Ignacio Torres-Ulloa

Department of Economics
University of Southern California
3620 South Vermont Avenue
Kaprelian (KAP) Hall, 300
Los Angeles, CA 90089-0253
ignaciot@usc.edu

September 15, 2026

Professors Emily Breza, Arun Chandrasekhar, and Davide Viviano
Workshop on Development Economics and Networks for Early-Career Researchers
National Bureau of Economic Research
Cambridge, MA

Dear Professors Breza, Chandrasekhar, and Viviano,

I am writing to apply to the NBER Workshop on Development Economics and Networks for Early-Career Researchers, to be held in Cambridge on December 5, 2026. I am a PhD candidate in Economics at the University of Southern California, with research interests in development economics, labor economics, immigration, financial constraints, and social networks.

For the workshop, I am submitting my work-in-progress paper, *Financial Constraints and the Absorption of Labor Supply Shocks*, coauthored with Roberto Gillmore. The paper studies how firms and local labor markets absorb immigration-induced labor-supply shocks and whether their responses depend on credit-supply conditions. We combine employer–employee administrative records with firm–bank credit relationships in Chile to study firm adjustment, worker reallocation, and local labor-market outcomes.

I am particularly interested in the workshop because my current research raises broader questions about how relationships among firms, workers, and financial institutions shape the propagation and absorption of economic shocks. I would greatly value the opportunity to discuss the project with researchers working at the frontier of empirical network and development economics and to learn how network methods can inform this research agenda.

If I am shortlisted for participation, **Vittorio Bassi**, Associate Professor of Economics at the University of Southern California, could provide a recommendation. He can be reached at vbassi@usc.edu.

Thank you for considering my application.

Sincerely,

Ignacio Torres-Ulloa
PhD Candidate in Economics
University of Southern California

Ignacio Torres-Ulloa

University of Southern California · Department of Economics

PhD Student

ignaciot@usc.edu | itorresulloa@gmail.com

Research Interests

Applied Microeconomics; Labor Economics; Immigration Economics; Financial Constraints; Causal Inference; Social Networks; Philosophy of Economics.

Education

PhD in Economics 2022–present
University of Southern California, Los Angeles, USA

Master in Economics 2022–2024
University of Southern California, Los Angeles, USA

Master in Philosophy of Science 2018–2020
Universidad de Santiago de Chile, Santiago, Chile

Thesis: "Proposal for a method of evidence amalgamation in economics: On the search of causality and mechanisms."

MicroMasters in Data, Economics and Development Policy 2018–2019
Massachusetts Institute of Technology / edX

Bachelor in Economics 2012–2017
Universidad de Chile, Santiago, Chile

Working Papers

Financial Constraints and the Absorption of Labor Supply Shocks
with Roberto Gillmore

Bad State: Discrimination against Immigrants in the Public Sector
with Raimundo Undurraga

Publications

1. Daniel Schwartz, **Ignacio Torres-Ulloa**, and Camila Corvalán. "Effectiveness of Alcohol Warning Labels for At-Risk Groups and the General Public: A Policy-informing Randomized Experiment in Chile." *Preventive Medicine*, 2024.
2. **Ignacio Torres-Ulloa**. "Evidencia y Explicación en Economía: Modelos, RCTs y su amalgama." *Culturas Científicas*, 2021.
3. Marcelo Olivares, Susana Mondschein, Fernando Ivan Ordonez, Daniel Schwartz, Andres Weintraub, Cristian Aguayo, Gianpiero Canessa, and **Ignacio Torres-Ulloa**. "Service design to balance waiting time and infection risk: An application for elections during the COVID-19 pandemic." *Journal of Service Science*, 2020.

Conference Presentations

Financial Constraints and the Absorption of Labor Supply Shocks 2026
UC Davis Summer School in the Economics of Migration, Mexico City, Mexico

Bad State: Discrimination against Immigrants in the Public Sector 2025
RIDGE Public Economics Workshop, Lima, Peru

Bad State: Discrimination against Immigrants in the Public Sector 2025
Humans LACEA, Mexico City, Mexico

Bad State: Discrimination against Immigrants in the Public Sector 2024
Advances with Field Experiments (AFE), London, UK

Research Experience

Consultant / Research Associate — International Initiative for Impact Evaluation (3ie) 2022

Survey design, IRB application, data-collection implementation, and quality assurance.

