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Screens in the Gas Retail Market: The Brazilian Experience

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I. INTRODUCTION

Prices in the gas retail market were heavily regulated by the Brazilian government until the late 1990s. At the beginning of the last decade, prices were finally deregulated and, as an ensuing consequence, cartel complaints started. Although such behavior was to a certain extent expected due to the lack of previous competition in the market, such complaints became a problem as they represented the gross majority of sectoral complaints presented to the Brazilian Competition Policy System ("SBDC").[2] Given this fact, the main purpose of this article is to demonstrate how screens were used by competition authorities in Brazil in order to overcome such a problem.

II. BACKLOG OF CARTEL COMPLAINTS IN THE GAS RETAIL MARKET

According to information released by SBDC, among the most diverse segments of markets that are the objects of investigations, fuel and oil derivatives are those that receive the most substantial amount of cartel conduct complaints: an average of 4 per week, surpassing 200 complaints annually. Out of the 503 cases underway in 2010, 120 (roughly 23 percent) concerned fuel retail cartel investigations. As a consequence of this elevated percentage, of the 370 administrative procedures that were sent to CADE for final judgment between 2007 and 2009, 56 (15 percent) dealt with the subject in question. However, despite the high number of complaints and investigations in progress in SBDC, so far only 8 of them has resulted in convictions by CADE. All the others were, and continue to be, filed. A question then ensues: Why so many complaints in this market?

The large amount of complaints reflect, clearly, the frustration of consumers and the entities that protect their rights (such as the Public Prosecutor's Office) with the prices of a product that is used directly and routinely by the population. However, such dissatisfaction can be: (i) a reflection of an informational problem, which ends up generating an excessive number of ill-grounded cartel complaints in the fuel retail sector; (ii) the result of a regulatory problem that stimulates the formation of cartels or market reactions that appear to be due to anticompetitive practices in the segment, or (iii) a direct response of the continued proliferation of cartels in the sector due to the suboptimal punishment which has been applied by CADE in convictions.

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[2] The Brazilian Competition System is now under reform. However, for the purposes of this article, it is important to say that investigations were carried out by the Secretariat of Economic Law—SDE and then forwarded to CADE for judgment.

The overwhelming majority of complaints were based on the following circumstances: (i) similarity in retail prices, (ii) retail price adjustments that were almost simultaneous or occurred within close dates, and (iii) prices or margins that were higher than in adjacent or nearby cities. However, given the characteristics of the gas fuel market, these elements are far from constituting indicia to even initiate an investigation. The informational problem is probably derived from a breach of consumers' expectations that, after a long period of fixed prices, there should be a significant heterogeneity in the prices of petroleum products; and their subsequent understanding, in view of such pretension, that equal prices or even similar price adjustments are evidence of a cartel.Complaints involving the fuel retail market rarely report situations in which competitors discuss prices or other conditions. They limit themselves to merely identifying the evidence listed above.

Traditionally, equal prices are considered as the classic sign of a cartel. However, despite being considered a counter-intuitive conclusion, at least in principle, there are competitive markets whose companies charge similar or even equal prices. In fact, the conclusion is not so counter-intuitive because markets that approach structures classified as those of perfect competition would present identical prices. Certain characteristics of these markets, such as the homogeneity of products or services and price transparency, lead to equal prices both in situations characterized by cartels as in competitive market situations. It should be noted that this conclusion does not change in situations involving oligopolistic markets, provided that the variable is price competition and the products are homogeneous.

The conclusion that is reached, therefore, is: The tendency in markets with homogeneous products and price transparency is that of strong price resemblance; the degree of concentration in that market (whether or not an oligopoly) not being of particular relevance. And these characteristics define the fuel retail market, especially in the segments of gasoline, diesel, and hydrated ethanol, particularly relevant in Brazil. The homogeneity of products and price transparency are present in all these segments, therefore creating the expectation of a certain identity in consumer prices.

