2 Inflation outlook

This chapter presents an analysis of inflation prospects up to 2020, hence covering all calendar years for which inflation targets have been set by the National Monetary Council (CMN).

Conditional inflation projections are presented under four scenarios, depending on the conditioning assumptions for the paths of the exchange rate and the Selic rate over the forecast horizon. The conditioning assumptions may be paths originated from expectations of the Focus survey, carried out by the BCB, or paths in which these variables assume constant values over the forecast horizon.

The first two scenarios employ the interest rate path of the Focus survey, with the first one also assuming the exchange rate path of the same survey and the second one assuming that the exchange rate remains unchanged.

Two alternative scenarios assuming a constant Selic rate are presented as well. The first one assumes a constant exchange rate, while the second one employs the path originated from the Focus Survey.

All conditional projections are based on the information set available at the cutoff date of December 15, 2017, unless otherwise indicated.

It is important to highlight that the conditional inflation projections released in this Report consist of probability intervals that embody the existing degree of uncertainty at the aforementioned cutoff date. The projections depend not only on assumptions about the interest rate and the exchange rate, but also on a set of assumptions about the behavior of exogenous variables.

In its decision-making process, the Copom analyses a wide range of variables and models, for which it makes assessments based on the available information set. In exposing some scenarios that inform its deliberations, the Copom seeks to foster transparency to monetary policy decisions, thereby contributing to its effectiveness in controlling inflation, which is its primary objective.

2.1 Revisions and short-term projections

Table 2.1 – IPCA – Inflation surprise

% change

	2017				
	Sep	Oct	Nov	In the quarter[2/]	12 months up to Nov
Copom's scenario[1/]	0.17	0.46	0.40	1.04	2.98
Observed IPCA	0.16	0.42	0.28	0.86	2.80
Surprise (p.p.)	-0.01	-0.04	-0.12	-0.18	-0.18

Sources: IBGE and BCB
1/ Scenario at the cutoff date of the June 2017 Inflation Report
2/ Differences between monthly and accumulated values are due to rounding

Despite the unanticipated pressure on the administered prices, consumer price inflation remained in a path below what was expected in the last months, still reflecting the atypical evolution of food prices. In the three-month period ending in November 2017 the IPCA inflation was 0.18 p.p. below the Copom's baseline scenario as of the September Inflation Report (Table 2.1).

After recording inflation in line with that expected in September, the IPCA again surprised in the months of October and, especially, November. In those two months, there were changes below those predicted in components of the services segment – both "underlying" and "ex-underlying" – and, mainly, of the subgroup food at-the-home. It is worth noting that the increase in electricity tariffs[13] and the rise in fuel prices mitigated part of the disinflationary surprise in the quarter.

Short-term projections

Table 2.2 – IPCA – Short-term projections

% change

	2017	2018			
	Dec	Jan	Feb	In the quarter	12 months up to Feb
Copom's scenario[1/]	0.29	0.53	0.47	1.30	3.09

Sources: IBGE and BCB
1/ Projections as of the cut-off date.

The short-term projections in the Copom's baseline scenario consider changes of 0.29 percent, 0.53 percent and 0.47 percent for the IPCA in the months of December 2017 to February 2018, respectively. This evolution would bring inflation in twelve months to 3.09 percent at the end of the period (Table 2.2), compared to 2.80 percent in November.

Despite the benign effect of switching from the second to the first level of the red flag on electric energy tariffs, the IPCA in December should show a variation close to that observed in November, due to the perspective of a slower pace of the fall in food prices and seasonal elevation of airfare prices. In January and February, the gradual normalization of food price inflation, increases in urban bus fares in several capital cities and annual adjustments in

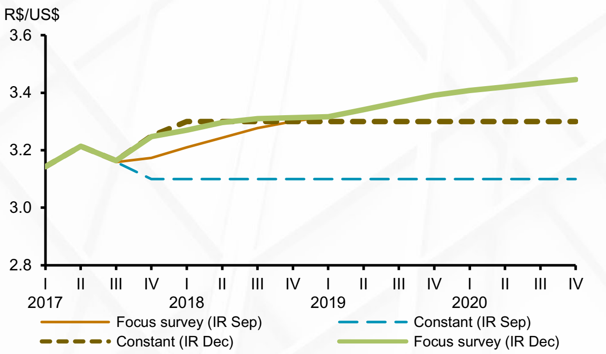
13/ In October, the second level of the red flag was triggered (compared to the first level in September), and in the following month, the respective additional value was adjusted.

education fees tend to cause the monthly IPCA rates to accelerate.

