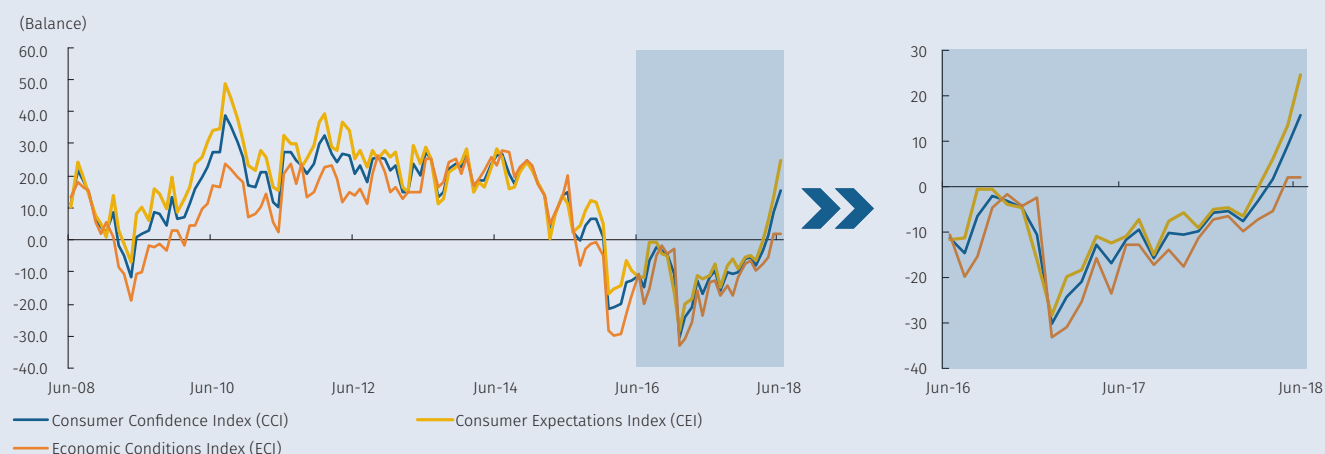
empirical exercise suggest the recent recovery in the CCI was due to fundamental factors, as well as to confidence shocks unrelated to its determinants. This allows us to conclude that, even in the absence of positive confidence shocks not explained by its fundamentals, the CCI would have registered a positive trend.

2. Fundamentals of the Behavior of Household Confidence

The literature on what decides consumer confidence identifies variables that can be categorized into different groups. In principle, Souleles (2004) and Ramalho et al. (2011) find a short-term relationship between a country's economic performance (and the phase of the cycle) and consumer confidence, which complements the role of the population's demographic features and events of an electoral and/or political nature. The results obtained by Lahiri and Zhao (2016) point in the same direction; in addition to the aforementioned variables, these authors also underscore the importance of how each household interprets and perceives its financial situation and the cost of living. In this same vein, variables such as the country's financial situation, real household income, the unemployment rate, inflation expectations and the perception of the government's economic policy explain the behavior of consumer confidence.

Other authors, such as Mueller (1966), Ward (1999), and Özerkek and Çelik (2010), have found that consumer confidence closely follows what happens in the country and at home in terms of the job market, income and wealth in real terms, and the tax burden and tax levies. In particular, these studies show how the household head being unemployed significantly affects consumer expectations with regard to economic conditions, and how increases in stock prices and government spending have

Chart B1.2
Indexes of Consumer Confidence (CCI), Consumer Expectations (CEI) and Economic Conditions (ECI)



Source: Fedesarrollo.

a positive and a negative effect on consumer sentiment, in that order.

The effect of news and political events on the extent of consumer confidence has been studied as well. Mass media news is identified as a key determinant of trust (Mueller, 1966), and may even have an asymmetric effect: consumers seem to be more sensitive to negative events than to positive ones (Lahiri and Zhao, 2016). Also, it has been reported that the tone with which economic news is presented has a significant short-term impact on this variable (Alsem et al., 2008). Similarly, Throop (1992) finds that consumer confidence can move separately from its determinants when an important political or economic event occurs.

Similarly, De Boef and Kellstedt (2004) show that, after controlling for economic performance, the way citizens perceive the ability of governments to manage the economy affects confidence in both the near and long term. Events such as wars, elections and the extent of political approval of the current government also explain several of the changes in confidence.

3. Description and Results of the Econometric Exercise

For this paper and according to the international literature, 78 economic series were classified into six (6) groups of variables, each one related to a particular determinant of consumer confidence. The first group is constructed with indicators of the international economic environment, and we refer to it as the “external context”. The second contains variables associated with the country’s economic situation in general, as well as several indicators of economic activity and government spending. It is called the “domestic context”. The third group, “labor conditions”, summarizes the conditions in the Colombian job market: employment and unemployment rates, quality of employment, and income and real wages. The fourth group, “financial conditions”, includes different interest rates, amounts disbursed, and indicators of household loan quality. The fifth group, “taxes”, is comprised of figures on the collection of direct and indirect taxes that affect Colombian consumers. The sixth group is related to the “cost of living”; it consists of different indexes with respect to consumer prices and inflation expectations.

Additionally, it is assumed the changes in confidence that are not explained by these determinants are caused by isolated shocks, referred to as “the rest”. They do not depend on what happens to the fundamental variables and could be related to political events, issues concerning law and order, and news, among other factors.

