

## **Argentinean Market of Laundry Soap and Detergent Summary<sup>1</sup>**

1. According to article 18º, section a) of Law N° 25,156, the National Commission for the Defense of Competition (CNDC) has the power to commission research in order to understand the competitive conditions of markets which it considers relevant, understood as having an impact on consumption and production.
2. In this context, the CNDC requested Dr. Mariana Conte Grand and Dr. Germán Coloma a market study of laundry soap and detergent market, studying the competitive conditions of such market in Argentina.
3. The following section provides a characterization of the market structure and its participants. In the second section, price analysis is presented. The third section shows the results of a quantitative analysis to understand how competition is structured in the market. The fourth section studies the relationship between the producers who participate in the laundry detergent market and the retail sector. Lastly, the conclusions are exposed.

### **1. Structure of the Argentinean Market of Laundry Soap and Detergent**

4. In the context of an inflationary economy both total turnover and the average price of laundry soap and detergent have increased in nominal terms. Table 1 shows figures for total volume sold, turnover and average price in aggregate terms. The information includes both powder and liquid soap and detergent, as well as products with additives (for example, softening or stain removers). Additionally, the total turnover is calculated as the product between total volume and average final prices, which means that the distributors and retailer' margins is included in this value.

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<sup>1</sup> This document is based on the work made by Mariana Conte Grand and Germán Coloma, *Análisis económico del funcionamiento competitivo del mercado de jabón y detergente para la ropa en la Argentina*, July 2016, from now on called Conte Grand and Coloma (2016). The study was carried out with information available at the CNDC and with public information gathered to this effect.

**Table 1. Argentinean Market of Laundry Soap and Detergent**

Concept		2011	2012	2013
Total volume (tn)	[a]	128,545	133,891	131,178
Total turnover (mm \$)	[b]	1,414.76	1,753.93	2,082.89
Average price (\$/kg)	[c] = [b]x1000/[a]	11.01	13.10	15.88

Source: Conte Grand y Coloma (2016) based on CCR information.

5. Table 2 shows that the market has been highly concentrated during the three years included in the analysis. This is observed mainly in the high market share of Unilever de Argentina S.A. (hereinafter Unilever), the largest company, which in the 2011-2013 period was above 70%. Its closest competitor, Procter & Gamble Argentina S.R.L. (hereinafter P&G), has a share slightly above 20%.

**Table 2. Concentration and Market Shares based on Turnover**

Company	2011	2012	2013
Unilever	71.72%	72.45%	71.30%
P&G	21.15%	21.14%	20.62%
Alicorp	2.41%	2.04%	2.38%
Reckitt & Benckiser	2.55%	2.16%	2.30%
Queruclor	1.77%	1.56%	1.84%
Others	0.39%	0.64%	1.55%
HHI	5,604	5,708	5,521

Source: Conte Grand y Coloma (2016) based on CCR information.

6. Market concentration measured by the Herfindahl Hirschman Index (HHI)<sup>2</sup> shows values above 5500 points in the 2011-2013 period, an indication of a very concentrated market.

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<sup>2</sup> The Herfindahl– Hirschman Index is defined as the sum of the square of the market shares of all the companies acting in it. The HHI could go from values close to 0 (in the hypothetical case of very decentralized markets, with multiple suppliers with minimal market participations) and 10,000 (monopoly market). According to the American rules on horizontal concentrations (*Horizontal Merger Guidelines*, FTC-DOJ, 2010) a market can be considered as “highly concentrated” when the HHI is above 2500

7. Product differentiation in the market is significant: there are product segments and brands with specific characteristics that reduce substitution with other segments and brands. With differentiated products, companies faced relatively inelastic demands<sup>3</sup> and this could give rise to certain market power, allowing higher margins than those which would be obtained in a market with more homogeneous goods.
8. This product differentiation is reflected on the fact that the biggest companies in the market have several brands which tend to satisfy the demand of different market segments. For example, Unilever owns Skip, Ala and Drive while P&G owns the brands Ariel and Ace.
9. The market could be split up into three segments: (high, medium and low) according to product quality and other characteristics which could be identified from the price. Unilever is the only company which participates in the three market segments: Drive in the low segment, Ala in the medium segment and Skip in the high segment. P&G, on the other hand, participates in the medium and high segments with their brands Ace and Ariel, respectively.
10. Companies with lower market shares follow different market positioning strategies. While R&B with its brand Woolite participates in the high segment, Alicorp (El Zorro and Limzul) and Querubín (Queruclor) occupy a place in the low segment.

