

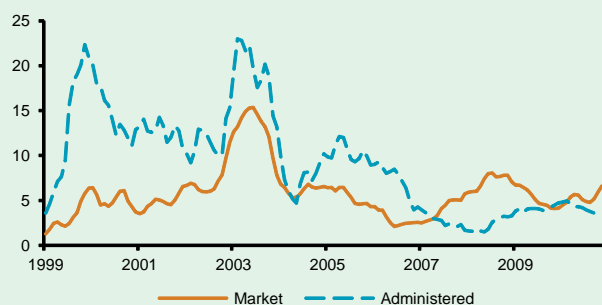
Administered Projections Prices

For the purposes of inflation analysis and forecasting, the Broad National Consumer Price Index (IPCA) is usually divided into market prices and prices that are administered or regulated by contract (“administered prices”). For this and other purposes, administered prices are those established by contract by a public or regulatory agency, and are generally less sensitive to supply and demand conditions. Currently, the set of administered prices comprises 28 items that represent about 30% of the total IPCA bundle, as reported in Table 1¹.

Given the importance of such prices for the conduction of monetary policy, and in order to provide updated information on the models currently used by the Central Bank, the objective of this box is to describe the strategy for projecting administered prices, which is subject to constant updates. It should be emphasized that, beyond the models described here, expert judgment is also taken into account in the construction of scenarios for the future behavior of administered prices, especially for the short term. The projections of this set of prices, along with the information generated by other econometric tools, constitute important inputs for the decision making process of the Monetary Policy Committee (Copom).

Figure 1 shows the twelve-month percentage change of market and administered prices since January 1999. After the period between 1999 and early 2007, in which the changes in administered prices were

Figure 1 – Twelve-month change for market and administered prices



1/ As explained on the boxes “Change in the Composition of the IPCA Group of Administered Prices by Contracts and Monitored” and “IPCA Administered Prices by Contracts and Monitored: Update on the Consumer Expenditure Survey”, published in the Inflation Report of December 2005 and March 2006, respectively, the classification of administered prices can be modified by the Monetary Policy Committee (Copom) for analytical or economic policy reasons. In 2006, for example, the composition of administered prices has changed, with the inclusion of pharmaceuticals, vehicular gas and traffic fines, and the exclusion of ethanol, property tax and public transportation – ship.

Table 1 – Administered Prices Composition

Items	IPCA weights (%)*	Administered weights (%)	Price adjustment frequency**	Regulatory authority***
Petroleum Products	5.49%	18.77%		
Gasoline	3.94%	13.47%	Irregular	ANP
Bottled Gas	1.19%	4.07%	Irregular	ANP
Vehicular Gas	0.10%	0.36%	Irregular	ANP
Piped Gas	0.10%	0.33%	Irregular	States
Diesel	0.08%	0.27%	Irregular	ANP
Motor Oil	0.08%	0.26%	Irregular	ANP
Public Transportation and Bus	6.57%	22.44%		
Urban Bus	3.84%	13.10%	Irregular	Municipalities
Intercity Bus	1.20%	4.08%	Irregular	States
Insterstate Bus	0.37%	1.27%	Annual	ANTT
Taxi Cab	0.32%	1.10%	Irregular	Municipalities
Plan 1/	0.34%	1.15%	Irregular	–
Subway	0.26%	0.90%	Irregular	Municipalities
Train	0.10%	0.36%	Irregular	Municipalities
Ferry-Boat	0.01%	0.04%	Irregular	Municipalities
Ship	0.00%	0.01%	Irregular	Municipalities
Toll	0.12%	0.43%	Annual	States
Electricity	3.24%	11.06%	Annual	Aneel
Water	1.63%	5.56%	Annual	Municipalities
Health	6.36%	21.73%		
Health Plans ^{2/}	3.50%	11.94%	Annual	ANS
Pharmaceuticals	2.87%	9.79%	Annual	CMED
Communication	4.82%	16.45%		
Fixed Telephone	3.25%	11.09%	Annual	Anatel
Mobile Telephone	1.29%	4.42%	Annual	Anatel
Public Telephone	0.23%	0.80%	Annual	Anatel
Post Mail	0.04%	0.15%	Irregular	Federal Government
Other	1.17%	4.00%		
Vehicle Licensing	0.72%	2.45%	Irregular	States
Lottery	0.38%	1.30%	Irregular	Federal Government
Traffic Fines	0.07%	0.24%	Irregular	Contran
Legal services	0.00%	0.01%	Irregular	States
	29.28%	100.00%		

Source: Banco Central do Brasil and IBGE

* Weights for October 2010.

