

# THE INFLUENCE OF GASOLINE PRICE CONTROLS ON ETHANOL PRICES

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Until a short time ago, ethanol was the main component of Brazil's energy policy. Due to the finding of pre-salt oil and the persistent inflation, this biofuel is no longer a priority. Along with this downgrading, the sugar-energy sector has undergone a downturn and found itself in period of stagnation. In addition to the sector's internal problems, the profitability of hydrated ethanol was also negatively impacted by (i) the relatively more attractive sugar prices in the international market and (ii) the price readjustment policy that Petrobras adopted.

Since 2010, Brazilian inflation has operated persistently at an interval between the center of the target (4.5% p.a.) and its upper bound (6.5% p.a.). To avoid a rise in interest rates, the government resorted to other alternatives to attenuate price expansion. Among other instruments, worth highlighting is the price adjustment policy for

some of Petrobras' products. Those oil by-products that have a greater weight in the IPCA (Brazilian Consumer Price Index), such as diesel oil and especially gasoline, had their prices controlled. Other products, such as naphtha and kerosene for aviation, which have lower weight in inflation, underwent more frequent readjustments.

The Petrobras's decision to not readjust gasoline prices has hampered the sugar-energy sector. As hydrated ethanol is a substitute for gasoline, and since the price of the latter has remained below international levels, ethanol has no longer been a competitive alternative to gasoline. With the impossibility of selling ethanol at a higher price, this biofuel has lost its profitability. The two simulations presented below estimate the impact of the Petrobras price policy on ethanol prices.

**Simulation 1: What would have been the price of gasoline that would allow the production of hydrated ethanol to be economically viable, considering the economic relationship of 70%?**

Production costs compiled by PECEGE (The Program of Continuing Education in Economics and Management) from ESALQ/USP (Luiz de Queiroz College of Agriculture from University of São Paulo), enabled a simulation of the sales price for gasoline at a gas station pump that would make the price of hydrated ethanol economically viable. Based on data from the 2012/13 harvest, this analysis was carried out in those states where ethanol production is the most traditional (São Paulo and Paraná), as well as in areas for the expansion of this crop (Minas Gerais, Goiás, Mato Grosso do Sul and Mato Grosso).

## SIMULATION OF GASOLINE AND ETHANOL PRICES (BRL/LITER) BASED ON THE 2012/13 HARVEST DATA

REGION	OPERATING COST	ECONOMIC COST*	DISTRIBUTION COST	ECON. VIABLE ETHANOL PRICE	ECON. VIABLE GASOLINE PRICE	ETANOL PRICE IN 12/13 HARVEST**	GASOLINE PRICE IN 12/13 HARVEST**
Traditional	\$1.10	\$1.30	\$0.67	\$1.97	\$2.81	\$1.83	\$2.67
Expansion	\$1.07	\$1.27	\$0.90	\$2.17	\$3.10	\$1.99	\$2.83

\*Source: PECEGE

\*\* Source: ANP

According to the simulation results, in order for it to be economically feasible to market ethanol, on average, a liter of gasoline would have to be sold for BRL 2.81 in São Paulo and in Paraná (Traditional Region), and at BRL 3.10 in the Expansion Region. These values suggest that the price of ethanol is off by BRL 0.14 and by BRL 0.18 per liter in both regions, respectively.

**Simulation 2: What would be the price of hydrated ethanol if the price of gasoline followed the price variation for oil in the international market, and if Petrobras were not used to fighting against inflation?**

Supposing Petrobras maintained since 2006 a direct relationship between (i) the price of gasoline in the domestic market and (ii) variations of oil

quotations in the international market, controlled by variations in the exchange rate, then on average a liter of gasoline would be sold in the Traditional Region at BRL 4.21 and in the Expansion Region at BRL 4.44. Assuming that the ratio of 0.7 between ethanol and gasoline prices operates in these markets, a liter of ethanol would be sold, on average, at BRL 2.95 and BRL 3.11 respectively, in each region, respectively, that is, at 61% and 56% higher than occurred. These results clearly suggest, on the one hand, that the containment policy for gasoline price readjustments has contributed to contain inflation but on the other hand has severely hampered the sugarcane industry.

Price simulation presupposing that gasoline had fully accompanied oil price variations and the Brazilian exchange rate (BRL/liter)

PRICE SIMULATION PRESUPPOSING THAT GASOLINE HAD FULLY ACCOMPANIED OIL

PRICE VARIATIONS AND THE BRAZILIAN EXCHANGE RATE (BRL/LITER)

PERIOD	TRADITIONAL AREA				EXPANSION AREA			
	GASOLINE		ETHANOL		GASOLINE		ETHANOL	
	OBSERVED PRICE	SIMULATED PRICE	OBSERVED PRICE	SIMULATED PRICE	OBSERVED PRICE	SIMULATED PRICE	OBSERVED PRICE	SIMULATED PRICE
Sep - 06	\$2.44	\$2.26	\$1.32	\$1.58	\$2.58	\$2.38	\$1.71	\$1.67
Sep - 07	\$2.40	\$2.44	\$1.11	\$1.71	\$2.45	\$2.57	\$1.41	\$1.80
Sep - 08	\$2.41	\$2.65	\$1.29	\$1.86	\$2.51	\$2.79	\$1.59	\$1.95
Sep - 09	\$2.39	\$2.22	\$1.32	\$1.55	\$2.47	\$2.34	\$1.53	\$1.64
Sep - 10	\$2.46	\$2.22	\$1.44	\$1.56	\$2.53	\$2.34	\$1.62	\$1.64
Sep - 11	\$2.67	\$3.23	\$1.89	\$2.26	\$2.84	\$3.40	\$2.00	\$2.38
Sep - 12	\$2.63	\$3.82	\$1.77	\$2.68	\$2.80	\$4.03	\$1.93	\$2.82
Sep - 13	\$2.72	\$4.21	\$1.75	\$2.95	\$2.89	\$4.44	\$1.95	\$3.11