## **2. Behavior of Average Prices**

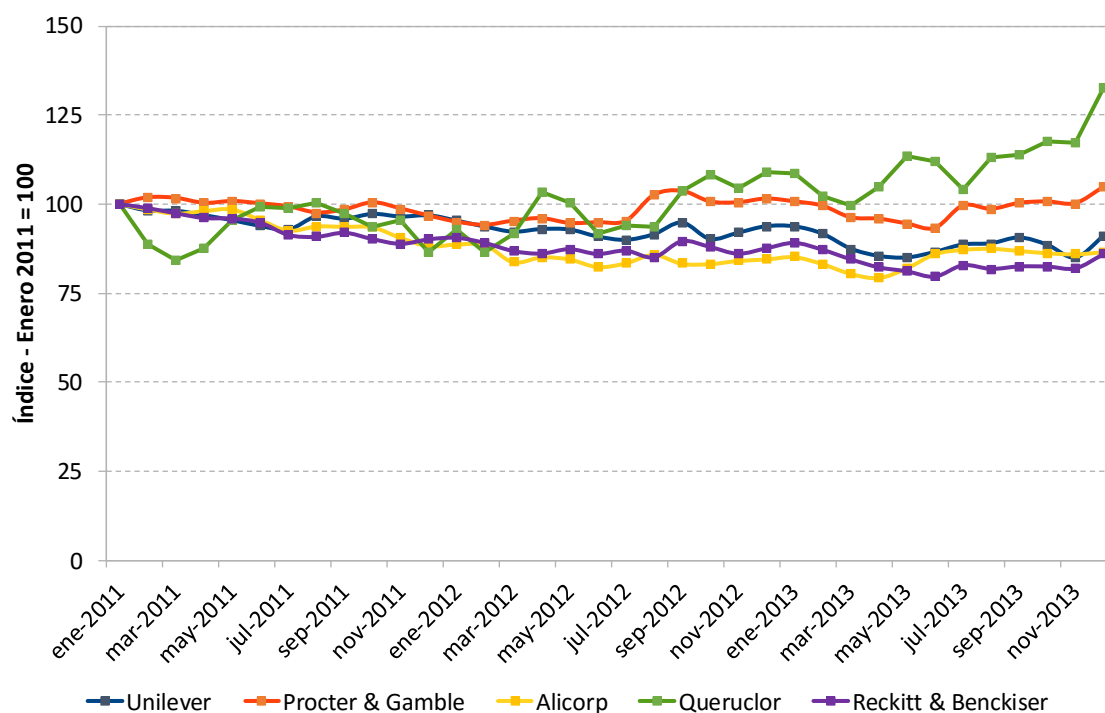
11. The analysis of the evolution of average prices per company and the relationship among them allows to characterize the behaviors and competitive strategies of the companies in the market.
12. Graph 1 shows the evolution of the average prices of each company in real terms, deflated using San Luis CPI and setting January 2011 as base price. It is observed that the only company which has increased prices in real terms was Queruclor, while Unilever, R&B and Alicorp prices have gone down. Lastly, P&G has kept its prices relatively constant during that period.

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points. As an illustration, an HHI of 2500 points is that which would correspond to a market with four companies with market shares of 25%.

<sup>3</sup> This means that the quantity demanded is relatively less sensitive to price variations in comparison with a homogenous products' market.

