Xinyu Lu

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11 February 2026

National Bureau of Economic Research
1050 Massachusetts Avenue
Cambridge, MA 02138

APPLICATION FOR THE FIFTH NBER INNOVATION RESEARCH BOOT CAMP

Dear Selection Committee,

I am writing to apply for the 2026 NBER Innovation Research Boot Camp. I am a fourth-year PhD candidate in Finance at HEC Paris, working under the supervision of Professor Johan Hombert. My research focuses on how financial constraints shape firms' innovation strategies and R&D employment decisions.

My job market paper, "Banks Mobilize R&D Workers," investigates the causal effects of external debt and internal cash flow on corporate innovation. Using detailed French credit registry data and shift-share instrumental variables, I document that positive credit supply shocks increase firms' R&D wage bills at rates four times larger than non-R&D wage bills. This asymmetric response highlights how financial frictions uniquely affect the allocation of human capital toward innovative activities—a critical driver of long-term productivity growth.

I am developing a broader research agenda on how financial frictions affect real economy. With Antoine Hubert de Fraisse (NBER postdoctoral fellow), we examine how maturity-specific credit shocks create persistent misallocation across firms. I am also collaborating with colleagues from HEC Paris, Toulouse Business School, and the Central Bank of Brazil on projects studying credit supply shocks in Brazil, including their effects on deforestation and on risk-sharing between firms and workers.

Having reviewed the 2025 boot camp program, I am excited about the opportunity to gain systematic training in the economics of innovation and growth theory. The instructional sessions would provide essential grounding in theoretical foundations, empirical methods for measuring innovation, and institutional knowledge that is rarely covered in finance PhD programs. The career panel with practitioners would offer valuable perspective on how academic innovation research translates to real-world impact. Attending the Summer Institute Innovation meeting would allow me to engage with frontier research and receive feedback on my work.

Professor Johan Hombert, my PhD advisor and dissertation committee chair at HEC Paris, has agreed to provide a letter of recommendation for my application.

Thank you very much for considering my application. I would be honored to join the 2026 boot camp and contribute to advancing our understanding of innovation and economic growth.

Sincerely,

Xinyu Lu

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EDUCATION

HEC Paris, France *2022-*
PhD in Finance
Committee: Johan Hombert (Chair), François Derrien, Jessica Jeffers

Ecole Polytechnique & ENSAE, France *2021-22*
PhD track in Economics

Chinese University of Hong Kong, Hong Kong SAR *2019-21*
Master of Philosophy in Economics

Renmin University of China, China *2015-19*
Bachelor of Economics (major: finance)

RESEARCH INTERESTS

Innovation, labor, corporate finance, financial intermediation

WORK IN PROGRESS

Banks Mobilize R&D workers

Abstract: This paper investigates the causal effects of external debt and internal cash flow on corporate innovation. Using detailed French credit registry data, I construct an instrumental variable for bank credit supply shocks that isolates credit variations unrelated to firm-level demand. I find that positive credit supply shocks increase firms' R&D employment, with effects four times larger than for non-R&D employment. This asymmetric response challenges standard investment models with differential pledgeability between R&D and non-R&D capital. To benchmark the role of internal finance, I develop a second instrument exploiting the universe of financial ownership linkages in France to identify exogenous cash flow shocks. This dual-instrument approach allows me to directly compare the innovation effects of debt versus internal funds. The findings inform a structural framework for quantifying the aggregate effects of credit and internal cash flow shocks on innovation and productivity.

Long-term credit supply and long-term corporate investment
with Antoine Hubert de Fraisse (NBER & LSE)

Abstract: Maturity-specific credit supply shocks can have persistent effects on aggregate productivity. We examine how long-term credit supply shocks affect firms' long-term investment. Using detailed credit registry data in France, we construct a plausibly exogenous long-term bank credit supply shock by filtering out firm demand-induced credit movements. We first show that maturity-specific credit supply shocks are borne differently by firms with heterogeneous asset maturity. Long-duration firms, hit by long-term shocks, exhibits persistently low investment rate, even after credit supply normalizes. This persistence, along with loan market segmentation, leads to significant misallocation of funding across firms, hampering overall productivity.

