Statement of Purpose

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Research Interests and Fit In with the Department

I'm interested in applied microeconomics, especially development economics, labor, and political economy. Nevertheless, since my current interests strongly correlate with the topics I've worked on as a research assistant, I see the first two years of the graduate program as an opportunity to explore new research interests. In the following subsections, I develop three research ideas in more detail to further signal my research potential.

If accepted, I would be privileged to collaborate with Professor XXXX, especially in his/her research on ABCD. Furthermore, Professor YYYY's work on ZYK has influenced my interest in economics research, particularly in *field*. While reading her/his paper on XXX, I comprehended the importance of the KKK. Finally, it would be essential to complement my academic training to work with Professor GGG to deeply understand the microeconomic foundations of LLL and its impact on III.

The Human Capital Production Function and Technology

There is extensive evidence of the positive effects of early childhood investment on various short- and long-term outcomes (Cunha et al., 2006). Moreover, recent research has improved our understanding of the production function of human capital (Attanasio et al., 2020) and how comprehensive early childhood interventions can foster human development (Gertler et al., 2021). Within this literature, I'm interested in how new technologies (e.g., interactive touchscreen or phone apps) can affect human capital at an early stage.

This topic raises several questions I would like to pursue further as a Ph.D. student. First, could physical capital be a relevant input in the production functions for child development? In this context, I think of physical capital as interactive electronic devices from which the child can acquire relevant skills without the parent's mediation. For instance, recent empirical evidence in psychology suggests that interactive apps can increase prosocial behavior (Shoshani, Nelke & Girtler, 2021) and spatial memory in preschool children (Huber, Meyer & Kaufman, 2019). Second, what is the degree of substitution between direct parental investments (e.g., time) and physical capital? While it might not be a perfect substitution between inputs, it is still an open question of how the interaction between these inputs works. Third, how can we use these new technologies in the context of early childhood interventions? In general, the scalability of these programs has proven challenging. Thus, including EdTech platforms for children's and parents' learning could help maintain quality at scale.

Technology, Speech, and Labor Market Outcomes

I'm also interested in how to improve labor market outcomes by enhancing soft skills (e.g., communication and interpersonal relationships). This topic is relevant since the importance of social skills in labor markets has increased recently (Deming, 2017). As a non-native speaker, I'm particularly interested in the role of communication. The evidence suggests that speech strongly correlates with wages (Grogger, 2018). For instance, empirical studies indicate that lacking English fluency leads to earning losses for immigrants in the UK (Dustmann & Fabbri, 2003). Furthermore, these limitations mainly affect historically segregated communities, such as first-generation low-skilled immigrants (Chiswick, 1991). While being bilingual might be seen as a hard skill, proper communication enhance much more

than just saying words in English. For instance, it involves proper intonation or common speaking expressions.

To empirically examine how better communication can affect labor market outcomes, one could design an experiment that offers free access to an EdTech app to improve speech (i.e., pronunciation, intonation, conversational vocabulary). For instance, Elsa is an AI-powered app that teaches spoken English for only 6.25 USD per month. Following previous RCTs run within social media,[1] one could randomize potential participants to free Elsa app access. The app can automatically gather information on participants' proficiency levels throughout the experiment. By promising participants to receive a reward after completing the endline survey, it could be possible to study the effect of proficiency improvements on labor market outcomes.

This setting would allow me to recover two informative effects. On the one hand, the impact of this type of EdTech platform on speech proficiency by comparing treated and control groups. On the other hand, if the app does improve speaking skills, I could estimate a LATE of better proficiency in English on labor outcomes by using the random assignment as an instrument for speaking skills.

Information Provision and Health Services Uptake

Another intriguing topic is how to increase health services uptake in developing countries. While many middle-income countries have high health coverage rates, access to health services remains low. In Colombia, for example, citizens have a constitutional right to health care, which has made it possible to have nearly universal coverage. Yet, empirical evidence has documented that insurance companies have incentives to restrict access and, thus, reduce service usage (Bhalotra & Fernandez, 2021). Moreover, the evidence points out that these restrictions severely affect the lower-income population. As an alternative to overcome these health service constraints, judicial claims have become an effective strategy. In fact, by 2015, 83% of health-related judicial claims were settled in favor of the claimant. Nevertheless, the poor show a lower usage rate of judicial claims, probably due to information constraints.

A viable alternative to increase the uptake of health services among the poor could be providing information through social media about health-related judicial claims. While these interventions might face low statistical power, they have already been used in Colombia in other contexts.[2] Hence, one could think about a large-scale campaign using Facebook or Google ads where randomly selected municipalities receive information on how to file such claims. Results would be informative of the effect of providing information on access to health services and, ultimately, on health outcomes in developing countries. A significant advantage of this setting is that Colombia's Minister of Health collects detailed information on every service provided within the system, allowing for real-time measuring of various outcomes.