**Graph 1. Evolution of Average Prices per Company in Constant Values**

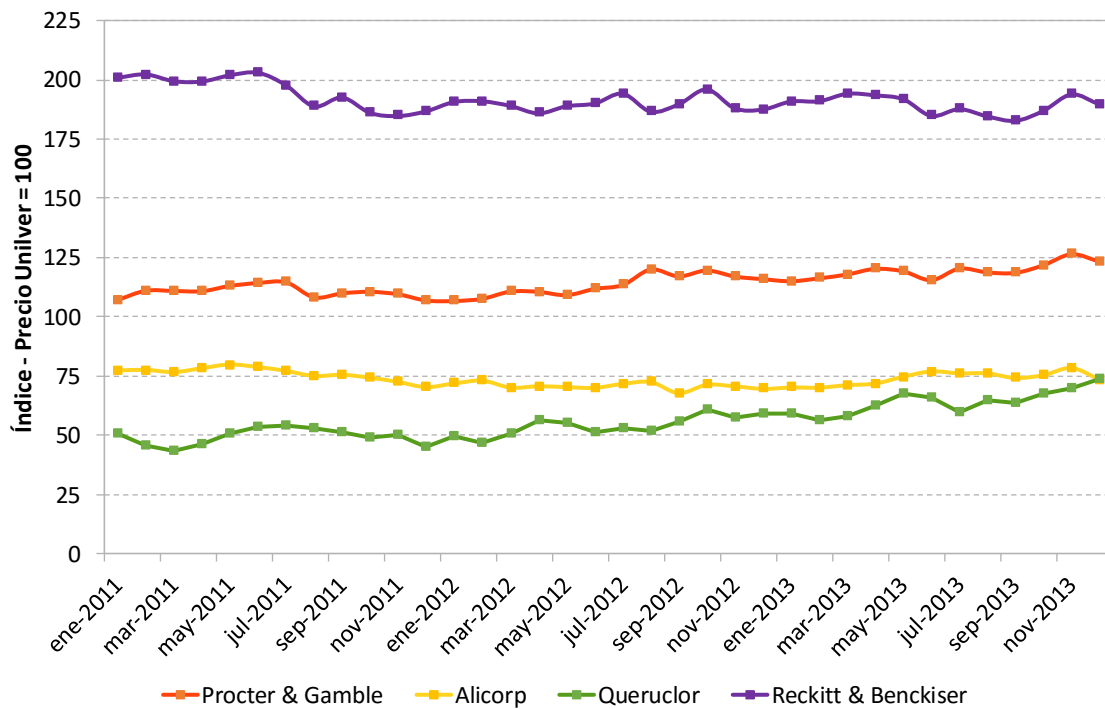


*Note: The prices have been deflated using San Luis CPI.  
Source: Own production based on CCR.*

13. Graph 2, on the other hand, shows the evolution of prices in this market, relative to Unilever's average price.<sup>4</sup> The behavior of relative prices in this period has been uneven. While P&G and Queruclor have had an upward trend, R&B has had a downward trend. Finally, Alicorp's relative price has been relatively constant in the whole period.

<sup>4</sup> Given that Unilever concentrates more than 70% of the market, Unilever's average price is representative of the market average price.

**Graph 2. Evolution of Relative Prices per Company**



Source: Own production based on CCR.

### 3. Analytical Exercise on Market Power

14. Using observed information about prices and quantity, different quantitative techniques could be used to try to infer competition intensity in the market. One of these techniques consists of estimating a “behavioral parameter”, which allows to identify whether the information obtained from the market is consistent with a competitive behavior (which will occur when the parameter is close to zero), or a collusion or cartel hypothesis (when the parameter is close to one) or to any intermediary oligopoly behavior model.<sup>5</sup>

15. Based on these estimates, the authors conclude that competition intensity in the Argentinean market of laundry soap and detergent is less than what would be observed in a perfectly competitive market, but more than what would be observed in a collusive scenario. It is also more intense than what would correspond to a particular equilibrium situation, the Cournot oligopoly, usually taken as a benchmark of non-collusive oligopoly behavior.<sup>6</sup>

<sup>5</sup> Annex I describes the methodology and results more thoroughly.

<sup>6</sup> The Cournot model characterizes markets in which the relevant variable for decision-making is the quantity produced (or production capacity) and generates results in which the companies exhibit market power (in the sense of showing positive prices above production marginal costs, or opportunity costs of

16. Although this analysis is relevant to characterize market competition in general, it is not sufficient to guarantee that there are no specific anticompetitive practices.