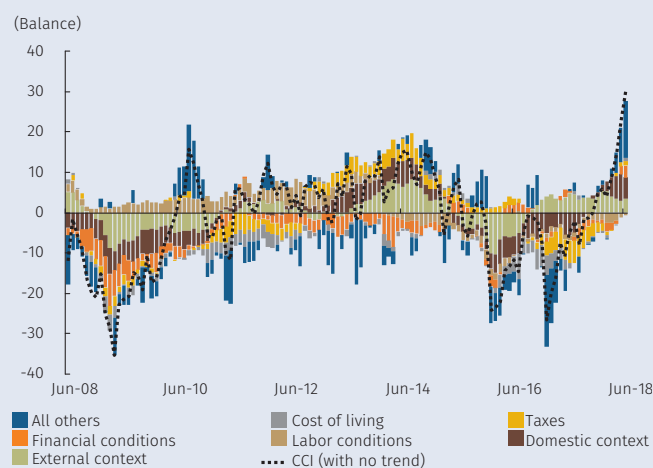
Then, the main components were analyzed to construct a representative series for each of the groups of determinant variables. As is customary, the first factor (main component) of each group was extracted. It summarizes the behavior of all the variables included in the group.

A structural factor-augmented vector autoregressive (SFAVAR) model was estimated to decompose the changes in the CCI between those explained by its fundamentals and those not related to the behavior of its determinants. The tendency was eliminated from all series of the system of equations. This allows the variables to be stationary and the system to be stable, as confirmed by the results of the unit root and augmented Dickey-Fuller tests applied to the series.

Then, through an exercise of historical decomposition of shocks (Burbidge and Harrison, 1985), in which the Cholesky factorization is used as an identification strategy, series of structural errors in the system of equations were obtained. . With these series, the CCI can be decomposed as the accumulated sum of shocks to its fundamental factors (Chart B1.3). For more details on the econometric methodology used in this case, see, for example, Amisano and Giannini (1997); and Bernanke et al. (2005).

The results of the historical decomposition of CCI shocks are robust and consistent with what was observed for the Colombian economy in the most recent decade. For example, one sees how household confidence was battered by deterioration in the fundamentals of the “external context” between 2009 and 2011, as a result of the international financial crisis at the end of 2008. During that period, a negative contribution from the fundamentals

Chart B1.3
Historical Decomposition of Structural Shocks to the Consumer Confidence Index



Sources: Fedesarrollo; authors' calculations

of “financial conditions” and “domestic context” was recorded as well, in an environment marked by a slow-down in the Colombian economy.

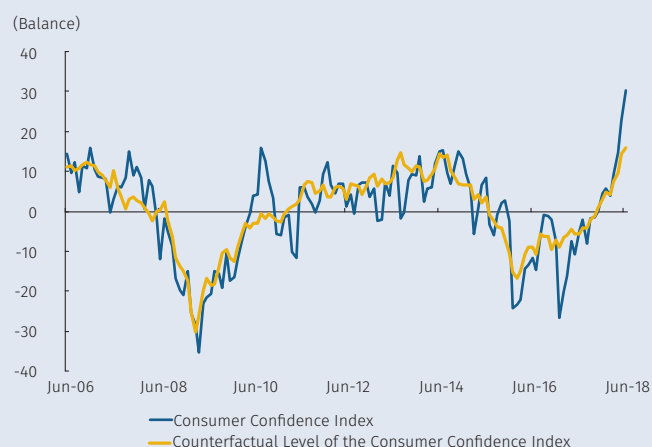
The five years after the financial crisis were a time when good performance by the fundamentals of the “external context” helped to consolidate the CCI on positive ground, particularly due to high international prices for the raw materials Colombia exports. The “domestic context” and “working conditions” also contributed during that period.

The decomposition of shocks also shows how the CCI was affected between 2015 and 2016 by the behavior of the determinants of the “external context”, given the strong shock to terms of trade in mid-2014 and its second-round effects on the economy. In this sense, the shocks to the “domestic context” also contributed to the deterioration in household confidence during that period. Moreover, the shocks to the prices in the consumer basket of goods and services derived from the effects of El Niño weather and accumulated depreciation caused the “cost of living” group to affect household confidence levels between the start of 2016 and the middle of 2017. Added to this are the declines related to the shocks that are not explained by the behavior of the CCI fundamentals. The slumps in confidence during the early months of 2016 and 2017 are a particular case in point. These shocks could have been related to the announcement and subsequent entry into force of the latest tax reform. In this respect, one sees how the fundamentals of the “taxes” group negatively affected consumer confidence throughout 2017. During that period, there was an increase in VAT and direct taxes.

So far in 2018, most of the fundamentals of household confidence have performed positively in a context where the contribution to the increase in the CCI from the shocks associated with isolated events, unrelated to the performance of its determinants, has been especially high. This reflects the fact that consumers have been especially influenced in recent months by news or events that are not related to the behavior of the fundamental variables of the CCI. It should be noted that better conditions for the fundamentals of the “external context” since the beginning of 2017 enabled the CCI to register favorable performance, as did those of the “internal context” since the end of last year, the assimilation of the VAT shock by Colombian households in 2018, and the convergence of inflation at stable levels near the long term target of 3.0% set by *Banco de la República*. This occurred even when discounting the effect of the shocks not explained by the CCI determinants (Chart B1.4).

These results allow for the presumption that the recent increases in the CCI are the result of a combination of

Chart B1.4
Consumer Confidence Index: Observed and Counterfactual Levels in Absence of Shocks Not Explained by their Fundamentals (Series with no quadratic trend)



Source: Fedesarrollo; authors' calculations

better performance from its fundamentals, on the one hand, and positive contributions from shocks associated with events unrelated to the determinants of confidence, on the other. Furthermore, the evidence derived from the empirical exercise suggests that, even without the positive shock that is not explained by its fundamentals, the CCI would have recovered and would have registered high levels anyway.

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