– *ADN Dignidad.* Research project.

Senior Research Associate — Poverty Action Lab – LAC (J-PAL) 2017–2022
Santiago, Chile

Managed projects and fieldwork; contributed to experimental and survey design; and conducted quantitative and qualitative research on public procurement, housing, early childhood development, and credit-market constraints.

– *Rental Voucher on Slums Population.* PIs: Marco González-Navarro and Raimundo Undurraga.
– *Frictions in Mortgage Refinancing: Evidence from Chile.* PIs: Vivek Bhattacharya, José Ignacio Cuesta, Gastón Illanes, Ana María Montoya, and Raimundo Undurraga.
– *RCT Incubation of a Parenting Program in Early Childhood.* PIs: Francisco Gallego, Claudia Martínez, and Marigen Narea.

Research Manager — Universidad de Chile, Center of Public Systems 2019–2022
Santiago, Chile

Managed the design and execution of an RCT aimed at reducing overspending in public procurement. The project was funded by the 2019 Impact Evaluation Fund, DIPRES, Chile.

– *Over-Expenditure in Public Procurement.* PIs: Pablo Celhay, Marcelo Olivares, and Raimundo Undurraga.

Research Consultant — Ministry of Economy, Development and Tourism 2021–2022
Santiago, Chile

Conducted a literature review and supported project management and experimental design for an alcohol warning label intended to reduce consumption among at-risk groups in the context of a new national regulation.

– *Design of an Alcohol Warning Label.* PI: Daniel Schwartz.

Research Consultant — United Nations Development Programme (UNDP) 2021
Santiago, Chile

Conducted impact-evaluation data analysis and managed study design and data collection for research eliciting social networks among older adults and preparing a sample for a future RCT.

– *Proyecto NODO.* PI: Pablo Celhay.

Research Assistant — Institute of Complex Systems (ISCI) 2020–2021
Santiago, Chile

Supported the management, design, implementation, and analysis of online experiments.

– *Service Design to Balance Waiting Time and Infection Risk.* PIs: Marcelo Olivares and Daniel Schwartz.
– *Value Proposal in the Retail Credit Card Market.* PIs: Marcel Goic and Daniel Schwartz.

Research Consultant — Inter-American Development Bank (IADB) 2020
Santiago, Chile

Collected data for research on migration, discrimination, and media coverage in Chile.

– *Immigration, Crime, and Crime (Mis)Perceptions.* PIs: Nicolás Ajzenman, Patricio Dominguez, and Raimundo Undurraga.

Intern — Poverty Action Lab – LAC (J-PAL) 2016
Santiago, Chile

Provided data-analysis and project-management support for an RCT evaluating the effects of high-frequency SMS messages to parents on education outcomes in Chile.

– *Reducing School-Parent Information Gaps Using SMS.*

Field Worker — Poverty Action Lab – LAC (J-PAL) 2014–2015
Santiago, Chile

Obtained participant consent and conducted weekly data collection in public schools in Chile.

– *Reducing School-Parent Information Gaps Using SMS.*

Honors and Scholarships

Summer Research Award, USC Department of Economics 2024
Maximum Distinction for Thesis, M.A., USACH 2020
USACH Scholarship for Graduate Studies 2018–2020

Teaching Experience

Teaching Assistant — University of Southern California (USC) 2023–present
Los Angeles, USA

- Microeconomics I — Master in Economics
- Economics of Less Developed Countries — B.A. Economics
- Introduction to Econometrics — B.A. Economics
- Resource and Environmental Economics — B.A. Economics

Teaching Assistant — Pontificia Universidad Católica de Chile (PUC) 2019–2020
Santiago, Chile

- Workshop on Impact Evaluation — Master in Public Policy

Teaching Assistant — Universidad de Chile 2015–2019
Santiago, Chile

- Job Competencies — Bachelor of Economics and Business
- Quality Assurance in Higher Education — Bachelor of Economics and Business

Credentials

PHRP: Protecting Human Research Participants.

