

Research Ideas

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I'm interested in applied microeconomics. In the following subsections, I present some research ideas to provide you with a sense of my interests and research potential.

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 is relevant since these technologies will likely become of general use or acceptance. Still, there doesn't seem to be enough evidence for their positive and negative effects on child development.

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 function for childhood development? In this context, I think of physical capital as interactive electronic devices from which a child can acquire relevant skills without a 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 this might not be a perfect substitution between inputs, how the interaction between these inputs works remains an open question. 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.¹

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 healthcare, 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. Although judicial claims are an effective strategy to overcome these health service constraints (83% of health-related judicial claims were settled in favor of the claimant in 2015), the poor show a lower usage rate of such claims.

If we believe that information constraints drive this restriction to access, a feasible alternative to increase health services uptake among the poor could be providing it through social media. 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. The results would

¹For example, recent evidence shows that using video-based can enhance parental knowledge and promote parental cognitive growth fostering behaviors (Leung, Trinidad & Suskind, 2022).

²See Garbiras-Díaz & Montenegro (2022) for an application on corruption and electoral integrity.

illuminate the effect providing such information has on access to health services and, ultimately, on health outcomes in developing countries.³

Technology, Soft Skills, 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 someone who regularly communicates in a non-native language, 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 entails much more than just knowing English grammar. For instance, it involves proper intonation or common idioms.

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,⁴ one could randomize potential participants into free access to Elsa. The app can automatically gather information on participants' proficiency levels throughout the experiment. By promising participants they will 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, I could examine 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.

Rebel Governance and Economic Development

In my master's thesis, I studied the impact of rebel governance on economic development in rural Colombia. I leveraged 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 exploited 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%. These findings appear driven by public goods provision and less exposure to violence during rebels' rule.

In 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, as 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.

³A significant advantage of this setting is that Colombia's Ministry of Health collects detailed information on every service provided within the system, allowing for real-time measurement of various outcomes.

⁴For example, see Shreekumar & Vautrey (2022), Allcott et al. (2020), and Allcott, Gentzkow & Song (2022)