III. DEVELOPMENT OF SCREENS IN THE GAS RETAIL MARKET

The misconstruction of a common behavior in the gas retail market led the Brazilian Competition Authorities to develop a screen through which all of the complaints based solely on the economic evidence presented above should go before opening a formal investigation. Such screen was quite simple and comprised of three statistical tests: (i) 1st test—analysis of the evolution of the retail profit margin of the city (at least three years, but preferably five years); (ii) 2nd test—analysis of the correlation between the retail margin and the coefficient of variation (level of dispersion in prices) for the city; and (iii) 3rd test—analysis of the correlation between the retail profit margin of the city compared to the retail profit margin of the state.

Thus, three basic elements are evaluated: (i) the evolution of the retail margin in a municipality over time, (ii) the relationship between the evolution of this margin and price variability, and (iii) the evolution of city variables in comparison to average state variables. The analysis of the retail margin intends to examine whether, in the municipality in which there would be an alleged cartel, this margin increases over time. In a cartel situation the margin is at least expected not to reduce, which would mean that it remains relatively stable or rises. The verification that the margin is reducing over time is an indication that there was no cartel in the retail fuel market.

The second element to be considered is the linear correlation between the retail margin and the variation coefficient of the retail prices. There will be an element pointing to the existence of the cartel when this correlation is negative, for a situation of cartel success reflects an increase in margin and a great increase in the price agreed (and consequently a lower price variation). *A contrario sensu*, there is no evidence of cartel if the correlation is positive, since it would reflect a competitive behavior by the market (an increased margin that is followed by an increase in price dispersion).

Finally, the third element observed is the comparison of the evolution of the margin in the municipality in which, allegedly, there were to be a cartel with the average margin of the respective state. For this it is necessary to calculate the linear correlation coefficient between these margins. If the estimated value of this correlation is positive, there is a linear association between the state and municipal margins. This means that, when the margin of the municipality rises, the margin of the state is also rising, which is not considered evidence of the cartel. A positive correlation between these margins points to a situation where there is no collusion, because it would be unreasonable to assume a retail cartel that extends throughout the whole state, given the high monitoring costs of the alleged statewide cartel (which would be the exception).

Several factors can affect the retail margin of a municipality.[3] Thus, a finding of evidence of a cartel in the fuel retail market in a given municipality based only on the fact that the average retail margin practiced by retailers located there is greater than that practiced in some other municipalities is objectionable. The pure and simple selection of the municipalities to be compared does not guarantee that all are considered important in determining the retail margin. Precisely because of this fact the analysis compares the evolution of local and state margins in order to ascertain whether the margin of the municipality is greater than the average margin of the state or not. Obviously, the fact that the average municipal margin is similar to the average state margin is an element that enhances the probability of an absence of a cartel, since it would be likely predictable that a cartel fixes prices and/or margins above the sector average.

The methodology assumes that the elements above will be analyzed together. So there are two extreme possibilities. The first situation reflects a clear lack of evidence of a cartel: (i) reduction in the retail margin from time to time, (ii) a positive association between increases in the margin and price variability, and (iii) a retail margin that evolves similarly to the state average. Analogously, the second extreme possibility that stems from the analysis of economic evidence reflects a clear situation of the existence of fuel retail cartel in a given municipality: (i) increase of the retail margin over time; (ii) a negative association between the retail margin and

[3] Prices charged by retailers may vary depending on various factors, including: (i) population density, (ii) the amount of fuel consumed *per capita*, (iii) the bargaining power of the network of fuel stations, (iv) the location of the stations, and (v) household income, among others. Therefore, the mere comparison of prices charged by dealers in nearby towns is also not considered sufficient evidence to initiate investigations, either individually or cumulatively to previous evidence.

price variability, and (iii) a retail margin with a disparate evolution or an evolution that is not similar to state average.

It should be mentioned that, for the existence or not of evidence of collusion to be shaped in the fuel retail market, it is not necessary that the three mentioned elements occur simultaneously. The occurrence of the three factors jointly makes the conclusion more robust. However, depending on the case, the complaint, and other evidence pointed out, data analysis can show that only one of these elements is sufficient.