#### **4. Interaction with Retail Sector**

17. The interaction between supermarkets and their suppliers may generate a set of commercial practices which could affect the competitive functioning of the markets involved. This is more so, when concentration in the suppliers' market is high.

18. The international literature on these topics highlights the possible naming of “category captains” by the supermarket. This implies an agreement in which the supermarket gives the administration of a sales category to a specific supplier, which results in a “partial vertical integration”.

19. The authors conclude that, of the information analyzed there is no evidence to state that most of Argentina’s supermarket chains have agreements with their suppliers involving a payment for the use of a specific percentage of the exhibition space in a product category. On the contrary, specific agreements regarding “islands” and “shelves’ edges”, which are exhibition specific spaces in specific places at supermarkets, seem to be a common practice.

20. The existence of bonuses and quantity rebates over the price of products sold by suppliers to the supermarkets also seem common, however exclusivity agreements or “loyalty” discounts are not. Generally, policies concerning space management and commercial relations with suppliers seem to depend more on the supermarket’s criteria than on their suppliers.

21. Additionally, from the information collected, the authors did not detect the existence of exclusivity agreements with the supermarket chains within the category of laundry soap and detergent in Argentina. On the contrary, information reveals that all chains commercialize, at least, Unilever and P&G products. Nevertheless, there were cases in which, for a specific timeframe, some chains did not commercialized some particular brands. The explanation to this phenomenon has been that such situations came out as a response to specific commercial conditions that the supermarket refused to accept.

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supplying a product, which would reflect the price in a competitive market) given that the level of concentration and the low contestability would generate such non-cooperative equilibrium (also called Cournot-Nash).

## 5. Conclusions

22. The findings or results obtained by the consultants, which are the most relevant for the CNDC are presented as follows.
23. The Argentinean laundry soap and detergent market is highly concentrated. Unilever concentrates more than 70% of the market, while P&G, its closest competitor, has a share somewhat above 20%.
24. The market is characterized by a high product differentiation, due to the presence of brands and segments which reduce substitution with products belonging to other segments and brands. This, in turn, reduces the elasticity of demand faced by the companies and may give rise to a certain market power.
25. In spite of the market's high level of concentration, the study carried out with information at company level (and not brand level) does not detect evidence of the existence of collusive practices. Nevertheless, the companies can show high margins because the demand they face in differentiated products' market is inelastic.
26. Although the study is not conclusive with respect to the existence of a dominant position, there exists the possibility that a dominant company incurs in exclusory practices or creates barriers to entry for competitors through, for example, the imposition of vertical restrictions in the relations with the retail companies.
27. In such context, it becomes relevant to analyze the commercial practices of the retail distribution chains, with the aim of studying the vertical relations with suppliers in the Argentinean market.

## Annex I. Methodology Used for the Market Power Analysis

28. The methodology used to estimate the existence of concerted practices in the laundry soap and detergent market is through the “behavior parameter”. This parameter takes values between 0 and 1, where 0 is a situation of perfect competition and 1 is a situation where the companies set the monopoly price. This method consists of simultaneously estimating the supply and demand functions and in this way, estimate the value of the parameter.<sup>7</sup> The specifications used in the estimate are the following:

$$Q_{total} = c(1) + c(2) * Feb + c(3) * Mar + c(4) * Abr + c(5) * May + c(6) * Jun \\ + c(7) * Jul + c(8) * Ago + c(9) * Sep + c(10) * Oct + c(11) * Nov \\ + c(12) * Dic + c(13) * Tend + c(14) * \frac{P_{total}}{CPE};$$

$$P_{total}/CPE = c(21) * P_{total}(-1)/CPE(-1) + c(22) * USD/CPE - c(23)/c(14) \\ * Q_{total}(-1));$$

29. where  $Q_{total}$  is the quantity sold;  $P_{total}$  is the market average price;  $USD$  is the exchange rate; and  $CPE$  is the index of the Executive Professional basket,<sup>8</sup>  $Tend$  is a trend variable (which takes values between 1 and 36 for each of the 36 observations); and  $Feb$ ,  $Mar$ ,  $Abr$ ,  $May$ ,  $Jun$ ,  $Jul$ ,  $Ago$ ,  $Sep$ ,  $Oct$ ,  $Nov$  and  $Dic$  are binary variables which adopt a value equal to 1 for the observations corresponding to a specific month of the year, and 0 for the remaining months.