Skills and Languages

Data analysis: Stata (advanced), R (intermediate).

Research tools: Qualtrics (advanced), SurveyCTO (advanced), LaTeX (advanced).

Languages: Spanish (native), English (fluent).

References

Vittorio Bassi
Department of Economics
University of Southern California
vbassi@usc.edu

Thomas Chaney
Department of Economics
University of Southern California
thomas.chaney@usc.edu

José Ignacio Cuesta
Department of Economics
Stanford University
jicuesta@stanford.edu

Raimundo Undurraga
Department of Industrial Engineering
Universidad de Chile
raimundo.undurraga@dii.uchile.cl

Ignacio Torres-Ulloa

Completed Graduate Coursework

University of Southern California

Fall 2022

ECON 601 Microeconomic Theory I
ECON 602 Macroeconomic Theory I
ECON 611 Probability and Statistics for Economists

Spring 2023

ECON 603 Microeconomic Theory II
ECON 605 Macroeconomic Theory II
ECON 609 Econometric Methods

Fall 2023

ECON 593 Practicum in Teaching the Liberal Arts
ECON 642 Poverty, Human Resources and Economic Development
ECON 680 Industrial Organization
ECON 686A Empirical Methods in Economics

Spring 2024

ECON 641 Empirical Analysis of Economic Development
ECON 686B Empirical Methods in Economics
ECON 688 Empirical Industrial Organization
ECON 634 Political Economy of Institutions

Fall 2024

ECON 690 Seminar in Economic Theory
ECON 692 Seminar in Economic Development
ECON 700 Research on Frontier Economics
GSBA 699 Social Processes in Business

Spring 2025

ECON 615 Applied Econometrics
ECON 700 Research on Frontier Economics

Fall 2025

ECON 613 Economic and Financial Time Series I
ECON 692 Seminar in Economic Development
ECON 700 Research on Frontier Economics

Spring 2026

GRSC 800A Studies for the Qualifying Examination

Ignacio Torres Ulloa

Research Interests and Motivation for Attending the Workshop

University of Southern California

My research interests are in development and labor economics, with a particular focus on immigration and on how labor markets and institutions adjust to large changes in their economic environment. I think of immigrant absorption as a dynamic process involving several interconnected pieces. Adjustment can occur through employment, worker mobility, firms' decisions, access to finance, and social and institutional integration. I am especially interested in understanding how these different margins interact and why economies differ in their capacity to absorb large migration shocks.

My current dissertation research studies the labor market dimension of this question in the context of the large increase in immigration to Chile. In joint work with Roberto Gillmore, I examine how firms and local labor markets respond to immigration induced labor supply shocks and whether their capacity to absorb new workers depends on credit supply. We combine administrative employer and employee records with firm tax information and firm and bank credit relationships. To isolate credit supply conditions, we compare changes in lending across banks to the same firm and use firms' initial relationships with banks to construct predetermined exposure to subsequent bank specific credit supply shocks. This allows us to study how financial conditions shape firm activity, employment, hiring, worker reallocation, production, and ultimately local unemployment.

A second strand of my research studies the social and institutional dimensions of immigrant integration. In *Bad State: Discrimination against Immigrants in the Public Sector*, joint with Raimundo Undurraga, we study whether public servants discriminate against immigrant households in access to a major social program in Chile. This project combines experimental evidence with administrative data to study how the behavior of public institutions can affect the integration of immigrants. Together, these projects motivate a broader view of immigrant absorption in which labor market adjustment and social integration are not independent processes, but different parts of a dynamic response involving firms, workers, financial institutions, and the state.