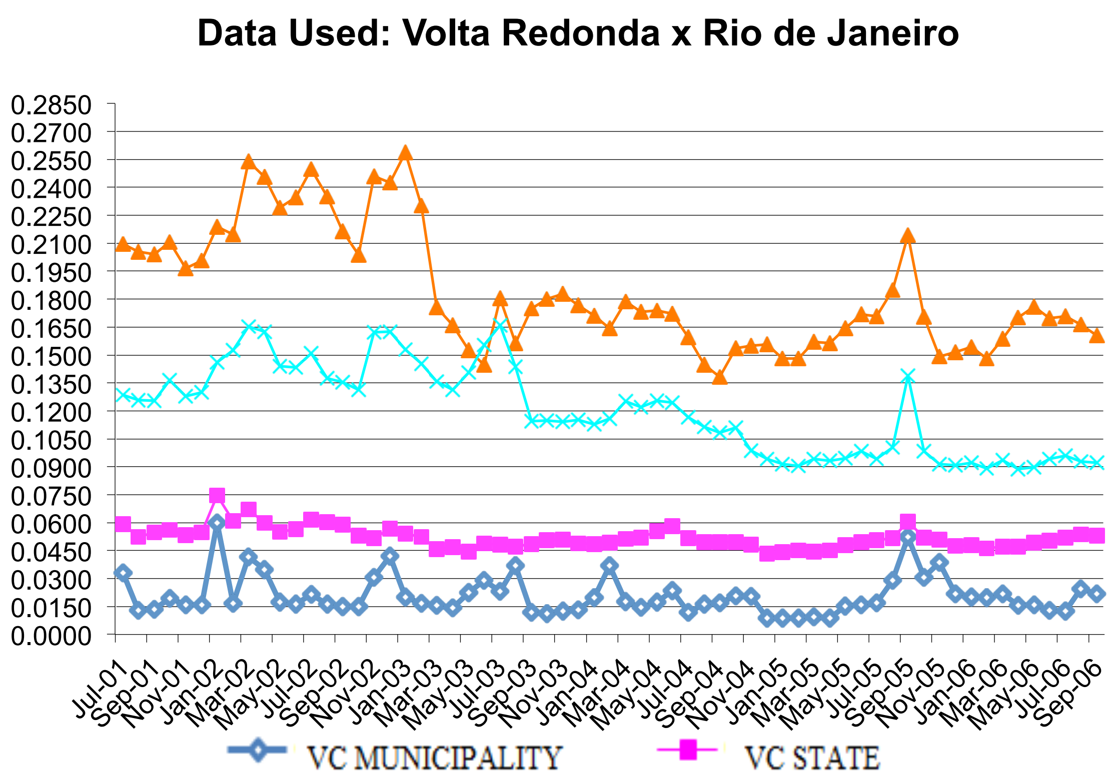
IV. USE OF SCREENS IN THE GAS RETAIL MARKET

Not all sectors are fit for screens. Several characteristics determine whether a screen will be helpful due to common difficulties inherent to the use of economic elements for antitrust purposes. Basically it is important to ascertain whether or not it is too costly to develop and use an economic screen with the purpose of identifying prior evidence of collusion in a particular market. Economic screens are commonly applied whenever they are easy to implement and have empirical support. They must be able to evaluate a collusive vis-à-vis a non-collusive scenario in a given market. Also, screens are used in situations in which it is costly for the firms to disguise the collusive behavior.