30. The first equation represents the market demand function, which depends on time variables and on the product real price. The coefficient  $c(24)$  is the slope of the demand function. The second equation represents the supply function, which depends on the history of the price (represented by the lagged real price) and the real exchange rate, along with a coefficient that depends on the slope of the demand function and the “behavior parameter”,  $c(23)$ .

31. Table 3 shows the estimate results, which the authors have calculated using the computer program EViews 3.1, and using the method of “Seemingly unrelated regressions” (SUR). This method has the advantage that it takes into account the correlations among the

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<sup>7</sup> See Coloma, G. 2005. Economy of the industrial organization, chapter 11. Buenos Aires, Topics.

<sup>8</sup> Elaborated by CEMA University.



estimation errors of the different equations within the system, and generates, therefore, more efficient estimates of the parameters of interest than other methods.

**Table 3. Results of the Supply and Demand Functions System Estimate**

System: DEMANDAYOFERTA1 (general)  
 Estimation Method: Iterative Three-Stage Least Squares  
 Date: 05/11/16 Time: 20:01  
 Sample: 2 36  
 Included observations: 35  
 Total system (balanced) observations 70  
 Instruments: C FEB MAR ABR MAY JUN JUL AGO SEP OCT NOV  
 DIC TEND 1/CPE USD/CPE PTOTAL(-1)/CPE(-1)  
 Simultaneous weighting matrix & coefficient iteration  
 Convergence achieved after: 16 weight matrices. 17 total coef  
 Iterations

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	29.98233	5.729744	5.232752	0.0000
C(2)	-0.735303	0.252123	-2.916445	0.0052
C(3)	0.533117	0.258358	2.063483	0.0440
C(4)	0.585737	0.266154	2.200740	0.0321
C(5)	0.451018	0.258972	1.741572	0.0874
C(6)	0.958888	0.255613	3.751321	0.0004
C(7)	1.209715	0.250493	4.829339	0.0000
C(8)	1.052656	0.237181	4.438205	0.0000
C(9)	1.169054	0.271467	4.306429	0.0001
C(10)	1.327966	0.245641	5.406126	0.0000
C(11)	0.606078	0.243684	2.487147	0.0161
C(12)	0.424026	0.325861	1.301246	0.1988
C(13)	-0.040513	0.014764	-2.744031	0.0083
C(14)	-332.2461	95.82320	-3.467283	0.0011
C(21)	0.680664	0.089391	7.614429	0.0000
C(22)	0.476210	0.193549	2.460411	0.0172
C(23)	0.260978	0.104832	2.489486	0.0160
Determinant residual covariance		6.88E-08		
Equation: QTOTAL = C(1) +C(2)*FEB +C(3)*MAR +C(4)*ABR +C(5)*MAY +C(6)*JUN +C(7)*JUL +C(8)*AGO +C(9)*SEP +C(10) *OCT +C(11)*NOV +C(12)*DIC +C(13)*TEND +C(14)*PTOTAL /CPE				
Observations: 35				
R-squared	0.851907	Mean dependent var	10.95990	
Adjusted R-squared	0.760230	S.D. dependent var	0.688544	
S.E. of regression	0.337155	Sum squared resid	2.387138	
Durbin-Watson stat	1.670738			
Equation: PTOTAL/CPE = +C(21)*PTOTAL(-1)/CPE(-1) +C(22)*USD /CPE -C(23)/C(14)*QTOTAL(-1)				
Observations: 35				
R-squared	0.680455	Mean dependent var	0.056894	
Adjusted R-squared	0.649532	S.D. dependent var	0.001844	
S.E. of regression	0.001091	Sum squared resid	3.69E-05	
Durbin-Watson stat	1.741900			