MIT Economics

DEIVY HOUEIX

OFFICE CONTACT INFORMATION
MIT Department of Economics
77 Massachusetts Avenue, E52-301
Cambridge, MA 02139
houeix@mit.edu
https://economics.mit.edu/people/phd-students/deivy-houeix

HOME CONTACT INFORMATION
67 Dana Street, Apt 5
Cambridge, MA 02138
Mobile: 650-391-4483

MIT PLACEMENT OFFICER
Professor David Autor
dautor@mit.edu
617-253-4669

MIT PLACEMENT ADMINISTRATOR
Ms. Shannon May
shmay@mit.edu
617-324-5857

DOCTORAL STUDIES	Massachusetts Institute of Technology (MIT) PhD, Economics, Expected completion June 2025 DISSERTATION: "Essays on Firms and Technology in Development Economics"

DISSERTATION COMMITTEE AND REFERENCES

Professor Benjamin Olken
MIT Department of Economics
77 Massachusetts Avenue, E52-542
Cambridge, MA 02139
617-253-6833
bolken@mit.edu

Professor Esther Duflo
MIT Department of Economics
77 Massachusetts Avenue, E52-544
Cambridge, MA 02139
617-258-7013
eduflo@mit.edu

Professor David Atkin
MIT Department of Economics
77 Massachusetts Avenue, E52-550
Cambridge, MA 02139
203-936-9367
atkin@mit.edu

Professor Tavneet Suri
MIT Sloan School of Management
100 Main St, E62-522
Cambridge, MA 02142
617-253-7159
tavneet@mit.edu

PRIOR EDUCATION	Ecole Polytechnique and ENSAE ParisTech M.Sc. in Economics Valedictorian, *Summa Cum Laude*	2017
	Ecole Normale Superieure (ENS) Paris-Saclay B.A. in Economics Valedictorian, *Summa Cum Laude*	2015

CITIZENSHIP	France	**GENDER:**	Male

LANGUAGES	English, French (native)

FIELDS	Primary Field: Development Economics	
	Secondary Field: Organizational Economics	
TEACHING EXPERIENCE	Development Economics: Macroeconomics (PhD, MIT 14.772) Teaching Assistant to Prof. Robert Townsend	2024
	Applied Economics for Managers (MIT Sloan Executive MBA, MIT 15.024) Teaching Assistant to Prof. Namrata Kala and Prof. Tavneet Suri	2024
	Econometrics and Research Ethics, JPAL Development Methodologies Summer School, Abidjan and Rabat (African researchers and project leaders)	2022-23
RELEVANT POSITIONS	Research Assistant to Prof. Ben Olken and Prof. Rema Hanna, MIT	2020-23
	Research Assistant to Prof. Pascaline Dupas and Prof. Marcel Fafchamps, Stanford University	2017-19
	Research Assistant to Dr. Quy-Toan Do, World Bank Development Research Group	2016-17
FELLOWSHIPS, HONORS, AND AWARDS	MIT Sloan Africa Fellowship	2025
	J-PAL Fellowship	2024
	MIT Presidential Graduate Fellowship	2020
	Best Master's Thesis Award	2017
	Valedictorian, M.Sc. in Economics, Polytechnique/ENSAE	2017
	Full-Ride Academic Scholarship - Normalien	2014-18
	Valedictorian, B.A. in Economics, ENS Paris-Saclay	2015

RESEARCH GRANTS

Total Grant Funding: $1,479,412

"Adoption and Impacts of Digital Payment Technologies"
Private Enterprise Development in Low-Income Countries (PEDL), The Shultz Fund, The Weiss Fund, Digital Identification and Finance Initiative in Africa (JPAL DigiFI Africa)

"Relational Frictions Along the Supply Chain: Evidence from Senegalese Traders"
Private Enterprise Development in Low-Income Countries (PEDL), The Shultz Fund, SurveyCTO Research Grant

"Financial Inclusion and Rural Electrification: Evidence from Togo"
Private Enterprise Development in Low-Income Countries (PEDL) - Climate Change

