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February 6, 2025

National Bureau of Economic Research

Dear Members of the Selection Committee,

I am writing to apply for the NBER Innovation Research Boot Camp in July 2025. I am a Ph.D. candidate in Economics at Yale University and expect to graduate in May 2025. In August, I will join the Federal Reserve Bank of San Francisco as a Research Economist.

I am eager to attend this boot camp to strengthen my foundation in research on innovation and technological change and to engage with other scholars who work on this topic. My job market paper examines the interaction between changes in female labor supply and the development of automation technologies in the U.S. since the 1970s. Building on this work, I plan to explore how shifts in labor supply influenced incentives for innovation, particularly in routine-substituting technologies traditionally held by women. By attending this program, I hope to gain new theoretical and empirical insights to advance this line of inquiry. More broadly, this experience will be invaluable as I begin my career at the Federal Reserve, where questions pertaining to innovation and labor productivity are of significant policy relevance.

My primary research fields are Macroeconomics and Labor Economics, with a focus on labor markets, gender, and technological change. My research has previously been supported by the NBER Gender in the Economy Dissertation Fellowship, which I received for the 2023-2024 academic year.

My primary advisor, Michael Peters, is submitting a letter of recommendation on my behalf. He can be reached at m.peters@yale.edu.

Please let me know if you require any additional information. Thank you for your time and consideration.

Sincerely,
Lindsey Uniat

October 2024

Lindsey Uniat

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Citizenship: Canadian citizen, U.S. F-1 visa holder

Fields of Concentration:
Macroeconomics
Labor Economics

Desired Teaching:
Macroeconomics
Labor Economics

Comprehensive Examinations Completed:
2021 (Oral): Macroeconomics, Political Economy (both *with distinction)*
2020 (Written): Macroeconomics, Microeconomics

Dissertation Title: *Essays on Gender in Macroeconomics*

Committee:
Professor Michael Peters (Chair)
Professor Ilse Lindenlaub
Professor Pascual Restrepo
Professor Fabrizio Zilibotti

Degrees:
Ph.D., Economics, Yale University, 2025 (expected)
M.Phil., Economics, Yale University, 2022
M.A., Economics, Yale University, 2022
M.Sc., Economics (2-year program), *with distinction*, London School of Economics, 2017
B.A., English Literature, *cum laude*, Yale University, 2015

Fellowships, Honors and Awards:
NBER Gender in the Economy Dissertation Fellowship (2023-2024)
Graduate Fellowship, Yale University (2019-2025)
SIEPR Pre-Doctoral Research Fellowship, Stanford University (2017-2019)

Teaching Experience:

Spring 2023, Teaching Assistant to Prof. Ilse Lindenlaub, Intermediate Macroeconomics (Undergraduate)
Fall 2022, Teaching Assistant to Profs. Michael Peters and Fabrizio Zilibotti, Macroeconomics (PhD)
Spring 2022, Teaching Assistant to Prof. Michael Peters, Intermediate Macroeconomics (Undergraduate)
Fall 2021, Teaching Assistant to Profs. Zhen Huo and Michael Peters, Macroeconomics (PhD)

Research and Work Experience:

Research Assistant to Dr. Tatjana Kleinberg, World Bank, 2022
Research Assistant to Prof. Ilse Lindenlaub, Yale University, 2020-2021
Research Assistant to Prof. Maya Rossin-Slater, Stanford University, 2017-2019
Public Affairs Intern, Embassy of Canada, Washington D.C., 2014
Editorial Intern, Yale University Press, London, 2013

Publications:

"Efficiency versus Equity in the Provision of In-Kind Benefits: Evidence from Cost Containment in the California WIC Program", (2023), with Katherine Meckel and Maya Rossin-Slater, *Journal of Human Resources*, Volume 58, Issue 2, Pages 363-392.

"Local Exposure to School Shootings and Youth Antidepressant Use", (2020), with Maya Rossin-Slater, Molly Schnell, Hannes Schwandt, and Sam Trejo, *Proceedings of the National Academy of Sciences,* Volume 117, No. 38, Pages 23484-23489.

