

The Role of Social Networks in Post-Displacement Outcomes

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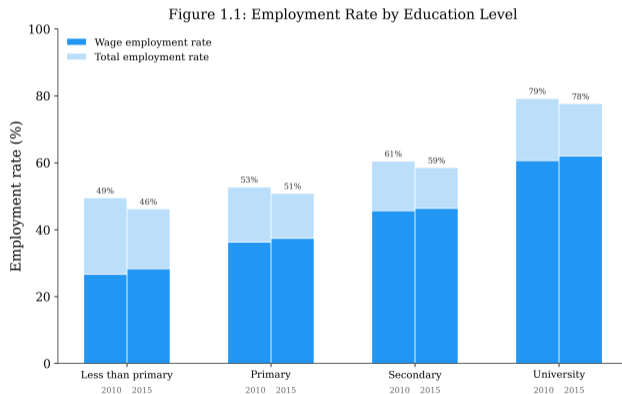
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Motivation

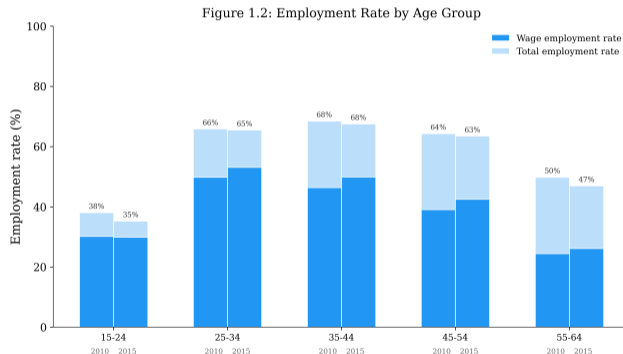
- Poorly functioning labor markets hamper growth in many developing countries (Donovan & Schoellman, 2023).
- Breza and Kaur (2025) describe three particular labor market failures.
 - ① High rates of involuntary unemployment.
 - ② Frequent turnover.
 - ③ Wage compression.
- In the developed world, social networks help alleviate these market failures.
- We examine whether these patterns hold in Mexico's formal sector and whether social networks help mitigate them.
- We hope to provide evidence about the role of social networks in developing country labor markets.

High rates of involuntary unemployment (by education level)



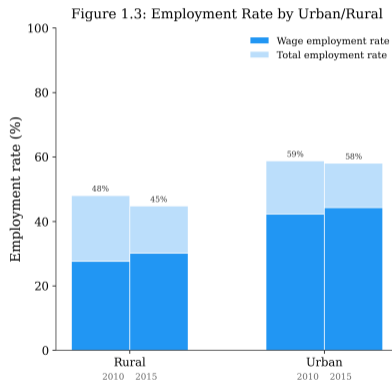
Source: IPUMS International – Mexico Census 2010 / Intercensal 2015.

High rates of involuntary unemployment (by age group)



Source: IPUMS International -- Mexico Census 2010 / Intercensal 2015.

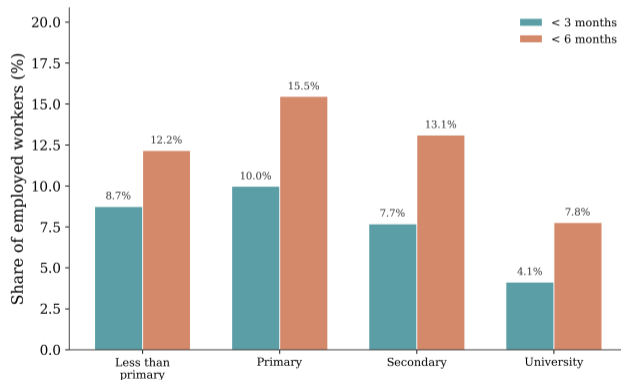
High rates of involuntary unemployment (by rural/urban)



Source: IPUMS International – Mexico Census 2010 / Intercensal 2015.