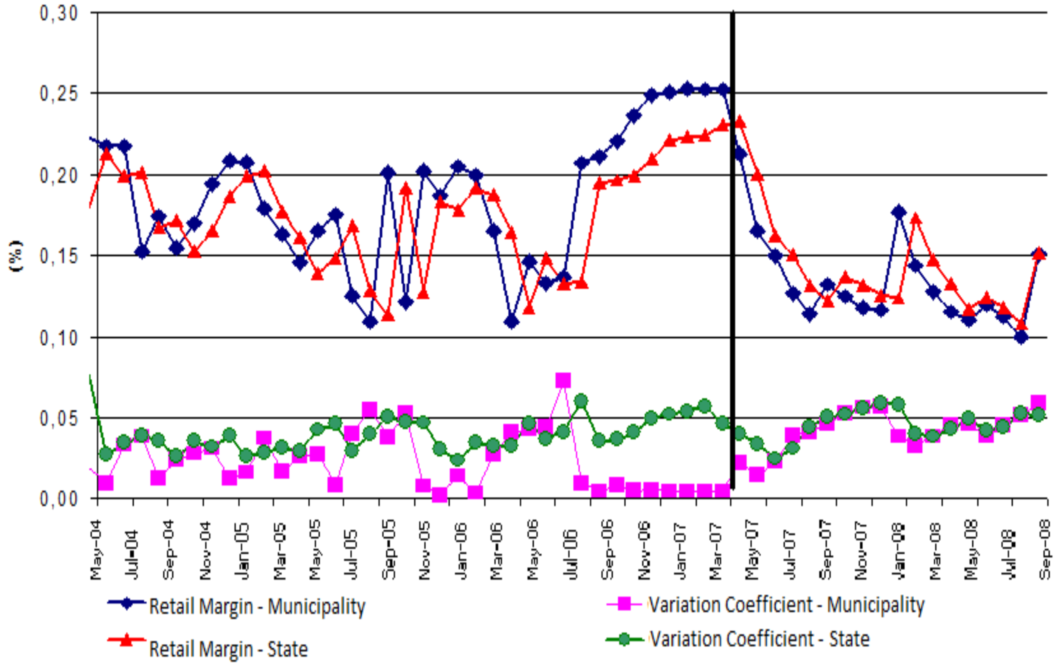
Usually there is a problem in obtaining the data necessary for the statistical tests applied in a given screen. This is not the case of the gas retail market. There is a regulatory agency that constantly monitors and collects data in a wide number of cities, thereafter making them available to the public. Average prices and margins for consumers (and also average prices practiced by fuel wholesalers) are readily available in the website of Petroleum National Agency. An example of the data is found below:

		Nº OF GAS STATIONS	CONSUMER PRICE					PREÇO DISTRIBUIDORA						
data	MUNICIPALITY	RESEARCHED	AVERAGE PRICE	STANDARD DEVIATION	MINIMUM PRICE	MAXIMUM PRICE	AVERAGE MARGIN	AVERAGE PRICE	STANDARD DEVIATION	MINIMUM PRICE	MAXIMUM PRICE	MR	CR	CD
Jul-01	OLINDA	162	1.719	0.055	1.6	1.75	0.292	1.426	0.065	1.318	1.549	0.204769	0.031995	0.045582
Aug-01	OLINDA	145	1.738	0.026	1.64	1.79	0.25	1.488	0.035	1.372	1.595	0.168011	0.01496	0.023522
Sep-01	OLINDA	144	1.702	0.062	1.53	1.756	0.216	1.486	0.023	1.45	1.543	0.145357	0.036428	0.015478
Oct-01	OLINDA	178	1.717	0.065	1.57	1.87	0.214	1.503	0.034	1.423	1.589	0.142382	0.037857	0.022621
Nov-01	OLINDA	144	1.683	0.062	1.55	1.79	0.164	1.519	0.034	1.46	1.606	0.107966	0.036839	0.022383
Dec-01	OLINDA	180	1.665	0.117	1.4	1.79	0.169	1.496	0.057	1.323	1.606	0.112968	0.07027	0.038102
Jan-02	OLINDA	144	1.406	0.084	1.21	1.59	0.128	1.277	0.082	1.15	1.52	0.100235	0.059744	0.064213
Feb-02	OLINDA	143	1.46	0.053	1.29	1.499	0.242	1.218	0.045	1.132	1.33	0.198686	0.036301	0.036946
Mar-02	OLINDA	144	1.553	0.081	1.46	1.689	0.304	1.249	0.041	1.122	1.33	0.243395	0.052157	0.032826
Apr-02	OLINDA	177	1.613	0.13	1.39	1.88	0.255	1.358	0.055	1.213	1.485	0.187776	0.080595	0.040501
May-02	OLINDA	179	1.729	0.036	1.6	1.9	0.339	1.391	0.036	1.325	1.485	0.24371	0.020821	0.025881
Jun-02	OLINDA	144	1.693	0.063	1.43	1.79	0.303	1.389	0.031	1.34	1.475	0.218143	0.037212	0.022318
Jul-02	OLINDA	216	1.669	0.116	1.35	1.79	0.243	1.427	0.043	1.3	1.5	0.170287	0.069503	0.030133
Aug-02	OLINDA	168	1.778	0.027	1.63	1.87	0.367	1.411	0.091	1.233	1.518	0.260099	0.015186	0.064493
Sep-02	OLINDA	128	1.722	0.085	1.45	1.781	0.256	1.467	0.034	1.408	1.517	0.174506	0.049361	0.023177
Oct-02	OLINDA	161	1.731	0.1	1.39	1.9	0.283	1.448	0.068	1.294	1.533	0.195442	0.05777	0.046961
Nov-02	OLINDA	126	1.971	0.094	1.77	2.04	0.347	1.624	0.073	1.489	1.746	0.21367	0.047692	0.044951

