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Course of Graduate Study and Enrollment

I am a Ph.D. candidate in **Political Economy and Government** at Harvard University, a joint program of the Harvard's Departments of Economics and Government and Harvard Kennedy School. I enrolled in Fall 2019 and expect to graduate in May 2026. My training combines the theoretical and methodological foundations of economics with an additional focus on the intersection of economics and political science. My field courses have covered development economics, political economy, public economics, and comparative politics. In my research I use tools from applied microeconomics and causal inference to answer questions at the intersection of political economy, development, and public finance.

Research Interests and Current Projects

My research lies at the intersection of **political economy, development, and e-government**, with some research focused on how technology and artificial intelligence reshape the functioning of state institutions. In this work I study how political incentives and patronage networks interact with algorithmic reforms in bureaucratic and electoral processes. More broadly, my work investigates the consequences of institutional design and technological change for accountability, public finance, and democratic resilience in developing and authoritarian contexts.

My **dissertation**, titled *Essays in Political Economy and Development*, develops new theory and evidence on how dominant parties use patronage and institutional engineering to sustain power. My job market paper, *Patronage Hierarchies and Tax Collection*, introduces the concept of patronage hierarchies, when officials are hired through political patronage across multiple layers of a public sector organization. Through shipment-level data on around 300,000 customs inspections in Paraguay I show that partisan alignment across bureaucratic layers significantly reduces customs fraud detection and tax collection. I am currently working on a large-scale field experiment with Paraguayan customs (in collaboration with Ernesto Dal Bó, Frederico Finan, and Laura Schechter) to evaluate whether a machine-learning algorithm for shipment assignment can reduce collusion and improve fraud detection in this context characterized by patronage and

collusion. Our pilot intervention results at two major customs ports indicate that the algorithm more than doubles fraud detection accuracy while reducing the number of inspections by two-thirds, illustrating the potential promise of algorithmic inspections. We have gotten a full research grant from the *International Growth Center* at the London School of Economics to scale up our intervention to all customs ports in Paraguay. A third line of research examines the quasi-random adoption of electronic voting machines in Paraguay (only even-numbered voting booths at each polling station containing multiple voting booths) and their interaction with clientelistic party structures, showing the effects of technological enfranchisement (the reduction of invalid votes) in this political environment. Together, these projects demonstrate my broader research agenda: integrating applied microeconomics and field-based data collection to study how **political incentives and digital technologies (including AI) interact to shape state capacity and accountability**.

Dissertation Committee: Melissa Dell, Alisha Holland, Anders Jensen, Vincent Pons, Horacio Larreguy