"Paid Family Leave Policies and Population Health", (2019), with Maya Rossin-Slater, *Health Affairs* Policy Brief.

Working Papers:

"The Quiet Revolution and the Decline of Routine Jobs", (Nov. 2024), *Job Market Paper.*

"From Rural Fields to Urban Kitchens: Structural Change and the Decline of Women's Work in India", with Michael Peters, Pamela Torola, and Fabrizio Zilibotti, (Oct. 2024).

"Intra-Household Decision-Making: New Evidence from the Innovation Sample of the German Socioeconomic Panel" with Paula Calvo and Ilse Lindenlaub, (June 2021).

Work In Progress:

"The Effects of Labor and Marriage Market Sorting on Intra-Household Risk Sharing and Consumption Inequality" with Paula Calvo, Ilse Lindenlaub, Benjamin Lochner, and Ana Reynoso.

Seminar and Conference Presentations:

2024: Dartmouth Trade Workshop
"The Quiet Revolution and the Decline of Routine Jobs"

2023: NBER Summer Institute, Gender in the Economy
"The Quiet Revolution and the Decline of Routine Jobs"
2021: ASSA Annual Meeting
"Local Exposure to School Shootings and Youth Antidepressant Use"

Referee Service:
Education Finance and Policy, Journal of Human Resources

Languages:
English (native), French (intermediate), Russian (intermediate)

References:

Prof. Michael Peters
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October 2024

Dissertation Abstract

My dissertation examines interactions between recent macroeconomic trends in the labor market, including technological change and structural transformation, and changes in female labor supply.

Chapter 1: "The Quiet Revolution and the Decline of Routine Jobs" [Job Market Paper]

The decline of employment in routine jobs since the 1970s is commonly attributed to changes in labor demand spurred by improvements in automation technology. However, this explanation does not address one striking feature of the trend: that the decline has been substantially larger for women than for men, reflecting a dramatic shift of female employment from routine clerical work into non-routine professions. In this paper, I investigate the role of factors affecting female labor supply—such as social norms and discrimination—in explaining the aggregate decline of routine jobs. One such change, triggered by social norms and access to birth control, is the Quiet Revolution, which refers to an observable increase in women's life cycle labor force attachment after 1970. The shift in work horizon from intermittent to continuous plausibly facilitated women's entry to non-routine jobs, which tend to be long-term careers that reward experience.

I develop an equilibrium model of the labor market to quantify the impact of changes affecting female labor supply—the Quiet Revolution and falling discrimination—on the decline of employment in routine jobs. On the labor demand side, firms hire routine and non-routine labor and purchase computers that substitute for routine workers. On the labor supply side, male and female workers sort across market occupations and the home sector. Women face an intermittent work horizon where in the middle phase of life ("childrearing") they may be unable to work. Intermittency matters for the supply of labor across occupations because occupations differ in educational investments, returns to experience, and skill depreciation. I show theoretically that intermittency and these occupation characteristics interact, ultimately reducing women's human capital investment and altering their occupational sorting relative to men. Calibrating the model to 1970 using data from the Census and NLS-YW, I find that intermittency alone decreased the attractiveness of non-routine professional and managerial occupations for women by 24%.

To capture salient trends between 1970 and 2000, I allow three forces to evolve: first, the Quiet Revolution increases women's life cycle labor force attachment; second, residual wage discrimination falls; and third, automation technology becomes cheaper. Counterfactual analyses show that the Quiet Revolution explains 21% of the widening gap between non-routine and routine white-collar employment for women in the model, while falling discrimination explains 59%. These forces together explain 36% of the rise of non-routine cognitive relative to routine cognitive employment on aggregate, combining both men and women, while technology alone explains only 56%. Therefore, changes in female labor supply contribute to the decline in routine jobs. Finally, I find that the Quiet Revolution raised output per worker by 3% via women's increased experience.

