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Dept. of Economics MS-22

Rice University

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RESEARCH FIELDS

Education Economics, Empirical Industrial Organization, and Development Economics.

EDUCATION

Ph.D. in Economics, Rice University

(Anticipated) May 2021

DISSERTATION: *Essays on human and physical capital investments in developing countries: educational choices, vocational aspirations, and procurement auction efficiencies*

M.A. in Applied Statistics, Tecnológico de Monterrey

May 2015

B.A. in Economics, Tecnológico de Monterrey

May 2013

WORKING PAPERS

1. [Elections and Productivity in the Allocation of Pavement Contracts in Mexico - Job Market Paper](#)
2. [Developing Educational and Vocational Aspirations through International Child Sponsorship: Evidence from Kenya, Indonesia, and Mexico](#), (with Paul Glewwe, Phillip Ross, and Bruce Wydick - Revision Submitted, *World Development*).
3. [International Child Sponsorship Impact on the Intended Choice of Acquiring a Higher Education Degree: the Case of Rural Mexico](#), (*submitted*).

WORK IN PROGRESS

1. Whose Opinion Matters Most for the Choice of a Major? The Relative Influence of Parents, Teachers and Peers.
2. Students' Willingness to Pay for University Attributes.

BOOK CHAPTERS

1. "Airline Economics: A Survey of Applied Issues in the Performance of the US and International Airline Industry", (with Levent Kutlu and Robin Sickles), in R. Chambers, S. Kumbhakar, and S. Ray (eds.), *Volume II, Handbook of Production Economics*, New York: Springer - *forthcoming*.

PUBLICATIONS (PRE-PH.D.)

1. "A Long-Term Employment Deprivation Index for Mexico." (2017). *Estudios Económicos*, 32(1): 133-65 (with Rocío García).
2. "A Shapley Decomposition of Multidimensional Chronic Poverty in Argentina." (2017). *Bulletin of Economic Research*, 69(1): 23-41 (with Rocío García).

3. "Los Efectos del Fondo de Aportaciones para la Infraestructura Social Sobre la Pobreza en México." (2014). *Región y Sociedad*, 26(60):63-88 (with Fernando Ramones).

Engineering

4. "Hyperspectral Analysis of Soil Polluted With Four Types of Hydrocarbons." (2019). *Geocarto International*, 34(9), 925-42 (with Laura A. Reséndez-Hernández and Diego Fabián Lozano-García).

POLICY REPORTS

1. "On the Allocation of Public Works Contracts: Risks in Bypassing Procurement Auction Procedures." (2019). Baker Institute Issue Brief no. 04.23.19.
2. "Getting Public Investment in Education Wrong in Mexico." (2020). Baker Institute Issue Brief no. 02.26.20.

FELLOWSHIPS, SCHOLARSHIPS, AND AWARDS

Graduate Fellow, Rice University's Baker Institute – Center for the U.S. and Mexico.	Nov. 2018 - May 2020
The Puentes Consortium, Summer Fellowship Grant.	Summer-2019
Rice Fellowship, Rice University.	2015-2021
Masters Stipend Scholarship, CONACYT.	2013-2015
Graduate Student Researcher (Visitor), Southern Methodist University.	Summer, 2014
Masters Scholarship, CONACYT-OEA-AMEXID.	2013
Academic excellence scholarship, M.A., Tecnológico de Monterrey.	2013
Academic excellence scholarship, B.A., Tecnológico de Monterrey.	2008

TEACHING AND RESEARCH EXPERIENCE

Teaching assistant , Rice University	Fall 2015-Present
Principles of Microeconomics, Microeconomics, Religion, Ethics, and Economics.	
Workshop lecturer , Tecnológico de Monterrey	
Econometrics with Stata (10 weeks)	2014
Research assistant , Tecnológico de Monterrey	
Professor Rocío García	2013-2015
Professor Jorge Ibarra	2013-2015
Professor Eduardo Rodríguez-Oreggia	2011-2013

PROFESSIONAL ACTIVITIES

Conferences: 2020: Economics Graduate Student Conference (*scheduled*), The University of Texas Rio Grande Valley (*scheduled*), Bolivian Conference on Development Economics; 2019: Sobre México, Academia Against Corruption in the Americas; 2018: UNU-Wider; 2014: 6th Bolivian Conference on Development Economics, 89th Western Economic Association; 2013: 5th Meeting of the Society for the Study of Inequality (ECINEQ), 39th Eastern Economic Association, Network on Inequality and Poverty (NIP).

Referee for: Economía, Sociedad y Territorio; Investigación Económica.

OTHER

Languages: Spanish (native), English (fluent).