"Eliciting Poverty Rankings from Urban or Rural Neighbors: Methodology and Empirical Evidence"
Innovations for Poverty Action (IPA) - Research Methods Initiative

"Digitalization of Local Tax Collection in Cote d'Ivoire"
USAID - Development Innovation Ventures (DIV), JPAL Governance Initiative

PROFESSIONAL ACTIVITIES	**Referee:** *American Economic Journal: Applied Economics, Journal of Development Economics, Economic Development and Cultural Change* **Service:** *Co-founder of the Harvard/MIT Application Assistance Mentoring Program, which connects prospective students from underrepresented groups with graduate student mentors to increase diversity in economics.*
RESEARCH PAPERS	**"Asymmetric Information and Digital Technology Adoption: Evidence from Senegal" (Job Market Paper)** Digital technologies have the potential to increase firm productivity. However, they often come bundled with data observability, which can be a double-edged sword. Observability reduces information frictions and can increase efficiency, but some agents may lose their informational rent and thus resist adoption. I explore this trade-off between observability and adoption through two field experiments conducted over nearly two years. These experiments, guided by contract theory, introduce digital payments to the Senegalese taxi industry in partnership with the country's largest payment company. In the first experiment, I randomize access to digital payments for drivers (employees) and transaction observability to taxi owners (employers). I find that digital payments reduce drivers' cash-related costs by about half but also serve as effective monitoring tools for taxi owners. Transaction observability substantially increases driver effort, contract efficiency, and the duration of owner-driver relationships. However, 50% of drivers—primarily the worst-performing and poorest— decline to adopt digital payments when transactions are observable. The second experiment shows that the adoption rate doubles when drivers are assured that owners will not be able to observe their transactions. I develop a theoretical framework and use the experimental variations to estimate the welfare impacts of policy counterfactuals. I show that removing transaction observability would maintain moral hazard problems but broaden adoption and thus increase overall welfare—an approach ultimately implemented by the payment company. These findings highlight the crucial role of information embedded in digital technologies, as it magnifies gains for adopting firms but can deter initial adoption. **"Nationwide Diffusion of Technology Within Firms' Social Networks"** I conduct a randomized experiment to study the nationwide technology diffusion of a new digital payment technology in Senegal. By leveraging two novel sources of network data—mobile money transactions and anonymized phone contact directories covering the near universe of the adult population in Senegal—I causally identify three sets of adoption spillovers from taxi firms randomized to receive early access to the technology: intra-industry among taxi

firms; inter-industry between taxi drivers and other small businesses; and inter-regional spillovers from the capital city to businesses in other urban centers. I show that spillovers go beyond strategic complementarities, reflecting social learning within firms' social networks, driven by social ties and remote interactions.

"Relational Frictions Along the Supply Chain: Evidence from Senegalese Traders"
(with Edward Wiles)

Search and trust frictions have historically made it hard for small firms in lower-income countries to buy inputs from foreign markets. The growth in smartphone ownership and social media usage has the potential to alleviate these barriers. Informed by a dynamic model of relational contracting, we run a field experiment leveraging these technological tools to provide exogenous variation in (1) search frictions and (2) trust frictions (adverse selection and moral hazard) in a large international import market. In our search treatment, we connect a randomly selected 80% of 1,862 small garment firms in Senegal to new suppliers in Turkey. We then cross-randomize two trust treatments that provide additional information about the types (adverse selection) and incentives (moral hazard) of these new suppliers. Alleviating search frictions is sufficient to increase access to foreign markets: in all treated groups, firms are 26% more likely to have the varieties a mystery shopper requests and the goods sold are 30% more likely to be high quality. However, the trust treatments are necessary for longer-term impact: using both transaction-level mobile payments data and a follow-up survey, we show that these groups are significantly more likely to develop the connections into relationships that persist beyond the study. These new relationships lead to increases in medium-run profit and sales. Finally, we use the treatment effects to estimate the model and evaluate counterfactuals where we set various combinations of the frictions to zero, finding that the largest gains come from eliminating adverse selection.