Chapter 2: "Intra-Household Decision-Making," with Paula Calvo and Ilse Lindenlaub

Using data from a new survey we designed for the Innovation Sample of the German Socioeconomic Panel (GSOEP), we document the relationship between marital sorting and intra-household decision-making, with a focus on consumption and labor supply following the arrival

of children. First, we find that households tend to allocate more private consumption to the female partner when she is at least as educated as the male partner. Second, while women are in general more likely to experience career disruptions at the time of childbearing (over 50% of women do, vs. only 5% of men), women are significantly less likely to experience a disruption when they are more educated than their male partners. The data allow us to document a novel link between both outcomes: women with a higher labor market attachment after having children are also more likely to benefit from a higher share of household resources, even years later.

Chapter 3: "From Rural Fields to Urban Kitchens: Structural Change and the Decline of Women's Work in India," with Michael Peters, Pamela Torola, and Fabrizio Zilibotti

India's GDP per capita grew threefold between 1987 and 2019, coinciding with rapid urbanization. Yet, during this period, female labor force participation (FLFP) declined significantly. Consistent with this observation, we document a pronounced urban-rural participation gap, where FLFP is higher in poorer, rural labor markets. Using time-use data, we show that this is primarily driven by an extensive margin: in rural districts, women often engage in part-time activities, typically related to agriculture and informal family businesses. These activities are less common in urban areas, where some women take formal jobs, but a larger share withdraws from the labor market to focus on home production. We propose a model of household labor supply that aligns with these trends. The main drivers of the urban-rural participation gap are higher spousal incomes in cities, which reduce the marginal utility of female labor, and labor market distortions that depress women's urban wages below their marginal product.

List of PhD Courses Taken at Yale University:

Fall 2019:

ECON 500: General Economic Theory: Microeconomics

ECON 510: General Economic Theory: Macroeconomics

ECON 550: Econometrics I

ECON 580: General Economic History: Western Europe

Spring 2020:

ECON 501: General Economic Theory: Microeconomics II

ECON 511: General Economic Theory: Macroeconomics II

ECON 551: Econometrics II

Fall 2020:

ECON 525: Advanced Macroeconomics I

ECON 556: Topics in Empirical Economics and Public Policy

ECON 630: Labor Economics

ECON 720: International Trade I

Spring 2021:

ECON 526: Advanced Macroeconomics II

ECON 631: Labor Economics

ECON 790: Empirical Political Economy

ECON 794: International Trade Policy

MGMT 737: Applied Empirical Methods (Audit)

Yale University

Unofficial Academic Transcript

ⓘ This is not an official transcript. Courses which are in progress may also be included on this transcript.

Transcript Data

STUDENT INFORMATION

Name
Lindsey M. Uniat

Current Program

Doctor of Philosophy

College	Major
Graduate School of Arts & Sci	Economics

DEGREE AWARDED

Sought
Doctor of Philosophy

Awarded	Degree Date
Master of Philosophy	12/22/2022
Master of Arts	12/22/2022

INSTITUTION CREDIT

Term : Fall 2019

Subject	Course	Level	Title	Grade	Credit Hours	Grade Mode	R
ECON	500	GG	Gen Econ Theory:Microeconomics	HP	1.000	Graduate	
ECON	510	GG	Gen Econ Theory:Macroeconomics	HP	1.000	Graduate	
ECON	550	GG	Econometrics I	HP	1.000	Graduate	
ECON	580	GG	Gen Econ Histry:Western Europe	H	1.000	Graduate	

Term Totals	Attempt Hours	Passed Hours	Earned Hours
Current Term	4.000	4.000	4.000
Cumulative	4.000	4.000	4.000

Term : Spring 2020

Term Comments
Due to the COVID-19 pandemic, students were given,the option to have their courses marked Sat/Unsat,rather than be graded under the standard policy.