These questions have led me to think more explicitly about the relationships connecting these different agents. A firm's ability to respond to a shock may depend not only on its own characteristics, but also on the institutions and agents to which it is connected. In my current dissertation project, initial connections to banks determine firms' exposure to credit supply conditions. At the same time, linked employer and employee data allow us to observe movements of workers across firms and between employment and nonemployment. This raises broader questions about whether shocks propagate across firms and workers, whether a firm's position within a local labor market shapes its capacity to absorb workers, and whether adjustment in one part of the economy affects adjustment through other economic and social margins.

I am particularly interested in attending the Workshop on Development Economics and Networks because I would like to develop this dimension of my research more systematically. I am interested in empirical methods that can distinguish direct responses to shocks from propagation and equilibrium effects operating through networks, as well as methods for characterizing the relative position of agents within labor, financial, and social environments. The opportunity to receive feedback on my current work and to learn from researchers working at the frontier of empirical network research would be especially valuable as I develop these questions into a broader research agenda.

More generally, I hope to build a research agenda around how economies absorb migration and other large shocks. I am particularly interested in absorption as a dynamic process in which adjustment takes place through multiple interconnected margins, from firms' employment decisions and worker mobility to financial conditions and social integration. I see network methods as a promising framework for understanding these connections and for studying how the structure of an economy shapes both individual responses and aggregate adjustment.

EXTENDED ABSTRACT

Financial Constraints and the Absorption of Labor Supply Shocks

Evidence from Chilean Labor Markets

Roberto Gillmore[1] Ignacio Torres-Ulloa[2]

[1]Central Bank of Chile [2]University of Southern California

Abstract

How an economy absorbs an increase in labor supply depends on the capacity of firms to adjust labor demand. We study whether credit supply shapes this adjustment using the large immigration inflow to Chile during the 2010s. We combine administrative employer and employee records, firm tax data, and firm bank credit relationships. We identify local immigration shocks using historical settlement patterns and changes in migration by country of origin. To isolate credit supply, we compare lending by different banks to the same firm in the same quarter and map the resulting bank shocks to firms and municipalities using predetermined bank relationships. Immigration reduces firms' employment activity without increasing near term firm exit. More favorable credit makes employment and hiring responses more positive, particularly for workers with lower education, and strengthens hiring both from other firms and from nonemployment. Credit also attenuates declines in sales and materials growth. At the local level, immigration increases unemployment, especially among workers with lower education, but this increase is smaller where credit supply is more favorable. The results show that financial conditions shape firms' capacity to adjust to labor supply shocks and, through this margin, local labor market absorption.

Motivation and Contribution

Immigration increases local labor supply, but its effects on incumbent workers are not mechanical. Workers and firms can respond through employment, specialization, production, and reallocation (Peri and Sparber, 2009; Foged and Peri, 2016; E. Lewis, 2011). Recent work has increasingly emphasized firms as an important margin of adjustment to immigration (Clemens and E. G. Lewis, 2026; Mahajan, 2024). If firms are able to expand labor demand when workers become more abundant, a larger share of the shock can be absorbed through employment. If their adjustment is limited, some of the increase in labor supply may instead appear as unemployment or reductions in work.

We study whether **credit supply determines firms' capacity to adjust to an immigration induced labor supply shock**. Hiring and expanding production can require resources to finance payroll, training, working capital, and organizational adjustment. The literature shows that credit supply affects firms' employment responses to economic shocks (Khwaja and Mian, 2008; Chodorow-Reich, 2014; Siemer, 2019). Our question is whether financial conditions also affect how firms respond when an input, labor, becomes more abundant.

We examine this question using the large increase in immigration to Chile during the 2010s. The setting allows us to connect three margins of adjustment. First, we study how immigration affects firms' employment, worker flows, and production. Second, we ask whether these responses depend on the credit supply conditions firms face. Third, we test whether these differences in firm adjustment are reflected in unemployment across local labor markets.

A useful feature of the setting is that credit conditions depend on **preexisting firm bank relationships**. Firms and municipalities were initially connected to different banks, and those banks subsequently experienced different credit supply conditions. These relationships therefore generate heterogeneous exposure to financial shocks. Combined with linked employer and employee data, the analysis also allows us to observe whether firms respond by hiring workers from other firms or by drawing workers from nonemployment. The paper thus uses relational data on both financial connections and worker movements to study the mechanisms behind labor market absorption.

