

Flexibility, Reputation and Capacity: Experimental Investigation of Dynamic Markets

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GENERAL SUMMARY. This research project investigates in the laboratory different issues related to dynamic markets. In particular, we have focused on (i) the relationship between reputational indicators and small and foreign firms' entry in public procurement, (ii) the method to calculate antitrust fines and its likely effects on cartels and welfare, (iii) the effect of flexibility/frequent interactions on cartel stability when there imperfect monitoring, (iv) reserve price's impact on auction outcome, (v) the link between price cap, investment level and bidding behavior.

Below we summarize our findings for our fives issues. We also list the resulting papers as well as the presentations where the project was discussed.

(I) *REPUTATION AND ENTRY IN PROCUREMENT.* This part of the project explores the relationship between reputational indicators based on suppliers' past performance and entry of new or foreign suppliers in procurement markets. There is widespread concern among regulators that favoring suppliers with good past performance, a standard practice in private procurement, may hinder entry by new (smaller or foreign) firms in public procurement markets. Our results suggest that while some reputational mechanisms indeed reduce the frequency of entry, so that the concern is warranted, appropriately designed reputation mechanisms actually stimulate entry. Since quality increases but not prices, our data also suggest that the introduction of reputation may generate large welfare gains for the buyer.

(II) *DISTORTIVE EFFECTS OF ANTITRUST FINES.* In most jurisdictions, antitrust fines are based on affected commerce rather than on collusive profits, and in some others, caps on fines are introduced based on total firm sales rather than on affected commerce. Such policies create a number of market distortions. This part project develops a simple model to characterize such distortions and provides a quantitative assessment using market data. It is shown that such distortive rules of thumb may substantially reduce social welfare and need therefore to be amended as soon as possible.

(III) *FLEXIBILITY AND COLLUSION.* This part of the project tests experimentally the counterintuitive result of Sannikov and Skrzypacz (2007, AER) that a high frequency of interaction, (which typically facilitates collusion) render collusion impossible with (even slight) imperfect information. This theoretical result questions the antitrust guidelines of most competition authorities, which typically argue that a higher frequency of interaction facilitates collusion. Our experiment does not support this theoretical prediction. This is the case even if subjects are allowed to communicate.

(IV) *RESERVE PRICE.* This part of the project studies experimentally whether imposing a reserve price when the market is already competitive has any effect on market participants' behavior. As opposed to what theory predicts, the level of the reserve price matters. The reason is that, even in a competitive environment, subjects attempt to collude. Such attempts fail to increase market prices in any substantial way. However inefficiencies do occur, as the attempts at colluding imply that marginal costs fail to equalize across firms. In particular inefficiencies appear to be more severe, both when the demand is high and when the price cap is high.

(V) *PRICE CAP AND INVESTMENT LEVEL.* Price caps are one of the regulatory tools to achieve low and non-volatile prices but may inhibit adequate investment levels. This part of the project presents the results from a laboratory experiment designed to test the efficiency properties of price caps on multi unit auctions. Interestingly the participants were students but also professionals working in the electricity industry ([Swedish Energy Markets Inspectorate](#), [Sweco](#), and the board of [Elforsk Market Design](#)). The main finding is that price cap regulation has an impact not only on market prices but also on market performance. Imposing a relatively high price cap improves allocative efficiency but reduces productive efficiency. Moreover we find that the price cap, for comparable

market conditions, is reached more often with relatively low price cap level. We conclude therefore that an increase in price cap does not fully translate into a one to one increase in market prices.

RESEARCH OUTPUTS

1. Bageri V., Katsoulacos Y., and G. **Spagnolo**, (2013) "On the Distortive Effects of Antitrust Fines Based on Revenue", published as [CEPR Dp 9518](#) and forthcoming in *The Economic Journal*.
2. Bigoni M., **Spagnolo** G., and J. Potters, (2013), "Flexibility and Collusion with Imperfect Monitoring", manuscript in progress.
3. Butler J., Carbone E., Conzo P., and G. **Spagnolo**, (2013), "Reputation and Entry", KKV Working Paper 2013:3, also [CEPR Dp 9651](#).
4. Donzon K. and **C. Le Coq** : The software package [I-lab](#) game was created and made available online. This software package not only handles thousand of players but also is not sensitive to the number of choices that the subjects have to make. Secondly this programming allows the experiment to be conducted over the Internet. Finally the *I-lab game* can be modified, extended to study other issues related to the electricity market
5. **Le Coq C.** and H. Orzen (2011) "Price caps and fluctuating demands: Experimental Evidence of" in *IEEE Transactions on Systems, Man and Cybernetics*.
6. **Le Coq C.** and H. Orzen (2013) "Bidding under a Price Cap: Evidence from an electricity market experiment", Mimeo.
7. **Le Coq C.** (2013) *Price Cap or Price Spike? An Experimental Investigation of the electricity market* [Elforsk rapport](#) 13:72
8. **Spagnolo G.** (2012) "Reputation, Competition and Entry in Procurement", *International Journal of Industrial Organization* 30, 291–296

PRESENTATIONS and OTHER ACTIVITIES

G. SPAGNOLO

1. *Reputation and Entry* was presented at:
The chair-eppp 2012 Procurement and PPP Conference in Paris (keynote address);
September 2012 [EARIE](#)
May 2013: International Industrial Organization Conference, Boston.
December 2013 Konkurrenterverket,
June 2013: [ISNIE](#)
June 2013: Chair EPPP 2013, Florence; 9th CSEF-IGIER Symposium on Economics and Institutions
August 2013: ESA 2013 and EEA 2013.
2. *Reputation, Competition and Entry* was presented at:
August 2011: Stockholm Workshop on Public Procurement,
September 2011: EARIE (invited session);
3. *On the Distortive Effects of Antitrust Fines Based on Revenue* was presented at:
April 2012: ACLE's Behavioral Antitrust workshop in Amsterdam.
July 2012: CRETE Conference in Economics, Milos.
May 2013: International Industrial Organization Conference in Boston.

C. LE COQ

1. April 2012 [Microeconomix](#) (Paris). *Price cap and Capacity constraints*.
2. Mai 2012: *Competitive bidding with Price caps and fluctuating demands* [International Conference on The European Energy Market](#).
3. August 2012: [French Energy Commission](#)
4. April 2013 4th [ELAEE International Energy Conference](#), *Resource Adequacy with Capacity Market- An Experimental Investigation*
5. May 2013: EPRI ([Electric Power Research Institute](#), CA), *First results of the impact of price cap and investment level*.
4. November 2013: Trans-Atlantic Infraday 2013 at the [Federal Energy Regulatory Commission](#)