** Approximate frequency for recent years.

***It should be noted that the nature of regulation concerning the adjustment price rates varies between different agencies. Some, like the ANS and Anatel, determine the percentage adjustment to be applied to most goods and services regulated by them, while the ANP role is to ensure competition in the market.

1/ The prices of airline tickets are free but are included in the category given because the air transport in Brazil's public concession.

2/ The annual adjustment is distributed throughout the year to calculate the variation of the IPCA item.

Anatel – National Telecommunications Agency

Aneel – National Energy Agency

ANP – National Agency of Petroleum

ANS – National Health Agency

ANTT – National Agency of Terrestrial Transportation

CMED – Chamber of Market Regulation on Pharmaceutical Prices

Contran – National Council of Traffic

higher than that of market prices², in recent years the latter have been, generally, growing slightly faster than the former. For example, administered prices grew 2.87% in 2010 up to November, while market prices rose by 6.25% in the same period.

Administered prices, as mentioned earlier, are less sensitive to supply and demand forces than market prices are and, in general, their adjustments are determined by contractual rules. Roughly speaking, these rules usually seek to compensate variations in costs and productivity gains across sectors and are set by regulatory agencies in each sector and the indices used to update the value of the contracts vary with each item.

The price of fixed telephone services, for example, was adjusted based on the change of the General Price Index – Internal Availability (IGP-DI) until 2005. Currently, the readjustments follow the change in the Telecommunication Services Index (IST), which is mainly composed by IPCA (weight of 47.6%) and the Broad Producer Price Index – Global Supply/ Machinery and Equipment (IPA-OG/Machines, weight of 32.5%). Price of pharmaceuticals, in turn, have been adjusted, since 2003, according to a price cap model that combines the IPCA with factors of productivity and relative price adjustment between and within sectors. Regarding electricity, the annual adjustment rate considers explicitly the variation in the General Price Index – Market (IGP-M), as well as the influence of other factors, including the evolution of the exchange rate and the incidence of taxes and fees on the final consumer. The consumer price of gasoline, although depends on factors such as price of ethanol and the competition among the distributors, tends to reflect the pricing policy pursued by Petrobras. This, in turn, is influenced by the exchange rate, international oil prices and the Contribution of Intervention in the Economic Domain (Cide).

In summary, besides the IPCA and the general price indexes, the variation in administered prices are influenced by other variables, such as exchange

2/ Between January 1999 and December 2006, administered prices rose 147%, compared to an increase of 61% of market prices. The Working Paper No. 59, (2002), “Administered Prices and Inflation in Brazil,” discusses the causes of the distinct behavior of market-based and administered prices between 1996 and 2002.

rate and international prices. Moreover, as there are defined rules regarding the frequency and period of readjustment, seasonal pattern exists for certain items, such as the fixed telephone tariffs and prices of pharmaceuticals.

In this context, the identification of the indexes and the variables that influence the administered prices, in addition to seasonal patterns, are the starting point for modeling. Two different strategies are used for projecting the administered prices. Under the first one, which is purely econometric, different models comprising two-stage least squares regressions and Vector Autoregression techniques (VAR) are estimated for the aggregate of administered prices. Under the second, known as hybrid modeling, there is a mix of econometric models with “accounting” procedures. With the goal of projecting individual items of administered prices, the “accounting” procedures use information from the contracts between the public agency and the service provider, together with price adjustment rules and methodologies used by the Brazilian Institute of Geography and Statistics (IBGE) to incorporate price variations of specific IPCA components.

