Subject: Application for the NBER Entrepreneurship Research Boot Camp

To the selection committee,

I am writing to express my interest in participating in the NBER Entrepreneurship Research Boot Camp, and to apply for a place in this event. With my strong background in econometrics, industrial organization and development economics, and my passion for healthcare economics and innovation, I would bring valuable perspectives and discussions to this bootcamp.

I am a 4th year PhD student in the economics department at the University of California, Berkeley. My coursework on econometrics, industrial organization, and development economics, as well as my past research experiences in these fields have equipped me with the toolkits to conduct rigorous research.

My current and past research projects include studying small independent pharmacies owned by providers in Kenya, the diffusion of new healthcare technologies in Kenya and Mexico, and the effect of public funding on research and development activities in the pharmaceutical industry. Moreover I am interested in exploring in the future the effects of access to managerial technologies and assets such as digital point of sales systems, inventory management tools, and aggregate market intelligence on the growth of businesses in the health sector, as well as any impacts of these tools on the quality of patient care and access to medications.

My research projects would benefit from my participation in this bootcamp since it would allow me to get a clearer understanding of the existing literature on entrepreneurship, and to network with peers with whom I can potentially collaborate in the future.

I have requested Prof. Paul Gertler (gertler@berkeley.edu) with whom I have worked with for over a year and will be part of my dissertation committee to submit a letter of recommendation to this bootcamp on my behalf.

Thank you for considering my application. For any additional information please feel free to reach out to me through email (carlos.paramo@berkeley.edu) or by phone (512 665 5739).

Best,

Carlos Paramo
PhD Candidate, Economics
University of California, Berkeley
Email: carlos.paramo@berkeley.edu
Phone: 512-665-5739

Carlos Paramo

UC Berkeley Economics Department, Berkeley, CA 94720

Phone: (512) 665-5739 **Email:** carlos.paramo@berkeley.edu

Research Interests: Healthcare economics, innovation and technology adoption, industrial organization, development economics, applied econometrics, machine learning.

Education

2019-Present	Ph.D. Economics (expected 2025) Fields: Industrial Organization and Development Economics University of California, Berkeley
2015-2019	B.A. Economics & Applied Mathematics University of California, Berkeley

Professional experience

2020 - 2022	Research Assistant, Center for Effective Global Action (CEGA) For Prof. Edward Miguel on various projects in Kenya.
2017 - 2018	Research assistant for Prof. Yuriy Gorodnichenko
Summer 2018	LA SR-EIP Fellow, Research Assistant, University of Virginia Economics With Professor Gaurab Aryal on pharmaceutical industry.
2017 - 2018	Undergraduate Research Assistant for Professor Hilary Hoynes, NBER

Teaching experience

2021	Graduate Student Instructor, Introduction to Econometrics (math intensive version), UC Berkeley, Economics Department. With Prof. Demian Pouzo

Working papers and presentations

Haushofer, Johannes, Paul Niehaus, Carlos Paramo, Edward Miguel, and Michael Walker. (2021). "Targeting impact versus deprivation". NBER Working Paper No. 30138

Oral Presentation at the Leadership Alliance National Symposium, Hartford, Connecticut, 2018

Ongoing projects

Impact evaluation of pharmacy-based incentives for long-acting contraception on women's access to family planning in Kenya. Data collection in progress, with Maria Dieci and Paul Gertler.

Public Funding and Innovation: The Case of the Pharmaceutical Industry. We are studying the effects of public funding availability in the R&D investment strategies of pharmaceutical firms. Data analysis in progress, with Kristy Kim, and Yuki Ito.

Wartime Medical Innovation: Evidence from the USPTO Historical Patent Data.

Honors and Awards

2019-2025	Cota Robles Fellowship, UC Berkeley
2019	Best Senior Thesis, Economics Department
2019	Highest Distinction (Summa cum laude), Phi Beta Kappa
2018	Leadership Alliance SR-EIP Fellow
2018	The George Douglass Scholarship, George and Mary Poulos Scholarship and The Homan W. Scholarship.
2017	Leadership Award, California Alumni Association

Completed graduate coursework

Core: Economic theory (Econ 201A-201B), Macroeconomic theory (Econ 202A-202B), Econometrics sequence (Econ 240A, Econ 240B), Economic history (210A), Survey of research in economics (Econ 295)

Additional econometric courses: Non-linear models and machine learning (Econ 240C); Applied Econometrics (Econ 244)

Development Economics: Microeconomics of development (Econ 270A); Development economics (Econ 270B)

Industrial Organization: Industrial organization sequence (Econ 220A, Econ 220B)

Skills

Languages:
- Fluent in Spanish and English

Programming:
- Python
- Stata
- R
- MATLAB

My passion for healthcare economics and innovation has led me to engage in multiple projects that have the potential to contribute to the literature of entrepreneurial economics and entrepreneurial finance including studying small independent pharmacies in Kenya, the diffusion of new healthcare technologies in Kenya and Mexico, and the effect of public funding on research and development activities in the pharmaceutical industry. I am excited to apply for the NBER Entrepreneurship Research Boot Camp because it would complement my research interests and skills, and expose me to a network of peers who are also interested in entrepreneurial economics. I strongly believe that my current and future research projects would benefit from my attendance to this bootcamp.

Most recently, I am studying the diffusion of a new contraceptive technology in the private market in rural and semi-urban Kenya. Injectable contraceptives are the most popular method of birth control in Sub-Saharan Africa. Nevertheless, providing injectables require qualified health providers which can limit access to this type of contraceptive choice. A new injectable contraceptive, Sayana press by Pfizer, can be safely self-administered by patients and a broader set of healthcare providers due to its lower dosage and smaller needle (subcutaneous delivery rather than intramuscular). These technological advantages have the potential to increase access to a popular method of contraception. My co-authors and I are studying the channels that lead to the adoption of Sayana Press in a setting where there is provider agency and financial incentives. Our approach involves a randomized experiment that assigns subsidies for pharmacies and patients.

