

## Yuzhou Wang

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**Fields of Concentration:**

Industrial Organization  
Labor/Education Economics

**Desired Teaching:**

Industrial Organization  
Microeconomics  
Applied Econometrics  
Education Economics

**Comprehensive Examinations Completed:**

2016 (Oral): Econometrics, Industrial Organization (*with distinction*)  
2015 (Written): Microeconomics, Macroeconomics

**Dissertation Title:** *Essays on Education Markets from the Perspective of Industrial Organization*

**Committee:**

Professor Steven Berry (Co-Chair)  
Professor Philip Haile (Co-Chair)  
Professor Jose-Antonio Espin-Sanchez  
Professor Yusuke Narita

**Expected Completion Date:** May 2021

**Degrees:**

Ph.D., Economics, Yale University, 2021 (expected)  
M.Phil., Economics, Yale University, 2017  
M.A., Economics, Yale University, 2016  
B.A., Economics and Finance, First Class Honors, The University of Hong Kong, 2014

**Fellowships, Honors and Awards:**

University Dissertation Fellowship, Yale, 2019-2020  
University Graduate Fellowship, Yale, 2014-2020  
Cowles Foundation Fellowship, 2014-2018  
L.E. Whiton Jackson Memorial Scholarship, 2015-2016, 2017-2018  
Malcolm Urban Fellowship, 2015-2016  
Dean's Honours List, The University of Hong Kong, 2011-2014  
The University of Hong Kong Foundation Scholarship, 2013-2014  
Noel Chau Scholarships, 2013-2014  
Hong Kong Mediation and Arbitration Centre Professional Awards 2012-2013  
Hong Kong Mediation and Arbitration Centre Scholarships 2012-2013  
Hong Kong Securities Institute Scholarship 2012-2013  
Kowloon Chamber of Commerce Scholarships 2012-2013

**Teaching Experience:**

*Teaching Assistant, Yale College*

Econometrics & Data Analysis I	Prof. Edward Vytlačil	Fall 2016
Introduction to Microeconomics	Prof. Christopher Udry	Spring 2017
	Prof. Steven Berry	Fall 2017
	Prof. Pinelopi Goldberg	Spring 2018
Urban Inequalities and Urban Educations	Prof. Gerald Jaynes	Spring 2019
		Spring 2020

**Research and Work Experience:**

Research Assistant, to Prof. Xiaohong Chen, Yale University, Fall 2016  
Research Assistant, to Prof. Richard Zeckhauser, Harvard University, 2013-2014  
Research Assistant, to Prof Sau-Him Paul Lau, The University of Hong Kong, Fall 2012

**Working Papers:**

“Introducing Prices to Public School Assignment: The Tradeoff between Quality and Equal Access” (November 2020), *Job Market Paper*

“Second-Price Auctions with Participation Costs” with Jose-Antonio Espin-Sanchez and Alvaro Parra, (May 2020)

“Entry Games under Private Information” with Jose-Antonio Espin-Sanchez and Alvaro Parra, (Sep 2020)

**Languages:**

Chinese (native), English (fluent)

## References:

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## Dissertation Abstract

### **Introducing Prices to Public School Assignment: The Tradeoff between Quality and Equal Access [Job Market Paper]**

Market incentives have been introduced in many public-school systems around the world, with goals such as promoting school quality and equalizing student access. One of these policies is to allow public schools to offer paid admission options. From the supply perspective, allowing schools to charge tuitions may create incentives for improvements in school quality. From the demand perspective, the availability of priced admission options may allow students, who have heterogeneous talents, to better express their preferences over price and quality. However, such a policy may undermine the general goal of equal access to good schools. I study a high school market of a large city in China which introduced a policy that allows individual public schools to offer both free and paid admission options, where students can apply for both, within a centralized school assignment mechanism. I address four questions using data from this market. Does the policy indeed lead to an increase in teaching quality? Are students' preferences heterogeneous across talents? Why do different schools choose different levels of teaching quality? And finally, how can one address the impact on equal access?

First, using a dataset of high school entry and exit exam scores that I collect, a value-added regression shows that school value-added in test scores increases after the implementation of the

policy. Moreover, a difference-in-difference regression shows that better schools are able to increase their value-added more.

Secondly, I estimate an empirical model of school choice by students. I collect data of students' reports of school preferences. Students are allowed to rank a limited number of schools of their choice in a report that they must file before taking the entrance exam. Thus, students need to be strategic, and consider not only their true preferences, but also their beliefs about admission probabilities based on a noisy signal of their test scores. I use such reported preferences to estimate students' true school preferences and beliefs about admission probabilities. The spread of the characteristics between the first and last reported schools is useful to identify the variance of the noisy signal. The interaction between student and school characteristics helps to identify important utility parameters. I estimate the parameters in one step using simulated moments, together with an algorithm I propose to simplify the procedure of finding optimal reports for individual students. Results show that students prefer quality and dislike price. More importantly, students with higher scores, when compared to students with lower scores, care more about quality and less about price.

Then, I build a model of school competition and of schools' marginal costs of producing quality so as to explain the quality choice by schools. I combine this with the demand side to estimate the marginal cost of different schools. Results show that better schools have lower marginal cost of producing quality and will choose a higher level of teaching quality. Finally, the estimated demand and supply models allow me to find the new market equilibrium under different policy reforms. The counterfactual analysis shows that introducing subsidies to low income students while keeping the current priced admission options would give students more equal access to better schools, while keeping the quality gain brought by market incentives.

### **Second-Price Auctions with Participation Costs**, with Jose-Antonio Espin-Sanchez and Alvaro Parra

We study equilibria and efficiency in second-price auctions with public participation costs. We generalize previous results by allowing arbitrary heterogeneity in bidders' distributions of valuations and in their participation costs. We develop the notion of bidder *strength*, defined as the best response of a bidder when all of her opponents play the same strategy as her. We then show that a *herculean* equilibrium in which *stronger* bidders have a lower participation threshold than weaker bidders exists in general environments. In other words, the order of bidders given by their strength, which is a non-equilibrium concept and can be easily calculated for each bidder using only one equation, predicts the order of the participation threshold in a certain equilibrium which exists in general. Combining with a sufficient condition for equilibrium uniqueness that we further provide, bidders' strength points out the direction for finding and simplifies the formulation of the equilibrium. Furthermore, even though all equilibria are *ex-post* inefficient, an *ex-ante* efficient equilibrium always exists. Therefore, under the uniqueness condition, the herculean equilibrium is the unique equilibrium of the game and is *ex-ante* efficient.

**Entry Games under Private Information**, with Jose-Antonio Espin-Sanchez and Alvaro Parra

We study market entry decisions when firms have private information about their profitability. We generalize current models by allowing unrestricted forms of market competition and heterogeneous firms that self-select when entering the market. Post-entry profits depend on market structure, and on the identities and the private information of the entering firms. We introduce a notion of firm's *strength* and show that an equilibrium where players' strategies are ranked by their strength, or *herculean* equilibrium, always exists. Moreover, when profits are elastic enough with respect to the firm's private information, the herculean equilibrium is the unique equilibrium of the game.