In the “accounting” procedures, there are items whose annual adjustments are set nationally and delimited by a specific index or set of indexes as in the cases of fixed telephone services and pharmaceuticals. Other items are defined in state and municipal³ levels and show no regular intervals in the adjustment, such as urban bus fares – in some cities the readjustment of the tariff has been occurring annually in the same month of the year, while in others the rate remains unadjusted for periods exceeding three years. In such cases, the “accounting” procedures would be difficult to deal with because, in addition to estimating the magnitude of price adjustments, one would have to anticipate when they would be implemented. Thus, for items where the “accounting” procedures are inadequate, prices are modeled by econometric techniques in the aggregate, i.e., for the remainder of the administered prices bundle not included in the “accounting” approach. To summarize, in the hybrid modeling a portion of administered prices

3/ The IPCA is calculated for nine metropolitan regions (Rio de Janeiro, Sao Paulo, Belo Horizonte, Belem, Fortaleza, Salvador, Recife, Curitiba and Porto Alegre), plus the cities of Goiânia and Brasília.

Table 2 – Summary of model specifications for administered prices

Approach	Dependent variable	Method	Explanatory variables*
Econometric	Administered prices (aggregate)	Ordinary least squares	Market prices, PPI, Exchange rate
		Vector autoregressive (VAR)	Endogenous: prices of bottled gas, gasoline, electricity and urban bus Exogenous: Exchange rate and market prices
		Vector autoregressive (VAR)	Endogenous: IGP-DI and market prices Exogenous: PPI and Exchange rate
Hybrid	Individual items**	"Accounting"	IPCA, IGP-DI, IGP-M
		Two-stage least squares	IGP-DI, PPI, Exchange rate
	Other administered prices (aggregate)	Ordinary least squares	Market prices, PPI, Exchange rate
		Vector autoregressive (VAR)	Endogenous: IGP-DI and market prices Exogenous: PPI and Exchange rate

* For the "accounting" approach, the indexes are explicitly indicated in the contracts or those that allow more closely replicate the pattern of recent adjustment.

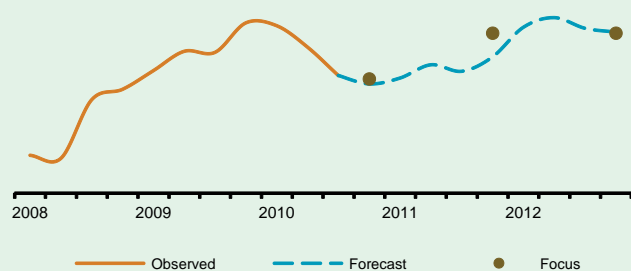
** Fixed telephone, public telephone, interstate bus, water supply, bottled gas, toll, health plan, pharmaceuticals, vehicle licensing.

PPI – U.S. Producer Price Index

IGP-DI – General Price Index – Internal Availability

IGP-M – General Price Index – Market Prices

Figure 2 – Twelve-month forecasts for administered prices



is projected individually using the “accounting” approach, while the rest is projected collectively by econometric models. The final projections of the hybrid models are obtained, then, by the weighted average of these two sets⁴.

Table 2 summarizes the model specifications for the two strategies. Note that the future path of the explanatory variables used in econometric models and the indexes used in the accounting procedures, in the market scenario, are given by the median aggregate projections for the corresponding series from the Market Report – *Focus* produced by the Central Bank’s Investor Relations Group (Gerin).

Figure 2 shows the projections of administered prices from the fourth quarter of 2010 through the fourth quarter of 2012 and the estimates provided by the *Focus* Report for the end of each year⁵.

To conclude, this box presented the modeling process used by the Central Bank to project administered prices. Therefore, by providing additional information about the set of projections considered by the Copom, it helps to foster transparency in the decision making, one of the pillars of the inflation targeting system .

4/ Nearly 44% of the administered prices are modeled using the “accounting” approach.

5/ The projections through the end of 2011 are based on analysis of experts, while the others are from the models described in Table 2.