The inflation rate in the quarter ending in February 2018 (projected at 1.30 percent) should be higher than the one observed in the same period of the previous year (1.01 percent), fostering the increase in the year-on-year (YoY) inflation rate. The acceleration in the twelve-month comparison still reflects mainly the discard of the atypically low changes occurred in the same period of the previous year.

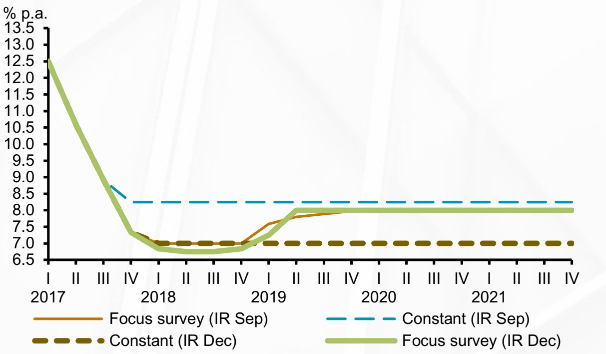
2.2 Conditional projections

Figure 2.1 – Exchange rate assumptions for projections



Note: the values refer to quarterly means.

Figure 2.2 – Interest rate target assumptions for projections



Note: The values refer to quarterly means.

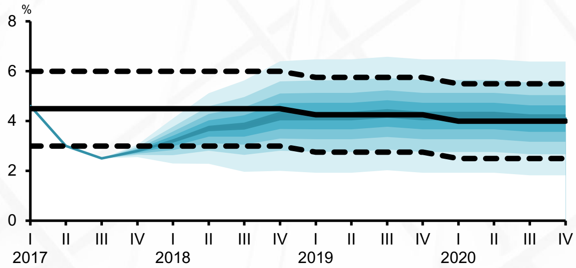
When compared to the values considered in the September 2017 Inflation Report, exchange rate expectations in the Focus survey increased from R$3.20/US$ to R$3.29/US$ for the end of 2017, and remained at $3.30/US$, R$3.40/US$ and R$3.45/US$ for the end of 2018, 2019 and 2020, respectively (Figure 2.1).

In comparison to the values considered in the previous Inflation Report, expectations for the Selic rate in the same survey remained at 7.00 percent p.a. for the end of 2017 and 2018 (Figure 2.2). The expectations of the Focus survey assume that the Selic rate hits a trough of 6.75 percent p.a. at the beginning of 2018 and begins an ascent path in December of the same year, reaching 8.00 percent p.a. in April 2019, remaining at this level until the end of 2021.[14] Consistent with this Selic rate path, the projected pre-DI swap rate hits a trough in the first quarter of 2018, and increases gradually over the subsequent quarters until stabilizing in the second quarter of 2019.

In comparison with the values considered in the previous Inflation Report, in a scenario with the Selic interest rate and the exchange rate from the Focus survey, the projection for the change in administered prices increased from 7.4 percent to 8.0 percent for 2017, and dropped from 5.2 percent to 4.9 percent for 2018. The projection for the change in administrated prices is 4.3 percent for 2019 and 4.2 percent for 2020.

14/ As described in the box "Small-scale aggregate model – 2017" (June 2017 Inflation Report), the trajectory of the 360-day pre-DI swap rate depends on the Selic rate trajectory – used as a constraint for the same period – and the trajectory of the premium (the difference between the swap rate and the expected rate for the Selic). Therefore, the swap rate throughout 2020 also depends on the Selic trajectory over 2021.