Data and Empirical Strategy

Our analysis covers 2012 through 2019, with 2010 and 2011 used to construct predetermined exposure measures. We combine four administrative data sources. Chilean Unemployment Insurance records provide employer and employee relationships for 150,291 firms in 322 municipalities, allowing us to measure firm activity, employment, worker composition, hiring, separations, and wages. Firm tax records provide sales, investment, and material purchases. Credit registry data report firm bank debt relationships. Finally, municipality level data provide unemployment outcomes overall and by education for 249 municipalities and 7,968 municipality quarter observations.

Immigration shocks. Immigrants may locate in municipalities experiencing favorable labor demand. We therefore

instrument immigration using historical settlement patterns. Our shift share instrument is

$$\widehat{\text{ImmShare}}_{mt} = \sum_{n \in \mathcal{N}} \theta^{n}_{m,2010} g_{nt},$$

where $\theta^{n}_{m,2010}$ is municipality m's 2010 exposure to nationality n, and g_{nt} measures subsequent growth in the stock of migrants of nationality n in destinations outside Chile. The identifying variation compares municipalities that were initially exposed to nationalities that subsequently experienced different migration growth. Pretrend tests for the municipality outcomes are reassuring and do not indicate differential pretrends in unemployment in the main specification.

Credit supply. Firm borrowing combines credit demand and bank credit supply. We isolate the supply component by exploiting firms that borrow from multiple banks, following the logic of Khwaja and Mian (2008) and Amiti and Weinstein (2018). We estimate

$$\Delta \text{Debt}_{fbt} = \gamma_{ft} + \delta_{bt} + \mathbf{X}'_{fbt}\lambda + \varepsilon_{fbt},$$

where firm by quarter fixed effects, γ_{ft}, absorb firm specific credit demand and δ_{bt} captures whether bank b expands or contracts lending relative to other banks in quarter t.

We then use debt relationships observed in 2011Q4 to map bank shocks to firms and municipalities:

$$\text{CreditSupply}_{ut} = \sum_{b} \omega_{ub,2011Q4} \delta_{bt}, \qquad \omega_{ub,2011Q4} = \frac{\text{Debt}_{ub,2011Q4}}{\sum_{b'} \text{Debt}_{ub',2011Q4}}.$$

Higher values indicate that unit u was initially connected to banks that subsequently expanded credit supply relative to other banks. We standardize this measure to have mean zero and standard deviation one.

Our main specifications interact immigration with credit supply. At the firm level,

$$Y_{ft} = \beta_1 \text{ImmShare}_{m(f)t} + \beta_2 \left(\text{ImmShare}_{m(f)t} \times \text{CreditSupply}_{ft}\right) + \beta_3 \text{CreditSupply}_{ft} + \alpha_f + \gamma_t + \varepsilon_{ft}.$$

We instrument immigration and its interaction with credit supply using the shift share instrument and its corresponding interaction. Firm regressions include firm and quarter fixed effects, use equal municipality weights, and cluster standard errors by municipality.

Firm Adjustment

We first find that immigration changes firms' employment activity. A 10 percentage point increase in immigrant exposure reduces the probability that a firm has at least three workers by about 4.3 percentage points. The decline persists into the following quarter, but there is no corresponding increase in firm exit measured using employment and sales. Thus, immigration reduces firms' employment activity without producing a comparable increase in near term firm disappearance.

An important distinction emerges when we introduce credit supply. Financial conditions do *not* materially change the response of the employment activity or exit margins. Instead, credit changes the **quantity of employment adjustment**. At average credit supply, a 10 percentage point immigration shock reduces end of quarter employment by approximately 0.76 workers. A one standard deviation improvement in credit supply attenuates this response by 0.074 workers, and employment growth also responds more positively as credit improves.