Deforestation and credit supply shocks
with Matthias Efing (HEC Paris), Mikhail Mamonov (Toulouse Business School) and Bernardus Van Doornik (Central Bank of Brazil)

PUBLICATIONS

1. Lu, Xinyu, and Christophe Spaenjers. 2025. "Energy Labels, Misreporting, And Heuristic Hedonic Models." *Real Estate Economics* 53 (6): 1200–1222. https://doi.org/https://doi.org/10.1111/1540-6229.12535

CONFERENCE AND SEMINAR PRESENTATIONS

2023: Utrecht (1st European Sustainable Finance PhD Workshop), Cambridge (AREUEA International Conference)
2023-26: HEC Paris (seminars and brownbags)

TEACHING EXPERIENCE

HEC Paris: Lecturer, Financial Markets (Grande Ecole/Master) 2024

GRANTS AND HONORS

HEC Foundation Scholarship, *HEC Paris* *2022-2027*
Ecole Universitaire de Recherche (EUR) Research Grant, *HEC Paris* *2022-2026*
Travel grant for 1st European Sustainable Finance PhD Workshop, *Utrecht University* *2023*
Full postgraduate scholarship, *Chinese University of Hong Kong* *2019-20*
Outstanding Graduate, *Renmin University of China* *2019*
University Scholarship for academic excellence, *Renmin University of China* *2016-18*

SKILLS

Programming Languages: Stata, Julia, MATLAB, LaTeX
Languages: English (proficient), French (fluent), Chinese (native)

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Research Statement

Current Research

My research examines how financial frictions shape corporate innovation, focusing on R&D employment. This work speaks directly to European policy debates on the innovation gap and capital market union.

The EU's persistent R&D investment deficit—firms devote 1.3% of GDP to R&D, half the U.S. share—is often attributed to Europe's bank-dependent financial system. The conventional view holds that debt is ill-suited for funding intangible, high-risk innovation, suggesting Europe needs deeper equity markets. Yet growing evidence shows bank lending represents a sizable source of R&D financing across industries. My job market paper, "Banks Mobilize R&D Workers," investigates whether debt can finance R&D effectively. Using French credit registry data and matched employer-employee records, I construct a shift-share instrumental variable that isolates idiosyncratic bank credit supply shocks orthogonal to firm demand. France is ideal: firms are bank-dependent, and R&D firms account for over 45% of non-financial value added.

Using local-projection difference-in-differences, I find positive credit supply shocks increase R&D employment four times more than non-R&D employment. This asymmetry suggests R&D workers face distinct frictions, such as match-specific human capital and adjustment costs, that amplify financial constraints' impact on innovation. I am developing a second instrument exploiting ownership linkages to identify cash flow shocks, enabling direct comparison of debt versus internal funds.

These findings inform Europe's innovation gap debate: the EU's R&D deficit may stem less from unsuitable debt financing than from insufficient credit supply to innovative firms, with implications for banking regulation and capital market union.

Future Research

I plan to develop a research agenda examining how financial and labor market institutions interact to shape firm behavior and innovation. One direction explores how debt maturity affects long-term investment. With Antoine Hubert de Fraisse (NBER postdoctoral fellow), we document that maturity-specific shocks create persistent investment gaps, potentially discouraging radical innovation.

A second direction investigates risk-sharing between firms and workers. With colleagues from HEC Paris, Toulouse Business School, and the Central Bank of Brazil, I study Brazil's 2017 labor reform that introduced intermittent work contracts, shifting risk from firms to workers. Using credit registry and employer-employee data, we examine how this affects firms' financial constraints and employment decisions, with implications for how labor market flexibility interacts with innovation capacity.

Why the Boot Camp

The boot camp would fill critical gaps in my training. While my finance background provides strong empirical tools, I lack systematic training in the economics of innovation and growth theory. The instructional sessions would provide essential grounding in theoretical foundations, empirical methods for measuring innovation, and institutional knowledge that is rarely covered in finance PhD programs. The career panel with practitioners would offer valuable perspective on how academic innovation research translates to real-world impact. Attending the Summer Institute Innovation meeting would allow me to engage with frontier research and receive feedback on my work. This program represents a unique opportunity to acquire knowledge positioning me to contribute meaningfully to academic research and policy debates throughout my career.