My Preparation

My academic training as an undergraduate and master's student at Los Andes (Colombia) has equipped me with the requisite intellectual toolkit to succeed at the Ph.D. in ABCDEF at XXXX University. The economics program at Los Antes ranks first in Colombia and third in Latin America. In addition, previous graduates have gone to top-ranking graduate economics programs, such as MIT, Harvard, Chicago, or Northwestern. Within this competitive environment, I ranked in the top 5% of my B.A. in Economics graduating class and within the top 3% of the M.A. graduates from the previous five years.

[1] For example, see Shreekumar & Vautrey (2022), Allcott et al. (2020), and Allcott, Gentzkow & Song (2022)

[2] See Garbiras-Díaz & Montenegro, 2022 for an application on corruption and electoral integrity.

Furthermore, these programs at Los Andes have provided me with rigorous training in math, economic theory, and empirical methods. On the one hand, I took four calculus classes as an undergrad, one level of Linear Algebra, and one course in Probability and Statistics. On the other hand, I engaged in advanced-level courses in Microeconomics (textbook: *Microeconomic Theory* by Mas-Colell, Whinston, & Green), Macroeconomics (textbook: *The Economics of Growth* by Aghion & Howitt), and Econometrics (textbooks: *Econometric Analysis of Cross Section and Panel Data* by Wooldridge and *Mostly Harmless Econometrics* by Angrist & Pischke. I also complemented my training with elective courses on Real Analysis, Impact Evaluation, Labor Economics, Political Economy, and Machine Learning.

By working for Professor Raquel Bernal (Los Andes) as an RA, I have acquired essential aptitudes to conduct research in economics. The most important skills I have gained are working autonomously and being proactive. I had to learn this the hard way since Professor Bernal was appointed Acting University President only three months after I started working for her. While she continued working on her research, our communication had to be much more effective, and I had to work independently on my tasks. I learned to anticipate potential questions and errors in the data by analyzing the results as Professor Bernal would usually do. Moreover, I typically had to develop and implement additional analyses on my own, such as robustness checks, to push projects further. Developing these skills allowed me to improve my intuition as an empirical researcher and coauthor two working papers with Professor Bernal on early childhood development.

I have also worked as an RA for Professors Luis Martinez (UChicago), Roux (Los Andes), and Tovar (Los Andes) in a study on the effect of trade wars on firm efficiency. First, I merged over 20 million administrative export records with detailed survey manufacturing plant data. Next, I had to estimate production functions and calculate TFP, markups, and marginal costs. I'm currently in charge of running a difference-in-difference strategy to identify the effect of Venezuela's trade war with Colombia.

As an RA for Professor Martinez, I also worked on a joint project with Professor Maria Carreri (UCSD) that studies the political and economic consequences of fiscal rules in Colombia. In this project, I was involved in most of the research stages. First, I constructed a municipal panel with detailed information on public spending and elected officials. More importantly, I had to clean and merge various data sources on public goods. For instance, I used elected politicians' names to link data on corruption sanctions from judicial records. Second, I implemented modern difference-in-difference estimators and produced publication-quality outputs for the paper in Latex. While doing so, I met weekly with professors Carreri and Martinez and provided inputs on the empirical analysis. Finally, I assisted PIs in the paper's submission and participated in discussions about revisions.

I have also pursued research of my own. In my master's thesis, I study the impact of rebel governance on economic development in rural Colombia. I leverage a 42,000 square km demilitarized zone (DMZ) created in 1998 to negotiate with FARC, Colombia's largest rebel group. Using a spatial regression discontinuity design, I exploit the DMZ's border to examine the effects of rebel-based social order on education, living conditions, and agricultural production. I show that rebel governance increased the years of schooling by 0.1 standard deviations, access to rural water systems by 11 percentage points, and agricultural yield by 16 percent. These findings appear driven by public goods provision and less exposure to violence during rebels' rule.

On an ongoing work with Juan Vargas, Michael Weintraub, and Rafael Ch, we expand the analysis to short-run impacts on night-light intensity and satellite images on coca leaf production. Unexpectedly but consistent with my previous work, rebel governance increased economic activity, measured by light intensity, and reduced coca production. This work is relevant since it contributes to and contrasts with the recent literature on how non-state armed actors affect economic development. For instance,

Bandiera et al. (2022) show that guerrilla rebel governance in El Salvador had persistent adverse effects on economic development.