Marco Duarte

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University of Wisconsin-Madison
Department of Economics
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Education

Ph.D. Candidate in Economics, **University of Wisconsin-Madison** — Expected May 2022
Master of Arts in Economics, **Sao Paulo School of Economics** — May 2016
Bachelor of Arts in Economics, **Federal University of Minas Gerais** — March 2013

Fields of Interest

Empirical Industrial Organization

Working Papers

Chaves, Daniel, and **Marco Duarte**. "Hub-and-Spoke Collusion with Horizontally Differentiated Spokes".

Chaves, Daniel, and **Marco Duarte**. "The Inner Workings of a Hub-and-Spoke Cartel in the Automotive Fuel Industry".

Duarte, **Marco**, Lorenzo Magnolfi, and Camilla Roncoroni. "The Competitive Conduct of Consumer Cooperatives".

Duarte, **Marco**, Lorenzo Magnolfi, Mikkel Sølvsten, and Christopher Sullivan. "Testing Firm Conduct".

Research Experience

Research assistant, Prof. Christopher Sullivan — UW-Madison, July 2020- September 2020

Research assistant, Prof. Lorenzo Magnolfi — UW-Madison, June 2019- June 2020

Graduate research assistant, Center for Global Trade and Investment — FGV, Brazil, Feb 2015 - Dec 2015

Undergraduate research assistant CNPQ, Prof. Marco Crocco — UFMG, Brazil, Jan 2011-Dec 2012

Teaching Experience

Teaching assistant - Principles of Microeconomics — UW-Madison, Spring 2018

Teaching assistant - Intermediate Macroeconomics — UW-Madison, Fall 2018

Teaching assistant - Principles of Microeconomics — UW-Madison, Spring 2017

Teaching assistant - Principles of Microeconomics — UW-Madison, Fall 2017

Teaching assistant - Monetary Economics undergraduate course — FGV, Brazil, Fall 2015

Awards & Honors

2021 Caves Dissertation Fellowship - UW-Madison
2020 Graduate School Fellowship - UW-Madison
2016 Graduate School Fellowship - UW-Madison
2013 Top 10 placement in the National Exam for Admissions to Economics Graduate - (ANPEC, Brazil)
2012 Second place in Itaú's Sustainable Finances Award - Undergratuation category
2011 First place in FEBRABAN's Banking Research Award - Undergratuation category

Additional Information

Nationality Brazilian
Programming R, Matlab, Python

Hub-and-Spoke Collusion with Horizontally Differentiated Spokes

A hub-and-spoke cartel, where firms' constraint competition with the help from an upstream supplier or a downstream buyer, is a type of collusive arrangement observed in a variety of industries. The recent literature focuses on information sharing as the main mechanism through which a hub can help spokes to coordinate. We show that when asymmetries in horizontal differentiation across spokes exist, the hub can also use wholesale price discrimination to help spokes achieve higher prices. We present evidence that this mechanism was used during a hub-and-spoke cartel between gas stations and distributors in the Brazilian gasoline industry, and estimate a structural model of demand for gasoline and retail price collusion to quantify the importance of the wholesale price strategy for the stability of the cartel. We find that in the absence of the hub's wholesale price strategy, gas stations would need to decrease the coordinated overprice in 40% to sustain collusion.

The Inner Workings of a Hub-and-Spoke Cartel in the Automotive Fuel Industry

We analyze a hub-and-spoke cartel in the Brazilian automotive fuel industry. Using the court documents and detailed data on the supply chain we uncover the mechanisms used by gas stations and fuel distributors to solve the obstacles of price coordination. The evidence shows that a subset of distributors (hub) helped the stations (spokes) to overcome coordination problems in three ways: (i) allowing for transfers between geographically dispersed stations (ii) punishing defectors by offering wholesale price discounts to the defector's close competitors; and (iii) reducing the frequency of price changes and asymmetries between stations by diverging sales to the product with stable costs. We argue that the hub benefited from the cartel by being the exclusive supplier during the scheme. We use the synthetic control approach to quantify how successful the cartel was in generating higher mark-ups. We find that not only retailers, but wholesalers benefited from the cartel.

Testing Firm Conduct

We study inference on firm conduct without data on markups. Berry and Haile (2014) provide a testability condition requiring instruments. Implementing a test using this condition involves choosing both hypotheses and instruments, which affect inference. While the IO literature has adopted model selection and model assessment approaches to formulating hypotheses, we present the advantages of the Rivers and Vuong (2002) (RV) model selection test under misspecification. However, the RV test may suffer from degeneracy, whereby inference is invalid. We characterize degeneracy as a weak instruments problem via a novel definition of weak instruments for testing. This characterization enables us to provide a diagnostic for reliable inference. We illustrate our results in the setting of Villas-Boas (2007). We test conduct with three standard sets of instruments, one strong and two weak. Weak instruments cause the RV test to have no power. With strong instruments, models of double marginalization are rejected.

The Competitive Conduct of Consumer Cooperatives

Consumer cooperatives are firms owned by their customers. Although their organizational form should commit these firms to not exploit their market power, in practice weak governance may allow managers to pursue other objectives. Using data and a structural model, we test whether consumer cooperatives in the Italian supermarket industry act as profit-maximizing firms. We find no significant deviations from profit maximization. However, even a mild degree of internalization of consumer welfare by the cooperatives that we study would yield consumer welfare gains comparable to the regulatory advantages that they enjoy.