Grade Report

Jouy-en-Josas, 02/08/2026

GPA : 3.89 / 4

81115 - LU, Xinyu

(Average : .00 / 4)

Subject	Course	Offer	Label	Cc	Gr	Re	Ce
2023-2024DOC							
Thematics							
	DOCTTHE009	2425	WRITING WORKSHOP: CRAFTING MANAGEMENT ACADEMIC PAPERS **	3	P		3
			Number of courses : 1 Sub total ECTS	3			3
			Period Average : 3.97 / 4 Credits earned ECTS	3			3
2024-2025DOC							
Thematics							
	DOCTTHE004	2425	PEDAGOGY **	4	P		4
			Number of courses : 1 Sub total ECTS	4			4
			Period Average : 0 / 4 Credits earned ECTS	4			4
			Total credits 7				
			Total credits earned 7				

A: Excellent, B: Very good, C: Good, D: Satisfactory, E: Adequate, Fx: Unsatisfactory, F: Very Unsatisfactory --- Gr: Grade, Re: Re-take grade, Cc: Course Credit, Ce: Credits earned

Waiting for grade or grade not approved ** : Grade not included in average

Grade Report

Jouy-en-Josas, 02/08/2026

GPA : 3.89 / 4



81115 - LU, Xinyu

(Average : 3.94 / 4)

Subject	Course	Offer	Label	Cc	Gr	Re	Ce
2023-2024DOC							
Methodology							
	DOCTMET029	2324	WHAT IS SCIENCE? THEORY,HISTORY AND PRACTICE	2	A		2
			Number of courses : 1 Sub total ECTS	2			2
Other							
	DOCCTHE016	2324	MASTER OF RESEARCH THESIS DEFENSE	30	A		30
	DOCCTHE017	2324	RESEARCH SEMINARS **	5	P		5
			Number of courses : 2 Sub total ECTS	35			35
Specialization							
	DOSPFIN120	2324	TOPICS IN CORPORATE FINANCE	1	P		1
	DOSPFIN121	2324	DYNAMIC CORPORATE FINANCE	2	B		2
			Number of courses : 2 Sub total ECTS	3			3
Thematics							
	DOCTTHE008	2324	PUBLISHING WORKSHOP **	1	P		1
	DOCTTHE010	2324	RESEARCH ETHICS AND ACADEMIC INTEGRITY:HOW TO SURVIVE IN ACADEMIA WITHOUT GIVING UP ON YOUR SCIENTIFIC DREAMS **	1	P		1
	DOCTTHE011	2324	RESEARCH REPRODUCIBILITY **	1	P		1
	DOCTTHE012	2324	JOB MARKET PANEL **	1	P		1
			Number of courses : 4 Sub total ECTS	4			4
			Period Average : 3.97 / 4 Credits earned ECTS	44			44
2023-2024GE							
Institut Polytechnique de Paris							
	IPM2QEFAMI01	2324-S1-EN02	Advanced Microeconomics: Game Theory and Applications	4	B		4
	IPM2QEFLBE01	2324-S1-EN02	Labor Economics	4	A		4
	IPM2QEFEAP0	2324-S2-EN02	Empirical Asset Pricing	3	A		3
	IPM2QEFECF0	2324-S2-EN02	Empirical Corporate Finance	2	A		2
			Number of courses : 4 Sub total ECTS	13			13
			Period Average : 3.85 / 4 Credits earned ECTS	13			13
			Total credits 57				
			Total credits earned 57				

A: Excellent, B: Very good, C: Good, D: Satisfactory, E: Adequate, Fx: Unsatisfactory, F: Very Unsatisfactory --- Gr: Grade, Re: Re-take grade, Cc: Course Credit, Ce: Credits earned

Waiting for grade or grade not approved ** : Grade not included in average

Grade Report

Jouy-en-Josas, 02/08/2026

GPA : 3.89 / 4



81115 - LU, Xinyu

(Average : 3.85 / 4)