Figure 2.3 – Projected inflation with interest and exchange rates from the Focus survey
Inflation fan chart



Note: Year-on-year IPCA inflation (%).

Table 2.3 – Projected inflation with interest and exchange rates from the Focus survey
Central projection and probability intervals

Year Q	50%	30%	10%	Central	10%	30%	50%
2017 4	2.7	2.7	2.8	2.8	2.8	2.9	2.9
2018 1	2.8	3.0	3.1	3.2	3.3	3.4	3.6
2018 2	3.1	3.4	3.6	3.7	3.8	4.0	4.3
2018 3	3.0	3.4	3.7	3.8	3.9	4.2	4.6
2018 4	3.3	3.7	4.0	4.2	4.4	4.7	5.1
2019 1	3.3	3.7	4.0	4.2	4.4	4.7	5.1
2019 2	3.3	3.7	4.0	4.2	4.4	4.7	5.1
2019 3	3.4	3.8	4.1	4.3	4.5	4.8	5.2
2019 4	3.3	3.7	4.0	4.2	4.4	4.7	5.1
2020 1	3.3	3.7	4.0	4.2	4.4	4.7	5.1
2020 2	3.3	3.7	4.0	4.2	4.4	4.7	5.1
2020 3	3.2	3.6	3.9	4.1	4.3	4.6	5.0
2020 4	3.2	3.6	3.9	4.1	4.3	4.6	5.0

Note: Year-on-year IPCA inflation (%).

The projections presented herein also depend on considerations about the evolution of reforms and necessary adjustments in the economy. The projections capture their effects through asset prices, degree of uncertainty, expectations from the Focus survey, and the structural interest rate of the economy. In addition to these channels, fiscal policy influences the conditional inflation projections through impacts on aggregate demand.

The presented projections acknowledge that the evolution of reforms – such as fiscal and lending reforms – contributes to the gradual reduction of the structural interest rate.

Projections for the four-quarter IPCA inflation rate were produced based on the combination of the above assumptions. These projections are based on a set of models and available information, combined with the exercise of judgment.

The central projection in the scenario with the interest rate and the exchange rate from the Focus survey indicates that after the YoY inflation hit 2.5 percent in 2017Q3, it rises to 2.8 percent at the end of 2017 (Figure 2.3 and Table 2.3).

The disinflation process has been broad, reaching different segments, and was accentuated by the behavior of food-at-home prices. The 12-month inflation of these prices, after reaching a peak of 16.79 percent in August 2016, pivoted, entering the deflationary field. Between November 2016 and November 2017, the 12-month home food price inflation went from 11.56 percent to -5.30 percent. This drop of approximately 16.9 p.p. contributed with about 2.7 p.p. to the IPCA inflation reduction of almost 4.2 p.p. over the same period, from 6.99 percent to 2.80 percent.

As previous quarters affected by disinflationary shocks in food prices are discarded from the calculation of the four-quarter inflation rate, the projections increase, reaching approximately 4.2 percent in 2018Q4. In this respect, the accomodative monetary policy benefits the narrowing of the level of economic slack, thus contributing to the increase of inflation and its convergence to the target.

Still in the scenario with the interest rate and the exchange rate from the Focus survey, expected inflation also reaches around 4.2 percent in the end of 2019, and reduces to 4.1 percent in 2020.

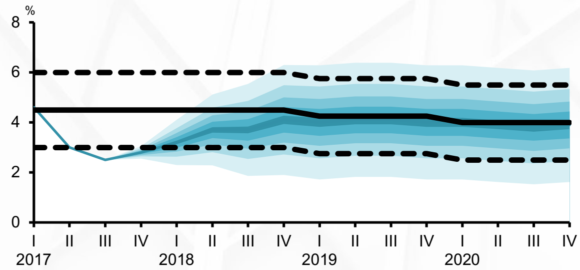
Table 2.4 – Projections in the previous and current Inflation Report – scenario with interest and exchange rates from the Focus survey

Year-on-year inflation (%)