Frequent turnover (by education level)

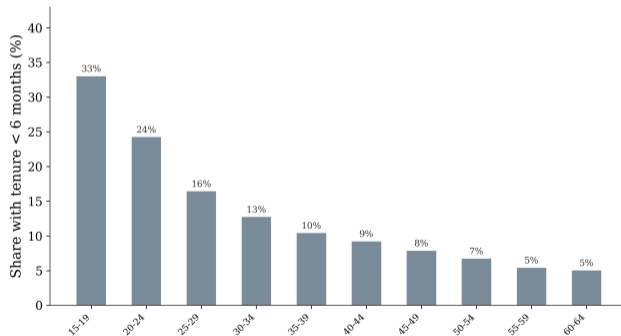
Figure 2.1: Short Tenure by Education Level
Share of Workers with Short Job Tenure



Source: IPUMS International -- Mexico ENOE (Labor Force Survey), 2014-2015.

Frequent turnover (by age)

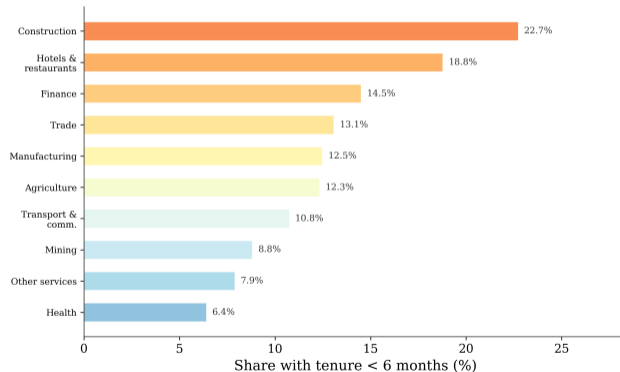
Figure 2.2: Short Tenure by Age Group
Share of Workers with Job Tenure < 6 Months



Source: IPUMS International – Mexico ENOE (Labor Force Survey), 2014–2015.

Frequent turnover (by industry)

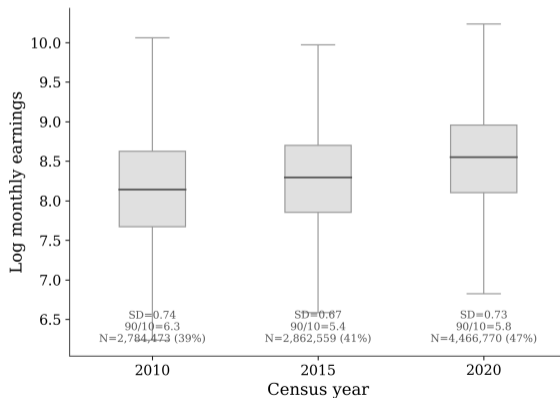
Figure 2.3: Short Tenure by Industry
Share of Workers with Job Tenure < 6 Months



Source: IPUMS International -- Mexico ENOE (Labor Force Survey), 2014--2015.

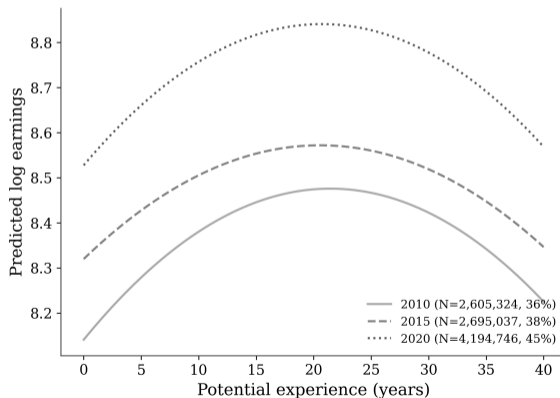
Wage compression (by year)

Figure 3.1: Log Wage Distribution
Mexico, Census 2010 / Intercensal 2015 / Census 2020



Wage compression (Experience-Wage Profile)

Figure 3.2: Experience--Wage Profiles (Mincer)
Mexico, Census 2010 / Intercensal 2015 / Census 2020



Social networks could theoretically alleviate these market failures

① High rates of involuntary unemployment.

