

# Zi Yang Kang

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EDUCATION	<div><b>Ph.D. in Economic Analysis and Policy</b>, Stanford Graduate School of Business 2018–2023</div> <div><b>M.S. in Mathematics</b>, Stanford University 2017–2018</div> <div><b>B.S. with Honors in Mathematics</b>, Stanford University 2014–2017</div>	
DISSERTATION COMMITTEE	<div><b>Paul R. Milgrom</b> (co-primary advisor) Department of Economics, Stanford University 579 Jane Stanford Way, Stanford, CA 94305 <a href="mailto:milgrom@stanford.edu">milgrom@stanford.edu</a></div> <div><b>Mohammad Akbarpour</b> Stanford Graduate School of Business 655 Knight Way, Stanford, CA 94305 <a href="mailto:mohamwad@stanford.edu">mohamwad@stanford.edu</a></div> <div><b>Shoshana Vasserman</b> Stanford Graduate School of Business 655 Knight Way, Stanford, CA 94305 <a href="mailto:svass@stanford.edu">svass@stanford.edu</a></div>	<div><b>Andrzej Skrzypacz</b> (co-primary advisor) Stanford Graduate School of Business 655 Knight Way, Stanford, CA 94305 <a href="mailto:skrz@stanford.edu">skrz@stanford.edu</a></div> <div><b>Jeremy I. Bulow</b> Stanford Graduate School of Business 655 Knight Way, Stanford, CA 94305 <a href="mailto:jbulow@stanford.edu">jbulow@stanford.edu</a></div>
RESEARCH INTERESTS	Microeconomic theory, market design, industrial organization, algorithmic game theory	
WORKING PAPERS	<div><b>“The Public Option and Optimal Redistribution”</b> (<i>job market paper</i>)</div> <div>This paper examines how the equilibrium effects of a public option on the private market impact its optimal design. I develop a model in which a policymaker can choose the quality and allocation of the public option, which affect the prices of private goods (and vice versa) in equilibrium. I demonstrate how these equilibrium effects change both the optimal quality and optimal allocation: they create new incentives to distort quality in either direction depending on the policymaker’s redistributive objective and provide a new justification for rationing the public option rather than using market-clearing prices. Finally, I show how my results can accommodate additional frictions in the private market and additional policy instruments.</div> <div><b>“Robust Bounds for Welfare Analysis”</b> with Shoshana Vasserman</div> <div><b>Revision requested at the American Economic Review</b>, <i>accepted for presentation at EC’22</i></div> <div>Economists routinely make functional form assumptions about consumer demand to obtain welfare estimates. How sensitive are welfare estimates to these assumptions? We answer this question by providing bounds on welfare that hold for families of demand curves commonly considered in different literatures. We show that commonly chosen functional forms, such as linear, exponential, and constant elasticity of substitution (CES) demand, are extremal in different families: they yield either the highest or lowest welfare estimate among all demand curves in those families. To illustrate our approach, we apply our results to the welfare analysis of energy subsidies, trade tariffs, pensions, and income taxation.</div>	

## “Optimal Indirect Regulation of Externalities”

In many markets ranging from gasoline to alcohol and vaccines, individuals generate different amounts of externalities that cannot be directly taxed. I study how such externalities should be optimally regulated. I characterize the optimal policy and show that it generally requires quantity surcharges and discounts. I evaluate the gain from using the optimal indirect policy rather than a uniform tax and show that it can be significant. I apply my results to gasoline taxes to demonstrate their policy implications. Finally, I incorporate distributional concerns and show how “non-market” solutions such as quantity floors and ceilings might be required.