Software: R, Julia, Stata, MATLAB, SQL, L^AT_EX.

REFERENCES

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ABSTRACTS (WORKING PAPERS)

Elections and Productivity in Procurement Auctions of Pavement Contracts in Mexico - Job Market Paper

When allocating contracts, governments decide between exercising hiring discretion or allowing a higher level of competition without firm selection. Ex-ante, it is not clear which allocation mechanism will lead to better outcomes. The trade-off depends in part on the government's ability to select the best firms when restricting competition and on the probability that this practice will lead to corruption. In this paper, I study the allocation of street pavement contracts in Mexico and combine auction methods with an analysis of the firms' productivity to test whether local governments select the most cost-efficient firms when restricting competition. Furthermore, I study the firms' behavior under different auction formats. I find that firms selected to settings with less competition are more experienced and have lower costs in complex pavement projects, but have higher costs in simple ones. When comparing auction formats, firms are more aggressive under auctions by invitation than in public auctions in complex projects, but bid similarly under both auction formats in simple projects. Contrary to the current practice, the results suggest that the government would benefit from opening up simple projects to public auctions. The use of auctions by invitation for complex projects seems warranted, but mixed results on the influence of political factors raise concerns of misuse of a greater hiring discretion on the part of the government. [Download \(PDF\)](#)

Developing Educational and Vocational Aspirations through International Child Sponsorship: Evidence from Kenya, Indonesia, and Mexico

(*Revision Resubmitted to World Development*) with Phillip Ross, Paul Glewwe, and Bruce Wydick

The role of aspirations in facilitating movement out of poverty is a subject of increasing research in development economics. Previous work finds positive impacts from international child sponsorship on educational attainment, employment, and adult income. This paper seeks to ascertain whether the impacts of child sponsorship on educational outcomes may occur through elevated aspirations among sponsored children. Using an age-eligibility rule applied during program rollout to identify causal effects, we study whether international child sponsorship increases educational and vocational aspirations among a sample of 2,022 children in Kenya, Indonesia, and Mexico. While effects are heterogeneous, and strongest in Kenya, we find that, averaging over the three countries, sponsorship increased indices of self-esteem (0.25), optimism (0.26), aspirations (0.29) standard deviations respectively, and expected years of completed education (0.43 years). We find that sponsorship increases actual grade completion by 0.56 among children at the time of the survey, and mediation analysis suggests that the impact of sponsorship on aspirations is likely to mediate higher levels of grade completion. Our results contribute to a growing body of evidence indicating

that the positive impacts of child sponsorship stem partly through elevating aspirations. More generally, our research contributes to a larger literature suggesting that the alleviation of internal constraints among the poor is a strong complement to addressing their external constraints. [Download \(PDF\)](#)

International Child Sponsorship Impact on the Intended Choice of Acquiring a Higher Education Degree: the Case of Rural Mexico
(Submitted)

This paper studies the impact of a child sponsorship program on the aspiration to acquire a higher education degree, among a sample of rural children in the states of Oaxaca and Chiapas in the south of Mexico. To account for the program's selection of sponsored children, I estimate a binary Roy type model with unobservables generated by a one-factor structure. I further account for the children's income beliefs by directly eliciting their subjective expected returns to schooling. I find that the average treatment effect on the treated is positive and consistent with previous studies of the sponsorship program, although it is not statistically significant. Estimates of the marginal treatment effect show that the sponsorship effect is higher for children most likely to be selected to the program. From the subjective income expectations data, I document that children in rural settings, 12 to 15 years old, have realistic although heterogeneous expectations, and present a clear gender gap, even at these young ages. [Download \(PDF\)](#)

ABSTRACTS (WORK IN PROGRESS)

Whose Opinion Matters Most for the Choice of a Major? The Relative Influence of Parents, Teachers and Peers
(Data collection completed)

The opinions of various individuals surrounding a student can influence her choice of major, yet we know little about their relative importance. In this paper, I combine survey data and administrative records of a large Mexican University to study whose approval, from the point of view of the student, influences more her intended choice of an area of study. Using a discrete choice model in conjunction with elicited perceived beliefs, I examine the relative influence of the student's parents, teachers, and friends. By studying how beliefs differ by gender, I further study the effect of the perceived approval of others on the enrollment gender gap in STEM majors.

Students' willingness to pay for university attributes

In developing countries, information on universities is not systematized at best and in general not available. Hence, it is difficult to analyze which university characteristics drive students' university choices. In this paper, I use a hypothetical choice methodology to elicit subjective probabilities and estimate a random utility model. The estimates allow me to indirectly measure the students' willingness to pay for university characteristics, which are interpreted in terms of tuition or in terms of forgone future earnings.