Subject	Course	Level	Title	Grade	Credit Hours	Grade Mode	R
ECON	501	GG	Gen Econ Theory:Microeconomics	H	1.000	Graduate	
ECON	511	GG	Gen Econ Theory:Macroeconomics	H	1.000	Graduate	
ECON	551	GG	Econometrics II	H	1.000	Graduate	

Term Totals	Attempt Hours	Passed Hours	Earned Hours
Current Term	3.000	3.000	3.000
Cumulative	7.000	7.000	7.000

Term : Fall 2020

UNOFFICIAL

Subject	Course	Level	Title	Grade	Credit Hours	Grade Mode	R
ECON	525	GG	Advanced Macroeconomics I	H	1.000	Graduate	
ECON	556	GG	Topics in Empirical Economics and Public Policy	H	1.000	Graduate	
ECON	630	GG	Labor Economics	H	1.000	Graduate	
ECON	720	GG	International Trade I	H	1.000	Graduate	

Term Totals	Attempt Hours	Passed Hours	Earned Hours
Current Term	4.000	4.000	4.000
Cumulative	11.000	11.000	11.000

Term : Spring 2021

Subject	Course	Level	Title	Grade	Credit Hours	Grade Mode	R
ECON	526	GG	Advanced Macroeconomics II	H	1.000	Graduate	
ECON	631	GG	Labor Economics	H	1.000	Graduate	
ECON	790	GG	Empirical Political Economy	H	1.000	Graduate	
ECON	794	GG	International Trade Policy	H	1.000	Graduate	
MGMT	737	GG	Applied Empirical Methods	AUD	1.000	Audit	

Term Totals	Attempt Hours	Passed Hours	Earned Hours
Current Term	4.000	4.000	4.000
Cumulative	15.000	15.000	15.000

Term : Fall 2021

Subject	Course	Level	Title	Grade	Credit Hours	Grade Mode	R
CAND	999	GG	Prep: Admission to Candidacy	CR	0.000	Credit/No Credit	
ECON	540	GG	Student Wkshp Macroeconomics	SAT	1.000	Satisfactory/Unsatisfactory	

Term Totals	Attempt Hours	Passed Hours	Earned Hours
Current Term	1.000	1.000	1.000
Cumulative	16.000	16.000	16.000

Term : Spring 2022

Subject	Course	Level	Title	Grade	Credit Hours	Grade Mode	R
CAND	999	GG	Prep: Admission to Candidacy	CR	0.000	Credit/No Credit	
ECON	541	GG	StudentsWrkshpMacroeconomics	SAT	1.000	Satisfactory/Unsatisfactory	
ECON	640	GG	LaborPublicEconProspectusWrksp	SAT	1.000	Satisfactory/Unsatisfactory	

Term Totals	Attempt Hours	Passed Hours	Earned Hours
Current Term	2.000	2.000	2.000
Cumulative	18.000	18.000	18.000

Term : Fall 2022

Subject	Course	Level	Title	Grade	Credit Hours	Grade Mode	R
DISR	999	GG	Diss Research - in Residence	CR	0.000	Credit/No Credit	
S&DS	265	GG	Introductory Machine Learning	AUD	1.000	Audit	

Term Totals	Attempt Hours	Passed Hours	Earned Hours
Current Term	0.000	0.000	0.000
Cumulative	18.000	18.000	18.000

Term : Spring 2023

Subject	Course	Level	Title	Grade	Credit Hours	Grade Mode	R
DISR	999	GG	Diss Research - in Residence	CR	0.000	Credit/No Credit	
ECON	561	GG	Computational Methods for Econ	AUD	1.000	Audit	

Term Totals	Attempt Hours	Passed Hours	Earned Hours
Current Term	0.000	0.000	0.000
Cumulative	18.000	18.000	18.000

Term : Fall 2023

Subject	Course	Level	Title	Grade	Credit Hours	Grade Mode	R
DISR	999	GG	Diss Research - in Residence	CR	0.000	Credit/No Credit	

Term Totals	Attempt Hours	Passed Hours	Earned Hours
Current Term	0.000	0.000	0.000
Cumulative	18.000	18.000	18.000

Term : Spring 2024

Subject	Course	Level	Title	Grade	Credit Hours	Grade Mode	R
DISR	999	GG	Diss Research - in Residence	CR	0.000	Credit/No Credit	

Term Totals	Attempt Hours	Passed Hours	Earned Hours
Current Term	0.000	0.000	0.000
Cumulative	18.000	18.000	18.000

TRANSCRIPT TOTALS

Events

Prospectus Approved

Events

Admitted to Candidacy

Events

Distinguished Qualifying Exam

Transcript Totals - (Graduate: Graduate School)	Attempt Hours	Passed Hours	Earned Hours
Total Institution	18.000	18.000	18.000
Total Transfer	0.000	0.000	0.000
Overall	18.000	18.000	18.000