Year	Q	September Inflation Report	December Inflation Report
2017	4	3.2	2.8
2018	1	3.6	3.2
2018	2	4.3	3.7
2018	3	4.3	3.8
2018	4	4.3	4.2
2019	1	4.3	4.2
2019	2	4.2	4.2
2019	3	4.2	4.3
2019	4	4.2	4.2
2020	1	4.1	4.2
2020	2	4.1	4.2
2020	3	4.1	4.1
2020	4	4.1	4.1

Figure 2.4 – Projected inflation with interest rate from the Focus survey and constant exchange rate

Inflation fan chart



Note: Year-on-year IPCA inflation (%)

Table 2.5 – Projected inflation with interest rate from the Focus survey and constant exchange rate

Central projection and probability intervals

Year Q	50%	30%	10%	Central	10%	30%	50%
2017 4	2.7	2.7	2.8	2.8	2.8	2.9	2.9
2018 1	2.8	3.0	3.1	3.2	3.3	3.4	3.6
2018 2	3.1	3.4	3.6	3.7	3.8	4.0	4.3
2018 3	2.9	3.3	3.6	3.7	3.8	4.1	4.5
2018 4	3.2	3.6	3.9	4.1	4.3	4.6	5.0
2019 1	3.1	3.5	3.8	4.0	4.2	4.5	4.9
2019 2	3.2	3.6	3.9	4.1	4.3	4.6	5.0
2019 3	3.2	3.6	3.9	4.1	4.3	4.6	5.0
2019 4	3.1	3.5	3.8	4.0	4.2	4.5	4.9
2020 1	3.1	3.5	3.8	4.0	4.2	4.5	4.9
2020 2	3.0	3.4	3.7	3.9	4.1	4.4	4.8
2020 3	2.9	3.3	3.6	3.8	4.0	4.3	4.7
2020 4	3.0	3.4	3.7	3.9	4.1	4.4	4.8

Note: Year-on-year IPCA inflation (%).

By 2019 and 2020, several factors contribute to the projections being consistent with the inflation target, such as the favorable starting point for the projected inflation for 2018 (inertia effect), inflation expectations anchored at the target, the paths for interest rates and exchange rates from the Focus survey and the benign behavior expected for world economy variables and for administered prices. It is also assumed that the effects of shocks on inflation and activity dissipate over time.

In this scenario, the estimated probabilities that inflation will breach the upper and lower tolerance levels of the 2017 target are close to 0 percent and 90 percent, respectively. For 2018, the probabilities are around 9 percent and 18 percent for the upper and lower levels, respectively. and for 2019, the probabilities are around 13 percent and 15 percent, respectively.

In comparison with the September 2017 Inflation Report (Table 2.4), the projections for 2017 receded to around 0.4 p.p. mainly due to the lower-than-expected inflation rate for the three-month period of September to November (0.86 percent vs. 1.04 percent) and the revised projection for December.

For 2018, the projections fell about 0.1 p.p, mainly because of the lower inertia stemming from the lower 2017 inflation projection and the fall of administered prices projections. As for 2019, the inflation determinants offset.

In comparison with the December Copom Meeting (211th Copom meeting), the projections were reduced by approximately 0.1 p.p. for 2017 (see 211th Copom Minutes), as a consequence of the lower-than-expected inflation for November and the revised projection for December. For 2018 and 2019 the projections remained stable.

The hybrid scenario with constant exchange rate assumes the Selic rate from the Focus survey, but is conditioned on a constant exchange rate at R$3.30/US$ throughout the forecast horizon. The inflation projection for 2017, around 2.8 percent (Figure 2.4 and Table 2.5), is similar to the previous scenario (Table 2.6) basically because of the short projection horizon. For 2018, 2019 and 2010, inflation projections are around 4.1 percent, 4.0 percent and 3.9 percent, respectively. These projections are lower than in the previous scenario because of the