Social networks could reduce job search frictions (unemployment spell duration). Employed members of the network could transmit information about job openings (Calvó-Armengol, 2004; Mortensen & Pissarides, 1999).

② Frequent turnover.

Social networks could improve match quality (tenure at new job). Referrals from within the network can provide more information about applicants. (Dustmann et al., 2016; Montgomery, 1991).

③ Wage compression.

Social networks could improve workplace productivity (steeper wage profile) (Bandiera et al., 2013; Kugler, 2003).

In the developed world, social networks help a lot.

We define a displaced worker's social network as his or her former coworkers.

Country	Benefit	Citation
Italy	Find jobs	Cingano & Rosolia (2012)
Germany	Find jobs but not higher wages	Glitz (2017)
Austria	Move between industries or regions	Saygin et al. (2021)
Sweden	Reduce inequality	Eliason et al. (2023)
Portugal	Find jobs, higher wages, longer tenure	Garcia-Louzao & Silva (2024)

Unemployment effects are robust but wage effects are mixed.

What about in the developing world?

- This paper is the first to use matched employer-employee data to study coworker network effects on displacement outcomes in an LMIC.
- We use matched employer-employee data from the Mexican Social Security Institute (IMSS) that covers the universe of formally employed individuals.
- The closest related work is Shiferaw and Söderbom (2023), who found higher worker turnover rates in Ethiopia than in developed countries. They did not look at the role of social networks or mechanisms.
- Mexico and other LMICs lack the formal matching methods present in a developing country context. They have high informality rates, few signaling mechanisms, and a lot of on-the-job training.

Preview of Results

- We build networks of former coworkers and exploit establishment closures as an exogenous shock that releases workers in the labor market.
- Network employment rate (ER) is strongly associated with better job search.
- A 1 SD increase in ER (16%) →
 - 0.73 months (22 days) shorter unemployment spell
 - 7.93 MXN higher daily wage (3.45% increase)
- Network size does not impact either outcome.
- Heterogeneity:
 - Older workers tend to have higher wages
 - Female workers face a wage gap
 - Higher pre-displacement wages → better outcomes

Roadmap

- 1 Background
- 2 Empirical Framework
- 3 Data
- 4 Results
- 5 Conclusion and policy recommendations.

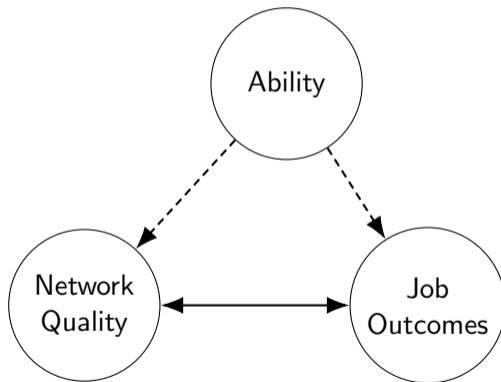
Which workers?

- Job seekers vary widely:
 - New labor market entrants vs. experienced workers
 - Voluntary leavers vs. fired workers
 - Geographically mobile individuals vs. those with strong local ties.
- Key question: **Why are they looking for a job in the first place?**
- These groups differ in unobservable characteristics, such as motivation, risk tolerance, or job flexibility, that influence labor market outcomes.
- These unobservables certainly affect their labor market outcomes.

Which social network?

- Up to 50% of workers report finding jobs through personal connections (Montgomery, 1991).
- People from the same village (Munshi, 2003)
- People from the same neighborhood (Schmutte, 2015).
- People who share friendship ties (Beaman & Magruder, 2012).
- People from the same origin country (Beaman & Magruder, 2012).
- People from the same ethnic minority (Dustmann et al., 2016)
- **People who have worked together in the past.** We can measure this with administrative employer-employee data.

The identification problem



Referral Experiments: What Mechanism Behind Referrals?