COURSE(S) IN PROGRESS

Term : Fall 2024

Subject	Course	Grade Mode	Level	Title	Credit Hours	Start and End Dates
DISR	999	Satisfactory/Unsatisfactory	GG	Diss Research - in Residence	0.000	

Application for NBER Innovation Research Bootcamp

As a PhD candidate studying labor markets and technological change, I am excited to apply for the NBER Innovation Research Bootcamp. My reasons for applying are three-fold. First, while my current research focuses on the implications of technological change for the U.S. labor markets since the 1970s, with a particular emphasis on its interaction with changes in female labor supply, I aim to expand this work by studying the underlying innovation processes that drive technological change and how these may respond to labor supply. This bootcamp offers a unique opportunity to deepen my understanding of innovation research and explore cutting-edge empirical and theoretical approaches for tackling these questions. Second, I hope to build relationships with fellow scholars interested in technological change and innovation, fostering potential collaborations and engagement. Finally, I aim to gain a deeper understanding of the role of policy in facilitating innovation and economic growth, which will be especially valuable as I prepare to join the Federal Reserve Bank of San Francisco in August 2025.

My interest in technological change and its implications for the labor market is reflected in my job market paper, "The Quiet Revolution and the Decline of Routine Jobs." While the decline in employment in routine jobs in the U.S. since the 1970s is well-documented and often attributed to automation technology, I show that this shift has been much larger for women than for men. Women have dramatically transitioned out of routine clerical roles—such as typists and secretaries—and into non-routine professional careers, including lawyers and doctors. Motivated by these divergent gender trends, I develop and calibrate an equilibrium model of the labor market to quantify the impact of changes in female labor supply during this period, which Claudia Goldin refers to as "The Quiet Revolution," on the aggregate decline in routine employment. I find that two labor supply factors affecting women—falling discrimination and increased female labor force attachment over the life cycle—explain 38% of the aggregate decline in routine employment, while automation alone accounts for 56%. These findings suggest that labor supply changes played a quantitatively important role in the employment trend, challenging the prevailing automation-centric narrative.

Moreover, my analysis reveals a complementarity between the Quiet Revolution and technological change. Specifically, changes in female labor supply increased the model-implied adoption of automation, while the concurrent improvement in the allocation of female labor amplified the productivity gains from automation. This raises questions which I plan to explore in future research: did changes in female labor accelerate innovation in or adoption of routine-substituting technologies, and what are the welfare implications of such an induced technological change? While I have taken initial steps to address this—for instance, documenting correlations between markers of the Quiet Revolution and computer adoption across U.S. states in the 1980s and 1990s—I believe the bootcamp would provide invaluable exposure to the innovation research frontier, equipping me with new ideas to tackle these questions empirically and quantitatively.

Yale University

Michael Peters
Associate Professor of Economics
28 Hillhouse Avenue, New Haven, CT 06511
Email: m.peters@yale.edu
Phone: 203-432-3587

Feb 4, 2025

NBER Innovation Research Boot Camp 2025: Letter of recommendation for Lindsey Uniat

To whom it may concern,

I am writing to enthusiastically recommend Lindsey Uniat, a Ph.D. candidate from Yale University, for the NBER Innovation Research Boot Camp 2025. Lindsey works at the intersection of macroeconomics and labor economics and I am her main advisor. Her other advisors are Ilse Lindenlaub, Pascual Restrepo, and Fabrizio Zilibotti. Innovation and technological change are central for her work and I expect her to continue that research agenda going forward. Being able to join the NBER Innovation Boot Camp would be a fantastic opportunity for her. I think extremely highly of Lindsey and I think she would be a great candidate. She not only has strong quantitative skills, but is also well-trained as an empirical economist. In addition, she is a terrific communicator, with large externalities on other participants. I very much hope that you will find a place of her. I can assure you that she will make the best of it. If you have any questions about her application, please do not hesitate to contact me.

All the very best,



Michael Peters