Table 2.6 – Central projections in different scenarios

Year	Q	Interest and exchange rate from Focus survey	Interest rate from Focus survey and constant exchange rate	Constant interest and exchange rate	Exchange rate from Focus survey and constant interest rate
2017	4	2.8	2.8	2.8	2.8
2018	1	3.2	3.2	3.2	3.2
2018	2	3.7	3.7	3.7	3.7
2018	3	3.8	3.7	3.7	3.7
2018	4	4.2	4.1	4.0	4.1
2019	1	4.2	4.0	4.0	4.1
2019	2	4.2	4.1	4.1	4.3
2019	3	4.3	4.1	4.2	4.4
2019	4	4.2	4.0	4.1	4.4
2020	1	4.2	4.0	4.2	4.4
2020	2	4.2	3.9	4.2	4.4
2020	3	4.1	3.8	4.1	4.3
2020	4	4.1	3.9	4.2	4.4

Note: Year-on-year IPCA inflation (%).

Table 2.7 – Projected inflation with constant interest and exchange rates

Central projection and probability intervals

Year Q	50%	30%	10%	Central	10%	30%	50%
2017 4	2.7	2.7	2.8	2.8	2.8	2.9	2.9
2018 1	2.8	3.0	3.1	3.2	3.3	3.4	3.6
2018 2	3.1	3.4	3.6	3.7	3.8	4.0	4.3
2018 3	2.9	3.3	3.6	3.7	3.8	4.1	4.5
2018 4	3.1	3.5	3.8	4.0	4.2	4.5	4.9
2019 1	3.1	3.5	3.8	4.0	4.2	4.5	4.9
2019 2	3.2	3.6	3.9	4.1	4.3	4.6	5.0
2019 3	3.3	3.7	4.0	4.2	4.4	4.7	5.1
2019 4	3.2	3.6	3.9	4.1	4.3	4.6	5.0
2020 1	3.3	3.7	4.0	4.2	4.4	4.7	5.1
2020 2	3.3	3.7	4.0	4.2	4.4	4.7	5.1
2020 3	3.2	3.6	3.9	4.1	4.3	4.6	5.0
2020 4	3.3	3.7	4.0	4.2	4.4	4.7	5.1

Note: Year-on-year IPCA inflation (%).

depreciation trajectory of the exchange rate from the Focus survey considered in the previous scenario.

In this scenario, the estimated probabilities that inflation will breach the upper and lower tolerance levels of the 2017 target are around 0 percent and 90 percent, respectively. For 2018, the probabilities are around 8 percent and 21 percent, respectively, and for 2019, the probabilities are around 10 percent and 18 percent, respectively.

This Inflation Report also presents conditional projections that assume a constant Selic rate. In this case, the Selic rate is assumed to remain at 7.00 percent p.a., which corresponds to the rate determined at the Copom's December meeting.

In the scenario with constant interest rate and exchange rate (throughout the projection horizon), the inflation projection is around 2.8 percent in 2017 and 4.0 percent in 2018 (Table 2.7). The projection for 2018 is lower than that in the previous scenario, because the constant Selic rate path leads to higher swap pre-DI rates, resulting in higher real interest rate and, therefore, lower inflation. Conversely, projections for 2019 and 2020 at 4.1 percent and 4.2 percent, respectively, are higher. The reason is that, in the previous scenario, the Selic rate extracted from Focus survey exceeds 7.00 percent p.a. in the beginning of 2019, which leads to higher swap pre-DI rates and, as a consequence, to lower inflation.

Finally, in the hybrid scenario with exchange rate from the Focus survey and constant Selic rate, the inflation projection is approximately 2.8 percent in 2017 and 4.1 percent in 2018 (Table 2.8). Compared with the previous scenario, the inflation projection for 2018 is higher, because of the path with exchange rate depreciation extracted from the Focus survey. For this same reason, the projections of inflation in this scenario, for 2019 and 2020, are higher, around 4.4 percent in both years.

2.3 Monetary policy conduct and balance of risks

The set of economic activity indicators reported since the last Copom meeting shows signs consistent with a gradual recovery of the Brazilian economy.

