

# Research statement

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I am a multi-faceted labor economist. I feel comfortable working with models and data; while my work has approached questions from a variety of standpoints, from macro labor, to micro labor, to computational economics. I enjoy learning new techniques and bringing new ideas to the table. I value discussing new ideas as well as reinterpreting old frames of reference.

My research aims to understand how labor markets function, both from a theoretical and an applied perspective. The goal is to arrive at a deeper understanding of how workers and firms match and the fundamental role of skills and requirements play a fundamental role in such a process. One of my research objectives has been to try to open the *black-box* of the matching function. To do so, I have highlighted the necessity to consider multiple and heterogeneous skills. This approach allows us to comprehend a wide range of labor market outcomes in a more granular way. In particular, my research helps to understand why mismatches occur in labor markets and measures the potential effects of such mismatches on labor market outcomes. I am also interested in studying informality in developing countries and how it affects the relationship between firm requirements and population skills. Lastly, I am intrigued by how technology reshapes employment relationships rapidly. Going forward I would like to study the particulars of such new arrangements and introduce them into existing models to better analyze their consequences.

**Background** Prior to starting graduate school, I worked in the private and public sector, as well in international institutions. These experiences have led me to develop a research agenda focused on policy relevant questions. In my most recent experiences working with the Interamerican Development Bank, I have been able to apply the insights of my research to problems such as curriculum design, or the design of employability strategies.

**My dissertation** My job market paper, [Job posting and multidimensional skills mismatch](#) gives an answer to an old question in labor economics, '*Who matches with whom?*', when firms and workers are different in many dimensions. In the paper I present a random search model with two sided multidimensional heterogeneity in which firms choose and post a wage with commitment, independent of the worker type that accepts the job. Posted wages determine the set of acceptable jobs for each worker and a unique *applicant pool* for each firm. The composition of these sets varies in *size* and *composition* across workers and firms. The optimal posted wage level takes into consideration the requirements of each firm and the characteristics of the applicant pool. I derive the equilibrium wage posting and acceptance strategies, and show that, in equilibrium, sorting is assortative, but mismatches can occur across all skills

dimensions. I then take the model to French data on workers observed skills, matches and unemployment, and use indirect inference to recover the structural parameters of the model. I find that the disutility of non cognitive skills is higher when mismatched, while employers value more good matches on cognitive skills. I also find that multidimensionality plays an important role, being another source for frictions.

A second paper of my dissertation tries to answer the question '*what happens behind the matching process?*' The paper "Matching heterogeneous skills demand and supply under limited rationality" (joint with D. Margolis), lies on a model of iterative applications under limited rationality and using supply and demand side data on multidimensional skills from Colombia, numerically solves for the equilibrium allocation of workers to jobs. The resulting allocation is inefficient, highlighting how more skilled workers over-weight the risk of being hired, even if this leads to matching jobs for which they are over-qualified. This leads to less qualified workers spending more time in unemployment, but eventually matching to jobs with higher skill demands. Two counterfactual simulations suggested that investment subsidies would be a more effective strategy for approaching the efficient allocation than making training available to all unemployed workers.

In the last paper of my dissertation I explore another question: '*when things go bad, who gets fired first?*'. In the paper, also joint with D. Margolis, we use french administrative data and statistically match it to the PIAAC survey, we then document how the composition of skills changes after a mass layoff. We also explore the extend to which skills mismatch plays a role on being fired during a mass layoff, highlighting one of the channels for organisational re-composition.

**Future research: Short term** I have three other ongoing projects. In collaboration with J. Cardenas (Warwick IER) I am measure the effects that outsourced work has on labor market outcomes in the case of Colombia. Using detailed vacancy information, using administrative records, we identify the spillover effects that personnel and outsourcing agencies have on different labor market outcomes. In collaboration with D. Bosworth and J. Cardenas (Warwick IER), I am working on a paper that quantifies and documents the effects of COVID on informal employment. In the last project, joint with A. Bertheau (University of Copenhagen), we present a characterization of employer and worker search behavior. We provide new evidence on the matching process by exploiting a recent survey of hiring practices in 28 European countries for 18,000 establishments.

**Future research: Long term** In the next years, I plan to continue working to try to unveil the mechanisms that are behind the matching process. One angle I have been begun exploring is how including networks in a search equilibrium model with multidimensional skills would induce sorting. Such perspective will gain relevance in the future, when detailed data from social networks and other sources becomes available.

I have also set a personal goal that I would like to accomplish for my research: I want to produce relevant research that can be used to provide policy advice for the most urgent problems that developing countries labor markets, such as Colombia, face. To do so, I have been working in recent years on collecting alternative data sources to produce labor market information, which will allow me to use it in my own research.