Following the use of screens in cartel complaints based solely on economic evidence, the Brazilian Competition Authorities were able to file a massive number of cases, ranging from complaints to administrative procedures that were underway for several years without any other relevant indicia. Screens actually became an extremely successful device for rejecting groundless cartel complaints in the gas retail market, as the statistical tests comprising the screens were understood as a means to correctly evaluate whether the cost of opportunity of pursuing an investigation was justifiable or not. Many complaints were analyzed in less than a month and thereafter filed as they did not present any grounds to open an investigation. An example of such a case, involving a cartel complaint in the city of Volta Redonda, State of Rio de Janeiro, is found below.



Few collusion cases have been convicted based on indirect evidence in Brazil. And none were convicted based solely on economic analysis achieved through screens. However, screens can and have been used as grounds, together with other evidence, for judicial decisions granting dawn raids or wiretappings. During the investigation in the gas retail market of the city of João Pessoa, State of Paraíba (Northeast of Brazil), the results achieved by the screen were very helpful in stating the likelihood of cartel behavior by the retailers. The graphic below reflects such likelihood and also what happened with the retail margins right after the dawn raid performed jointly by the Brazilian Competition Authorities and the Federal Police (May 2007):



V. FINAL REMARKS

The use of screens materialized a procedure where the cartel complaints received proper analysis through a method that could, to a certain extent, provide proper grounds for dismissing a case. That step was necessary to educate consumers and entities involved in consumers rights that cases are better investigated whenever there is some sort of evidence demonstrating contact among the competitors in a given gas retail market.

Discussions regarding parallel pricing behavior do not need to be recalled in order to permit us to claim that parallel behaviors are not illegal *per se* according to antitrust literature. To delimit the illegality of parallel conduct, it is essential to demonstrate that the hypothesis of a cartel would most likely be its explanation, which would mean that there are no other plausible causes that may be appropriate for the hypothesis that is *sub-judice*. The parallelism-plus theory is already a renowned doctrine, and is built on the notion that antitrust agencies are required to certify an additional factor determining that the parallelism comes from a cartel. This theory has come to be used by CADE´s jurisprudence in previous cases.

The dynamics of the fuel market rules out simultaneous or close price as sufficient evidence to establish a cartel investigation. Again, this behavior is as much expected in a situation of collusion as it is in that of competition in the retail segment, considering the rapid interdependence of strategies used by the agents that make up this market, whose profit depends largely on the volume sold. The transparency of market prices allows the consumer to switch retailers in order to obtain lower prices, which leads, in turn, to a movement of very fast price adjustments. That circumstance led to an excessive number of complaints and, therefore, demanded an answer on behalf of the investigative entities. Such answer consisted in the development of a screen.

Economic indicators are often limited in their ability to distinguish between scenarios of explicit collusion and those of parallelism, which do not constitute economic order violations; this, however, does not invalidate, nor reduce, the importance of filters as technical parameters of preliminary evidence, or even as a way of computing the damage suffered or the benefit gained from the conduct. In the Brazilian experience, the public awareness of the screen led to several consequences, including: (i) fewer cartel complaints; (ii) faster dismissal of groundless cases; (iii) better allocation of governmental resources; and (iv) a new tool for obtaining direct evidence. It is not an overstatement to say that the use of screens in the gas retail market was a success, enabling the competition authorities to focus on more promising cases.