Table 2.8 – Projected inflation with exchange rate from the Focus survey and constant interest rate

Central projection and probability intervals

Year Q	50%	30%	10%	Central	10%	30%	50%
2017 4	2.7	2.7	2.8	2.8	2.8	2.9	2.9
2018 1	2.8	3.0	3.1	3.2	3.3	3.4	3.6
2018 2	3.1	3.4	3.6	3.7	3.8	4.0	4.3
2018 3	2.9	3.3	3.6	3.7	3.8	4.1	4.5
2018 4	3.2	3.6	3.9	4.1	4.3	4.6	5.0
2019 1	3.2	3.6	3.9	4.1	4.3	4.6	5.0
2019 2	3.4	3.8	4.1	4.3	4.5	4.8	5.2
2019 3	3.5	3.9	4.2	4.4	4.6	4.9	5.3
2019 4	3.5	3.9	4.2	4.4	4.6	4.9	5.3
2020 1	3.5	3.9	4.2	4.4	4.6	4.9	5.3
2020 2	3.5	3.9	4.2	4.4	4.6	4.9	5.3
2020 3	3.4	3.8	4.1	4.3	4.5	4.8	5.2
2020 4	3.5	3.9	4.2	4.4	4.6	4.9	5.3

Note: Year-on-year IPCA inflation (%).

The economy continues to operate with a high level of economic slack, reflected in the low industrial-capacity utilization indices and, mainly, in the unemployment rate.

The global outlook remains favorable, as the global economic activity has been recovering without excessively pressuring the financial conditions in the advanced economies, which helps to maintain risk appetite towards emerging economies.

Inflation expectations from the Focus survey stand around 2.8 percent for 2017. For 2018, 2019 and 2020, expectations remain at around 4.0 percent, 4.25 percent and 4.00 percent, respectively.

The baseline scenario for inflation has evolved, to a large extent, as expected. Inflation developments remain favorable, with diverse measures of underlying inflation at low or comfortable levels, including inflation components that are most sensitive to the business cycle and monetary policy.

At the December Copom meeting (211th meeting), the Committee unanimously decided to reduce the Selic rate by 0.5 percentage point, to 7.0 percent p.a., without bias. The Committee judges that convergence of inflation to the target over the relevant horizon for the conduct of monetary policy, which includes 2018 and 2019 calendar years, is compatible with the monetary easing process.

On that occasion, the Committee conveyed that the baseline inflation scenario involves risk factors in both directions. On the one hand, the combination of (i) possible second-round effects of the ongoing favorable food price shock and of low current levels of industrial goods inflation, and (ii) the possible propagation of the low level of current inflation through inertial mechanisms, including the components that are most sensitive to the business cycle and monetary policy, may lead to a lower-than-expected prospective inflation trajectory. On the other hand, (iii) frustration of expectations regarding the continuation of reforms and necessary adjustments in the Brazilian economy may affect risk premia and increase the inflation path over the relevant horizon for the conduct of monetary policy. This risk intensifies in the case of (iv) a reversal of the current benign global outlook for emerging economies.

The Committee judges that economic conditions prescribe an accommodative monetary policy, i.e., interest rates below the structural level. The Committee emphasizes that the evolution of reforms and necessary adjustments in the Brazilian economy contributes to a reduction of its structural interest rate. The Committee will continue to reassess estimates of this rate over time.

The Copom stresses that the evolution of the baseline scenario, in line with expectations, and the stage of the monetary easing cycle made it appropriate to reduce the Selic rate by 0.5 percentage point at its December meeting. Regarding the next meeting, provided the Committee's baseline scenario evolves as expected, and taking into account the stage of the monetary easing cycle, at this time the Copom views an additional moderate reduction of the pace of easing as appropriate. The Committee views this guidance as more susceptible to changes in its baseline scenario and balance of risks than in the previous meeting. Going forward, the Committee judges that the current stage of the cycle recommends caution in conducting monetary policy. The Copom emphasizes that the monetary easing process will continue to depend on the evolution of economic activity, the balance of risks, possible reassessments of the extension of the cycle, and on inflation projections and expectations.