

Zongwei Lu

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Education

Ph.D. in Economics, **BI Norwegian Business School**, expected in 2017.

Dissertation: Essays in Auction Theory and Contest Theory

Supervisor: Christian Riis

M.phil. in Economics, **University of Oslo**, 2012

Bachelor in Economics, **University of Oslo**, 2010

Research Interests

Auction theory, Contest theory, Mechanism design, Industrial organization

Working Papers

- [Bayes-Nash equilibria in GSP with Allocative Externalities](#)
(with Christian Riis, 2016)
- [Optimal Prize Allocations in Contests](#)
(Job Market Paper)
- Sequential Pre-Auction Knock-Outs in Second Price Auctions

Teaching Experience

Teaching assistant, BI Norwegian Business School, 2013 fall
(Master course: Multivariate Statistics with Econometrics)

Languages

English (fluent), Mandarin (native), Norwegian (intermediate)
Mathematica, R, Stata, $\text{\LaTeX}$

Personal Information

Citizenship: Chinese, Norwegian Permanent Residence
Gender: Male
Year of Birth: 1980

References

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Abstracts of Papers

[Optimal Prize Allocations in Contests](#) (Job Market Paper)

Abstract: Given a fixed prize budget for a contest, what is the optimal prize allocation among contestants? The answer depends on the objective of the contest designer, which typically is either to maximize the total performance of all contestants or simply the champion's performance. We try to shed light on this question for both objectives in a standard model in which contestants are heterogeneous in skill and exert effort to win a prize. We show that weak concavity of the reduced-form cost function leads to optimality of single prize for both objectives, which generalizes the previous results in the literature. We find a dual relationship between the cost function and the principal's utility function (in particular, risk attitude), which not only helps to provide intuition for

the optimality but also directly provides results for a principal with a different risk attitude. Surprisingly, with the traditional Cobb-Douglas functional form, optimality of single prize continues to hold for arbitrary degree of convexity under maximal performance objective when the number of contestants is three. On the contrary, if the reduced-form cost function is piecewise linear, then it may be optimal to reward the runners-up if the function is convex enough. When the number of prizes under consideration is two, there is an interesting relationship between the two objectives. In the derivation of the results, a series of simple facts about the winning probability functions are presented, which may be useful for future works in contest theory and multi-object auction theory.

Bayes-Nash equilibria in GSP with Allocative Externalities (with Christian Riis, 2016)

Abstract: We investigate an incomplete information model of generalized second price auctions with allocative externalities originating from the heterogeneous match rates of bidders. A novel feature of our model is that it generates endogenous click-through rates (CTRs). In this setting, we establish existence of symmetric efficient equilibria for common classes of primitives. This contrasts with the findings of [Gomes and Sweeney \(2014\)](#), who study a similar model but with fixed CTRs. Moreover, non-existence results require strong assumptions on the primitives of the model. We conclude that existence of equilibria in GSP with incomplete information is quite general.