8th Atlantic | Workshop on Energy and Environmental Economics

A Toxa, Galicia (Spain)
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Analysis of the brand influence in the rockets and feather effect using disaggregated data

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INTRODUCTION

- The liberalization of the oil sector has led to the emergence of new agents and new typologies of service stations that have altered the configuration of the market and its play rules, modifying an oligopolistic status quo towards free competition.
- It is widely accepted that in unregulated markets, an increase in the number of firms hinders collusion, and the same holds for firm heterogeneity (see e.g. Motta, 2004; Dijkstra, Haan & Mulder, 2017).
- The literature is also very fertile in studies analysing the asymmetry of retail price responses to increases and decreases in wholesale prices in the oil market: the so call "rockets and feathers" effect (as examples, the seminal work of Bacon, 1991; Borenstein, Cameron, & Gilbert, 1997; Balaguer & Ripollés, 2012).

RESEARCH OBJECTIVES

- The purpose of this paper is twofold:
  - To carry out an assessment of the brand role in the rockets and feathers effect, observing the price influence of the new types of stations emerged in the liberalized framework. Second,
  - To assess the influence of data disaggregation (daily prices) in the results.
- We therefore wonder, as research question, what role brands are playing in establishing the price, its evolution and symmetry, and therefore its influence in the rockets and feathers effect.
- Contribution to the academic literature:
  - This is one of the first papers about brand influence in the rocket and feather effect.
  - we use daily prices for first time in this context
  - the research delves in the study of the speed of the adjustments

METHOD OF ANALYSIS

- Error Correction Model (ECM) based on Engle & Granger (1987) procedure.
- Compliance with the following conditions:
  i. the time series are integrated in order 1, I(1)
  ii. the time series in levels can be combined linearly in a stationary manner. Condition ii) is contrasted by estimating the long-term relationship between diesel sales and purchase prices:

$$PBT_t = \beta_0 + \beta_1 IQ_t + \varepsilon_t$$

$$\Delta PBT_t = \delta\hat{\varepsilon}_{t-1} + \sum_{i=0}^{n}\beta_i^{+}\Delta IQ_{t-i}^{+} + \sum_{i=0}^{m}\beta_i^{-}\Delta IQ_{t-i}^{-} + u_t$$

$$\Delta PBT_t = \delta\hat{\varepsilon}_{t-1} + \sum_{i=0}^{n}\beta_i^{+}\Delta IQ_{t-i}^{+} + \sum_{i=0}^{m}\beta_i^{-}\Delta IQ_{t-i}^{-} + \sum_{i=0}^{r}\gamma_i\Delta PBT_{t-i} + u_t$$

$$Ac_n^{+} = Ac_{n-1}^{+} + \beta_n^{+} + \delta(Ac_{n-1}^{+} - \rho_1)$$

$$Ac_n^{-} = Ac_{n-1}^{-} + \beta_n^{-} + \delta(Ac_{n-1}^{-} - \rho_1)$$

- Data sample: Daily prices of all the existing oil stations in Spain between December 23, 2014 and December 31, 2017 (3 years). More than 9000 stations. More of 10 million daily prices of diesel from Monday to Sunday.

DATA

Figure 1. Prices before taxes per brand

Prepared by authors

RESULTS

	Results	Brand	Lags +	Lags -
1	All brands have asymmetries.			
2	The classic brand are those that make the adjustments more quickly	Repsol	7	6
		Cepsa	8	7
		Galp	8	9
		Bp	13	12
3	The low-cost brands show the biggest lags	Ballenoil	15	15
4	The hypermarkets depend on their pricing policy	Carrefour	8	8
		Alcampo	15	15
5	Independent distributors adjust more slowly	Independientes	15	15