"Financial Inclusion and Rural Electrification: Evidence from Togo"
(with Paul Brimble, Axel Eizmendi Larrinaga, and Toni Oki)

Most people in sub-Saharan Africa still lack access to electricity, despite rural electrification being a policy priority. We provide evidence that high transaction costs, particularly transportation expenses to access mobile money agents for bill payments, are a key friction for rural households. In rural Togo, these costs account for 28% of solar electricity-related expenditures, rising to 43% in more remote areas. To assess the impact of transaction costs on policy outcomes, we analyze the staggered rollout of two nationwide policies in Togo in 2019: a solar home system subsidy and an expansion of mobile money agents. The subsidy, which nearly halves electricity prices, more than doubles adoption rates. However, the effects vary significantly: households with lower transaction costs—those with direct access to mobile money agents—adopt at much higher rates and decrease the number of payments they make in response to the price

reduction. The mobile money agent expansion led to nearly a threefold increase in adoption, an effect similar to that of the subsidy. By reducing transaction costs, these policies enable bulk purchases and lessen the need for frequent payments. Our findings highlight the complementary roles of subsidies and financial inclusion in improving rural electrification and access to essential services.

"Eliciting Poverty Rankings from Urban or Rural Neighbors: Methodology and Empirical Evidence"
(with Pascaline Dupas and Marcel Fafchamps), Revised August 2024 for *Quantitative Economics*

We introduce a novel approach for eliciting relative poverty rankings that aggregates partial orderings reported independently by multiple neighbors. We first identify the conditions under which the method recovers more accurate rankings than the commonly used Borda count method. We then apply the method to secondary data from rural Indonesia and to original data from urban Cote d'Ivoire. We find that the aggregation method works as well as Borda count in the rural setting but, in the urban setting, reconstructed rankings from both the pairwise and Borda count methods are often incomplete and sometimes contain ties. This disparity suggests that eliciting poverty rankings by aggregating rankings from neighbors may be more difficult in urban settings. We also confirm earlier research showing that poverty rankings elicited from neighbors are correlated with measures of poverty obtained from survey data, albeit not strongly. Our original methodology can be applied to many situations in which individuals with incomplete information can only produce a partial ranking of alternatives.

RESEARCH IN PROGRESS

"Internal Migration, Remittances, and Networks: Evidence from Senegal"
(with Edward Wiles)

We explore the relationship between internal migration, remittances, and financial and social networks in lower-income contexts, with a focus on Senegal. To establish new facts and causal evidence, we construct a unique dataset that links migration patterns to both remittance flows and social networks covering the near universe of Senegal's adult population, based on real-time GPS tracking of personal and business transactions and anonymized phone contact directories from the country's largest mobile money provider. We use this dataset to document patterns of migration and remittance flows to a high degree of spatial and temporal precision, and to explore how financial and social networks affect—and are affected by—these patterns, especially in response to economic or environmental shocks.

"Building Trust Through Digital Contracting: Evidence from Senegal"

Trust barriers have long constrained trade among businesses, especially in contexts with weak contract enforcement. This project explores the potential of

digital contracts—self-executing agreements embedded in code with predefined terms—to address these challenges. In collaboration with Senegal's largest payment company, I will pilot new digital contract designs guided by reputation-building models, including systems that track and share suppliers' transaction histories. By enabling suppliers to signal reliability and allowing buyers to update their beliefs about supplier quality, these tools aim to foster trust and improve transaction efficiency. The study will evaluate the impact of digital contracts on key trade outcomes, such as transaction volumes, relationship duration, and overall business growth.

"Digitalization of Local Tax Collection in Côte d'Ivoire"
(with Pascaline Dupas)

Low tax capacity hampers the ability of municipalities in Côte d'Ivoire, as in many other countries, to provide quality public services for their populations. We study the impacts of the nationwide rollout of a digital tax system, through which municipalities will move to entirely cash-less tax collection. We explore the impact on total tax revenue, size of the tax base, spending (including public good provision), and local government accountability.