The employment effects are heterogeneous across workers. At average credit supply, employment losses are concentrated among Chilean workers, while immigrant employment is approximately unchanged. More favorable credit makes the employment response more positive for both groups. Across education groups, however, the credit interaction is concentrated among workers with lower education. A one standard deviation improvement in credit raises the employment response to a 10 percentage point immigration shock by 0.072 workers in the low education group, compared with an estimate close to zero for workers with higher education.

Worker flows reveal how this adjustment occurs. Better credit primarily strengthens **hiring**, while the interaction with separations is smaller and statistically insignificant. Moreover, stronger hiring comes from two sources. Firms hire more workers who were employed at another firm in the previous month, but they also hire more workers from

Table 1: Firm Employment Adjustment

	Employment active	Firm exit	Employment level	Employment growth
Immigration stock (10 pp.)	-0.044^{**}	0.001	-0.760^{**}	-0.002
	(0.019)	(0.004)	(0.376)	(0.006)
Immigration × credit supply	0.001	-0.000	0.074^{**}	0.002^{***}
	(0.001)	(0.000)	(0.030)	(0.001)
Mean dependent variable	0.552	0.020	14.52	-0.025
Firm fixed effects	Yes	Yes	Yes	Yes
Quarter fixed effects	Yes	Yes	Yes	Yes
Equal municipality weights	Yes	Yes	Yes	Yes
Kleibergen F statistic	15.56	15.56	15.56	15.56
Observations	4,809,312	4,809,312	4,809,312	4,809,312
Firms	150,291	150,291	150,291	150,291
Municipalities	322	322	322	322

Notes: Employment active equals one when a firm employs at least three workers. Firm exit is measured over the following two quarters using employment and sales. Employment growth is $\Delta \ln(1 + \text{employment})$. Credit supply is standardized. All columns report IV specifications. Standard errors are clustered by municipality. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

nonemployment. The latter result is important for distinguishing pure reallocation across firms from additional labor market absorption.

Table 2: Hiring and Operating Adjustment

	Hires	Job to job hires	Nonemployment hires	Sales growth	Materials growth
Immigration stock (10 pp.)	-0.337	-0.075	-0.262	-0.027^{***}	-0.024^{*}
	(0.248)	(0.067)	(0.222)	(0.010)	(0.013)
Immigration × credit supply	0.088^{**}	0.031^{**}	0.057^{**}	0.019^{***}	0.011^{***}
	(0.037)	(0.012)	(0.026)	(0.005)	(0.004)
Mean dependent variable	3.748	1.252	2.497	-0.029	-0.040
Firm fixed effects	Yes	Yes	Yes	Yes	Yes
Quarter fixed effects	Yes	Yes	Yes	Yes	Yes
Equal municipality weights	Yes	Yes	Yes	Yes	Yes
Kleibergen F statistic	15.56	15.56	15.56	10.59	12.17
Observations	4,809,312	4,809,312	4,809,312	2,897,275	2,972,561

Notes: Job to job hires are workers observed at another firm in the previous month. Sales and materials growth are quarter to quarter log changes and require positive activity in consecutive quarters. Credit supply is standardized. Standard errors are clustered by municipality. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Credit also changes firms' operating response. At average credit supply, immigration reduces sales growth by 2.7 log points and materials growth by 2.4 log points. More favorable credit attenuates both declines. We do not find a comparable interaction for investment growth.

Taken together, these results indicate that credit mainly affects firms' **quantity adjustment margin**. Employment, hiring, sales growth, and materials growth respond differently depending on credit conditions. In contrast, credit does not materially change firm employment activity thresholds, exit, workforce nationality or education shares, average wages, production participation, or production levels conditional on activity. Financial conditions therefore appear to affect how much firms adjust rather than whether they survive or how they change wages and workforce shares.

Local Labor Market Absorption

We next ask whether differences in firms' adjustment capacity are reflected in local labor market outcomes.

A 10 percentage point increase in immigrant exposure raises local unemployment by approximately 0.64 percentage points. The effect is concentrated among workers with lower education, whose unemployment rate increases by about 0.76 percentage points. The estimate for workers with higher education is smaller and statistically insignificant.