**“Contracting and Vertical Control by a Dominant Platform”** with Ellen V. Muir

Accepted for presentation at EC'22

We study a platform that sells productive inputs (such as e-commerce and distribution services) to a fringe of producers in an upstream market, while also selling its own output in the corresponding downstream market. The platform faces a tradeoff: any output that it sells downstream increases competition with the fringe of producers and lowers the downstream price, which in turn reduces demand for the platform’s productive inputs and decreases upstream revenue. Adopting a mechanism design approach, we characterize the optimal menu of contracts the platform offers in the upstream market. These contracts involve price discrimination in the form of nonlinear pricing and quantity discounts. If the platform is a monopoly in the upstream market, then we show that the tradeoff always resolves in favor of consumers and at the expense of producers. However, if the platform faces competition in the upstream market, then it has an incentive to undermine this competition by engaging in activities, such as “killer” acquisitions and exclusive dealing, that harm both consumers and producers.

“Fixed-Price Approximations to Optimal Efficiency in Bilateral Trade” with Jan Vondrák

This paper studies fixed-price mechanisms in bilateral trade with ex ante symmetric agents. We show that the optimal price is particularly simple: it is exactly equal to the mean of the agents' distribution. The optimal price guarantees a worst-case performance of at least  $1/2$  of the first-best gains from trade, regardless of the agents' distribution. We also show that the worst-case performance improves as the number of agents increases, and is robust to various extensions. Our results offer an explanation for the widespread use of fixed-price mechanisms for size discovery, such as in workup mechanisms and dark pools.

SELECTED WORK “On the Optimality of Congestion Pricing Under Redistributive Preferences” with Piotr Dworczak  
IN PROGRESS “Moral Hazard and Redistribution”  
“Algorithmic Pricing and Collusion” with Ellen V. Muir

CONFERENCE PUBLICATIONS **“Fixed-Price Approximations in Bilateral Trade”** with Francisco Pernice and Jan Vondrák, in *Proceedings of the 2022 Annual ACM–SIAM Symposium on Discrete Algorithms (SODA’22)*, pp. 2964–2985, 2022.

OTHER PUBLICATIONS      “General Theories of Reflection and Transmission Scratch Holograms” with Bingjian Li, Jiahuang Lin, Ye Yeo, and Guoxian Tan, in *Canadian Journal of Physics*, **95**(5), pp. 432–419, 2017.

“The Vertical Oscillations of Coupled Magnets” with Kwei Li, Jiahuang Lin, Samuel Yee and Jeremias Wong in *European Journal of Physics* [Special Issue] **32**(4), pp. S1–S14, 2011.

HONORS AND FELLOWSHIPS	Regulatory Policy Fellowship, Stanford Institute for Economic Policy Research (SIEPR)	2022
	Jaedicke Merit Award, Stanford Graduate School of Business	2018
	Phi Beta Kappa	2018
	Firestone Medal for Excellence in Undergraduate Research, Stanford University	2017
	J. E. Wallace Sterling Award for Scholastic Achievement, Stanford University	2017
	President's Award for Academic Excellence in the Freshman Year, Stanford University	2015
	Gold Medal, International Physics Olympiad	2011
	Gold Medal (Champion Team), International Young Physicists' Tournament	2010
TEACHING EXPERIENCE	Instructor, Math Camp for the Stanford GSB Ph.D. Program	2021, 2022
	Instructor, Math & Economics Camp for the Stanford Public Policy M.P.P. Program	2017–2020
	Teaching Assistant for Prof. Jeremy Bulow, PUBLPOL 301A: Microeconomics	2017, 2020, 2021
	Coach, Singapore National Team for the International Young Physicists' Tournament	2014
SEMINARS AND CONFERENCES	Berkeley/Columbia/Duke/MIT/Northwestern IO Theory Conference	2022
	U.S. Federal Trade Commission Microeconomics Conference	
	Group for Research in Applied Economics Inequality-Aware Market Design Seminar	
	23 <sup>rd</sup> ACM Conference on Economics and Computation (EC'22), Boulder, CO	
	INFORMS Annual Meeting (Session Chair), Anaheim, CA	2021
	22 <sup>nd</sup> ACM Conference on Economics and Computation (EC'21), Budapest	
	Young Researcher Workshop on Economics and Computation (YoungEC'19), Tel Aviv	2019
REFEREEING	<i>American Economic Review, Journal of Economic Theory, Journal of Political Economy, Mathematics of Operations Research, Review of Economic Studies</i>	