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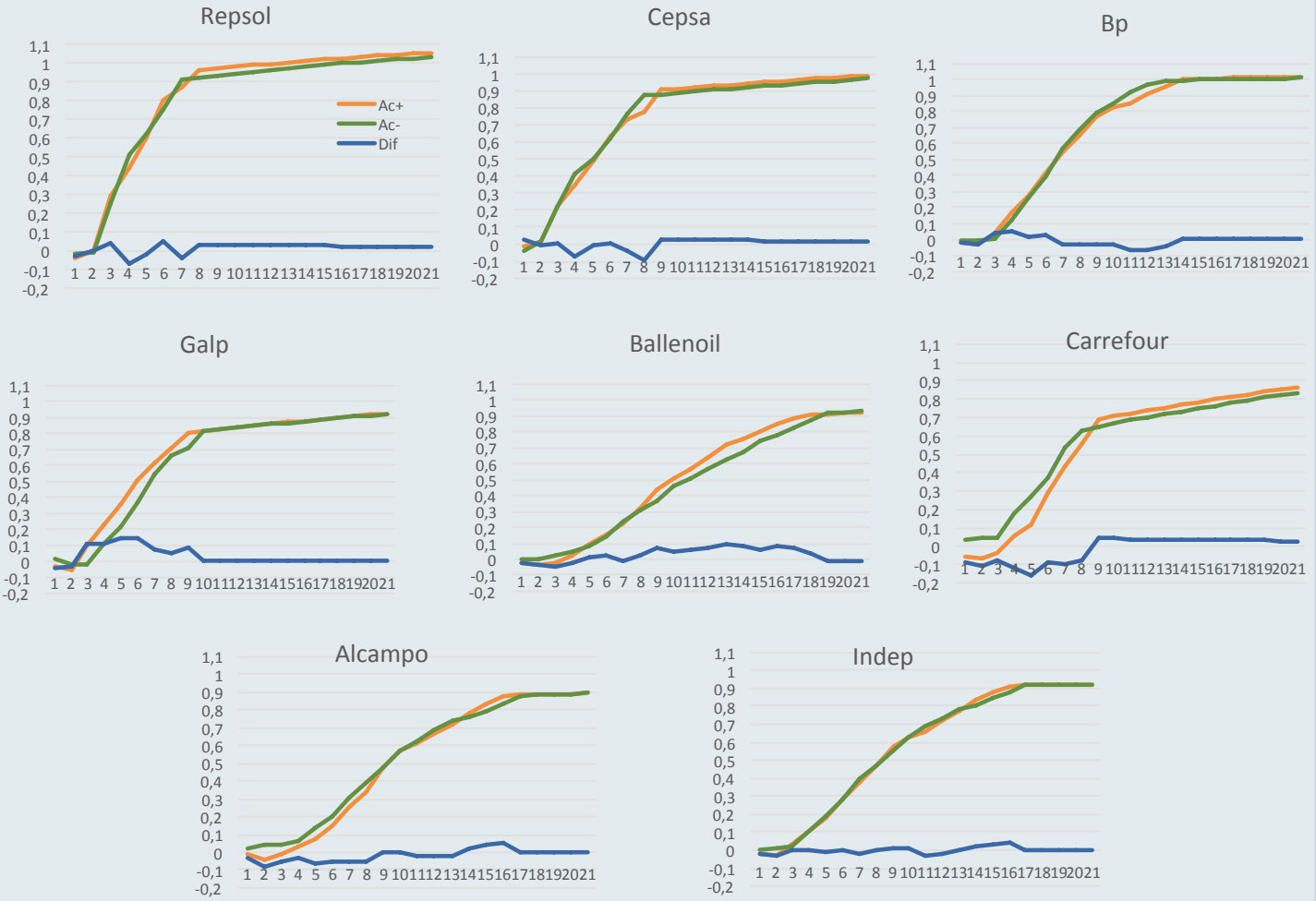
RESULTS



CONCLUSIONS

- There are asymmetries in all cases, both for the classic brands, for the hypermarkets and for the only low-cost flag that we have tested.
- Classic brands perform the adjustment in smaller time intervals, while the supermarkets, as well as the independent and cooperatives, make the correction of prices more slowly. The adjustment speeds are different
- Average daily price is higher in the classical brand that in the other agents (low cost, supermarket, cooperatives etc), showing clearly different behaviours.
- Our study distances itself from Cardoso et al. (2016): In our case, all the brands show asymmetry and we can speculate on the impact of the use of weekly data versus the use of data with greater disaggregation.
- Despite the exploratory character of this study, the research is a genuine contribution to the study of the Rockets and Feathers phenomenon with a "brand new perspective": the inclusion of the brands as the units of analysis, and not based on geographical spaces, supposes a relevant input to understand the oil market price dynamics