Consistent with the firm results, more favorable credit supply attenuates the unemployment response. At mean credit supply, a 10 percentage point immigration shock increases unemployment by about 0.66 percentage points. A one standard deviation improvement in credit supply reduces this effect by approximately 0.05 percentage points. The attenuation is again most evident among workers with lower education.

Table 3: Credit Supply and Local Labor Market Absorption

	Unemployment rate, percentage points		
	All	Low education	High education
Immigration stock (10 pp.)	0.664^{***}	0.784^{***}	0.447
	(0.251)	(0.271)	(0.370)
Immigration × credit supply	-0.047^{**}	-0.054^{*}	−0.046
	(0.023)	(0.031)	(0.046)
Mean dependent variable	5.896	5.596	6.885
Municipality fixed effects	Yes	Yes	Yes
Quarter fixed effects	Yes	Yes	Yes
SW F statistic: immigration	20.22	20.22	20.22
SW F statistic: interaction	17.60	17.60	17.60
Observations	7,968	7,968	7,968

Notes: Immigration and its interaction with credit supply are instrumented. Credit supply is standardized. Standard errors are clustered by municipality. SW denotes the Sanderson–Windmeijer conditional first stage statistic. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

The firm and local labor market results therefore tell a consistent micro to macro story. Immigration creates pressure on employment and raises unemployment where labor demand does not adjust sufficiently. Firms facing more favorable credit conditions respond with stronger employment and hiring, particularly along the low education margin. These firms draw workers both from other employers and from nonemployment and experience smaller declines in operating activity. At the local level, the unemployment response is smaller where credit supply is more favorable.

Discussion and Ongoing Work

The results suggest that the effects of labor supply shocks depend not only on the magnitude of the shock but also on the capacity of firms to respond. Financial conditions are one determinant of this capacity. When credit is more favorable, firms adjust employment and hiring more strongly and local labor markets experience a smaller increase in unemployment.

The paper also illustrates how preexisting economic relationships can shape exposure to shocks. Firms differ in the banks to which they are connected before the immigration shock. When those banks subsequently experience different credit supply conditions, otherwise similar firms face different financial environments. In this sense, the network of firm bank relationships is part of the transmission mechanism, even though the current analysis focuses on direct exposure rather than higher order network spillovers.

Ongoing work develops two dimensions of the analysis. First, we are studying the dynamics of adjustment to distinguish immediate absorption from persistence, recovery, and longer run reallocation. Second, we are examining heterogeneity in productive structure and firm characteristics to understand when additional credit supports labor intensive expansion and when firms instead adjust through other inputs.

More broadly, the evidence points to a simple mechanism:

$$\textbf{Labor supply shock} \longrightarrow \textbf{firm adjustment capacity} \longrightarrow \textbf{local labor market absorption.}$$

The results show that financial conditions shape the middle part of this mechanism: they affect which firms can expand employment and hiring when labor becomes more abundant, and this adjustment is reflected in how the local labor market absorbs the immigration shock.

References

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Clemens, Michael A and Ethan G Lewis (2026). "The effect of low-skill immigration restrictions on US firms and workers: Evidence from a randomized lottery". In: *American Economic Journal: Applied Economics* 18.3, pp. 43–82.

Foged, Mette and Giovanni Peri (2016). "Immigrants' effect on native workers: New analysis on longitudinal data". In: *American Economic Journal: Applied Economics* 8.2, pp. 1–34.

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Lewis, Ethan (2011). "Immigration, skill mix, and capital skill complementarity". In: *The Quarterly Journal of Economics* 126.2, pp. 1029–1069.

Mahajan, Parag (2024). "Immigration and business dynamics: Evidence from us firms". In: *Journal of the European Economic Association* 22.6, pp. 2827–2869.

Peri, Giovanni and Chad Sparber (2009). "Task specialization, immigration, and wages". In: *American Economic Journal: Applied Economics* 1.3, pp. 135–169.

Siemer, Michael (2019). "Employment effects of financial constraints during the great recession". In: *Review of Economics and Statistics* 101.1, pp. 16–29.