The study is set in a network of independently owned pharmacies that share a point of sales (POS) system and inventory management software from Maisha Meds, a social start-up that offers administrative services to small pharmacies and clinics. Most of these pharmacies are managed by their owners who also serve as pharmacists. In Kenya, it is very common for patients to receive family planning counseling from pharmacists or clinicians employed by the pharmacy. Therefore, pharmacists in this setting have a role of expert intermediaries while at the same time having direct and indirect financial incentives tied to the family planning choices they recommend to patients.

This project will contribute to the literature on entrepreneurial economics. Survey and administrative data from the POS system will allow me to study the effects of the subsidies and provider incentives on investment, stocking, and hiring decisions on these small independent pharmacies. Early results suggest that these pharmacies re-orient resources towards family planning due to potential capacity constraints. There are a couple of additional questions from entrepreneurial economics that I am planning to

study in the future as I continue collaborating with Maisha Meds. First, investigating how access to management technologies such as POS and inventory management systems impact the business operations and growth of these sites. Second, understanding how access to local market data and analytics can improve the business operations and growth of small businesses.

Another setting which I am interested in studying is the pharmaceutical industry in Mexico. First, the introduction of generic medications in the country three decades ago was accompanied with limited regulations on quality. Combined with high income inequality, this led to an early adoption with market segmentation along patient income. Recent regulations on quality and prescriptions have been accompanied with changes in the composition of consumers of generic medications. I plan to study the effects (on prices, exists, and entry) of these compositional changes in consumers of generic medications on the market and analyze heterogeneous effects on consumer welfare. Second, I am also interested in investigating the expansion of the pharmacy-clinic business model in Mexico, as well as provider agency when it comes to the prescription of generic medications.

Another project which I plan to continue working on in the future involves the pharmaceutical research and development pipelines. Based on my undergraduate senior thesis, my co-authors and I are interested in studying the effects of policies that provide funding for drug-development in the entry and success of R&D projects in the pharmaceutical industry. I use variation on the introduction of the Biomedical Advanced Research and Development Authority in the United States to study entry, and success rates on therapeutic areas that are eligible for federal funding.

Given that many of my research interests overlap with or have the potential to contribute to the field of entrepreneurial economics and entrepreneurial finance, I want to gain a clear understanding of the current state of the literature in these two research areas. I believe that the NBER Entrepreneurship Research Boot Camp would help me identify areas where my research interests can further expand the frontier in these fields while building on existing work. Moreover, the bootcamp would give me an opportunity to join a network of peers who are interested in similar topics, which can ultimately lead to fruitful collaborations that contribute to entrepreneurial economics and entrepreneurial finance.

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February 8, 2023

To: Entrepreneurship Research Boot Camp selection committee

Re: Reference for Carlos Paramo's NBER Entrepreneurship Research Boot Camp

I am writing to highly recommend Carlos Paramo for the NBER Entrepreneurship Research Boot Camp 2023. Carlos's academic preparation is excellent, and he has several years of research experience using rigorous methods and a proven interest in research in topics related to entrepreneurial economics. I have known and worked with Carlos for almost two years and served in his Qualifying Exam committee. I have full confidence in Carlos's research skill set and potential to contribute to research topics in entrepreneurial economics. Carlos's participation in this program will not only be beneficial to his research projects but will also enrich other participants' experiences and networking opportunities during the program.

Carlos is currently leading a randomized control trial for a research project that aims to study the effectiveness of subsidies for new health products in small independent pharmacies. For this project, he is collaborating with a start-up that provides small firms in the health sector with inventory management tools and a point of sales system. Carlos is investigating a set of very important questions in this project, with potential for large impact to advance knowledge and influence policy. Economists and policy-makers alike have long been preoccupied with how to promote the diffusion of new technologies that have the potential to have large benefits on the lives of the poor around the world, particularly in health care settings where access to medical services is limited. This research project will contribute to a better understanding of how small firms with the aid of new management technologies can increase access to healthcare innovations.

Carlos has demonstrated his capabilities as an independent and thoughtful researcher through his work on this project, as well as his prior experiences while in graduate school. Since the start, he has managed all aspects of developing this research project and collaborating effectively with key partners. The study design came from his careful thinking, review of the literature, lunch presentations, and consultation with faculty mentors and policy experts. I expect that he will bring the same clear thinking, decisiveness and organization to all aspects of this work.

During his time in graduate school, Carlos has been involved in several other research projects involving experimental and non-experimental methods and has collaborated well with other faculty and students at Berkeley. Most recently, he is a co-author in an NBER working paper with other faculty on a project in Western Kenya. Carlos has also

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done research on the pharmaceutical innovation pipeline, and is interested in studying the clinic-pharmacy business model and the adoption of generic medications in Mexico.

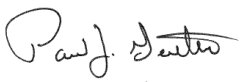
In addition to being a productive researcher, Carlos has strong training in economic theory, econometrics, industrial organization, and development economics. While at Berkeley, he has excelled in his core PhD curriculum, his field courses and field exams on development and IO, and has taken additional econometric courses on applied methods, machine learning, and non-linear estimators. His methodological and theoretical foundation will allow him to conduct high quality academic research that will contribute to scholarship in economics.

For all of these reasons, I strongly support Carlos's application to participate in the NBER Entrepreneurship Research Boot Camp.

Please do not hesitate to reach out with any questions.

Thank you for considering his application.

Best,



Paul J Gertler
IBSI Faculty Director
Li Ka Shing Professor
Haas School of Business
UC Berkeley