Subject	Course	Offer	Label	Cc	Gr	Re	Ce
2022-2023DOC							
Core Courses							
	DOCTC00001	2223	MICROECONOMICS	5	A		5
	DOCTC00002	2223	THE ECONOMICS OF ORGANIZATIONS	5	A		5
			Number of courses : 2 Sub total ECTS	10			10
Methodology							
	DOCTMET030	2223	APPLIED ECONOMETRICS STATA	4	A		4
	DOCTMET031	2223	STATISTICAL PROGRAMMING WITH R	2	A		2
			Number of courses : 2 Sub total ECTS	6			6
Other							
	DOCCTHE014	2223	RESEARCH TUTORIAL **	5	P		5
	DOCCTHE015	2223	SUMMER PAPER	10	A		10
			Number of courses : 2 Sub total ECTS	15			15
Thematics							
	DOCTTHE001	2223	REVERSE-ENGINEERING AN ACADEMIC CAREER **	0,5	P		0,5
	DOCTTHE007	2223	LIBRARY LITERACY **	0,5	P		0,5
			Number of courses : 2 Sub total ECTS	1			1
2022-2023GE			Period Average : 4 / 4 Credits earned ECTS	32			32
Institut Polytechnique de Paris							
	IPM2QEFMEP0	2223-A1-EN02	Microeconometric Evaluation of Public Policies	4	A		4
	IPM2QEFAEP0	2223-S1-EN02	Advanced Econometrics: Panel Data and Duration Models	4	B		4
	IPM2QEFAPR0	2223-S1-EN02	Asset Pricing	4	B		4
	IPM2QEFBFI01	2223-S1-EN02	Banking and Financial Intermediation	4	A		4
	IPM2QEFCFT0	2223-S1-EN02	Corporate Finance Theory	4	A		4
	IPM2QEFAMD0	2223-S2-EN02	Advanced Microeconomics: Design and Study of Markets	4	C		4
	IPM2QEFCAB0	2223-S2-EN02	Blockchains and Cryptocurrencies	2	A		2
	IPM2QEFFDF0	2223-S2-EN02	Fintech and Decentralized Finance	2	A		2
			Number of courses : 8 Sub total ECTS	28			28
			Period Average : 3.71 / 4 Credits earned ECTS	28			28
			Total credits 60				
			Total credits earned 60				

A: Excellent, B: Very good, C: Good, D: Satisfactory, E: Adequate, Fx: Unsatisfactory, F: Very Unsatisfactory --- Gr: Grade, Re: Re-take grade, Cc: Course Credit, Ce: Credits earned

Waiting for grade or grade not approved ** : Grade not included in average

Johan Hombert
Professor of Finance, HEC Paris
Director of the HEC Paris PhD Program
e-mail: hombert@hec.fr
website

February 11, 2026

To the NBER Innovation Research Boot Camp Selection Committee:

I am writing to enthusiastically recommend Xinyu Lu for the 2026 NBER Innovation Research Boot Camp. As Xinyu's PhD advisor at HEC Paris, I have worked closely with him throughout his doctoral studies and can attest to his exceptional research abilities.

Xinyu is currently in his fourth year in HEC Paris Finance PhD program, having completed all coursework in his first two years with outstanding grades (overall GPA 3.89/4 for 124 credits earned). His research lies at the intersection of corporate finance, innovation, and labor economics, precisely the domain that the boot camp aims to foster. His job market paper, "Banks Mobilize R&D Workers," addresses a fundamental question in the financing of innovation: Is debt an effective tool to finance firms' investment in R&D human capital? Using shift-share instrumental variables and granular French credit registry data, he demonstrates that bank credit supply shocks generate substantially larger effects on R&D employment than on other types of employment, challenging conventional models of R&D investment. This work exemplifies both technical sophistication and economic insight.

Beyond his primary research, Xinyu has demonstrated remarkable productivity. He has already published in *Real Estate Economics* and is developing multiple projects examining how financial frictions shape innovation outcomes, labor share dynamics, and long-term corporate investment. His collaboration with scholars from LSE, Colorado Boulder, and the Central Bank of Brazil demonstrates his ability to engage with the broader research community. The boot camp would provide Xinyu with invaluable exposure to leading innovation and growth economists and cutting-edge methodologies that will strengthen his dissertation and prepare him for an academic career focused on innovation policy.

I recommend Xinyu without reservation. Please do not hesitate to contact me if you have any further questions.

Sincerely,



Johan Hombert