- Beaman and Magruder (2012) randomly vary incentives for a referral: a fixed bonus or a bonus based on job performance. In the second scenario, participants refer more former coworkers.
- Pallais and Sands (2016) hire a random mix of referred and non-referred workers to distinguish between the effect of peer influence and team production.
- Bandiera et al. (2013) vary the trade-off between sorting into teams by ability and sorting into teams by performance to examine the effect of both on productivity.

Observational Research Design: Displaced Workers

- Observational research designs exploit refugee resettlement (Beaman, 2016) or variation in neighborhood quality (Schmutte, 2015).
- We use displaced workers from establishment closures.
- Here we follow Cingano and Rosolia (2012), Eliason et al. (2023), Garcia-Louzao and Silva (2024), Glitz (2017), and Saygin et al. (2021)
- The establishment closures serve as an exogenous source of involuntary job separation.
- We can exploit the variation in social networks at the time of displacement to estimate the effect of network strength on labor market outcomes.

Overview of Empirical Strategy

- **Predetermined networks:** We construct social networks from pre-displacement coworker histories (2010-2014).
- **Exogenous job loss:** We focus on employees displaced by plant closures during 2015. These plant closures are not driven by individual worker performance.
- **Controls and fixed effects:** We compare workers of the same age and education in the same place and the same industry displaced at the same time.
- **Identifying Assumption:** Differences in job outcomes are driven by differences in social networks.

Reduced-Form Model

$$Y_{it} = \alpha + \beta_1 ER_{it} + \beta_2 \log(NS_{it}) + \beta_3 \text{Overlap}_{it} + \gamma' \mathbf{X}_{it} + \lambda_s + \delta_m + \theta_t + \phi_i + \epsilon_{it}$$

- **Outcomes** (Y_{it}):

- Months unemployed (duration)
- Daily wage at first post-displacement job

- **Independent Variables:**

- **Employment rate (ER):** Proxies network *quality*
- **Log network size (NS_{it}):** Proxies network *size*
- **Overlap:** Proxies tie *strength*

- **Controls** (\mathbf{X}_{it}): Age, gender, wage at displacement, years in formal sector

- **Fixed Effects:** State (λ_s), municipality (δ_m), month (θ_t), industry (ϕ_i)

Matched Employer-Employee Data

- We leverage confidential matched employer-employee administrative data from IMSS (the Mexican Social Security Institute)
- The dataset tracks all formal sector workers (12 million → 20 million)
- The time period is 2005 to present.
- The cells are worker-month (next slide)
- Key strength: we can follow employees as they change jobs
- Thus we can analyze long-term labor market dynamics.

Data: Variables by Worker-Month Cell

- Worker ID (anonymized)
- Gender
- Firm Id
- Location of employer: municipality (\sim US county)
- Industry sector
- Type of Employment: Permanent vs Temporary
- Daily wage

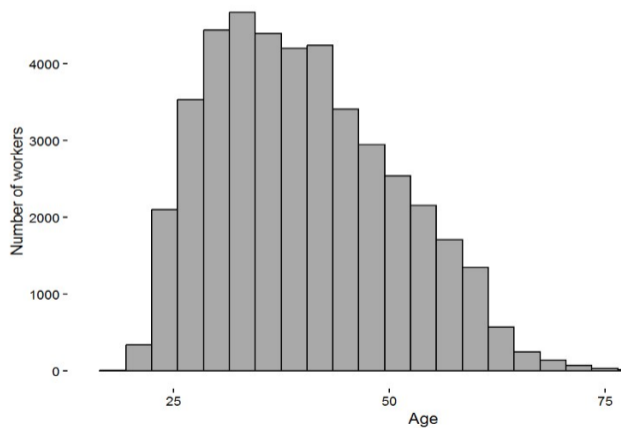
Existing work with this data

- Puggioni et al. (2022) examine transitions in and out of informality (in particular the wage premium).
- Frías et al. (2024) decompose plant-level wages into skill composition premium and an export premium.
- Pérez Pérez and Nuño-Ledesma (2024) look at the increase of within-firm and within-network sorting over time to explain wage dispersion patterns in Mexico.

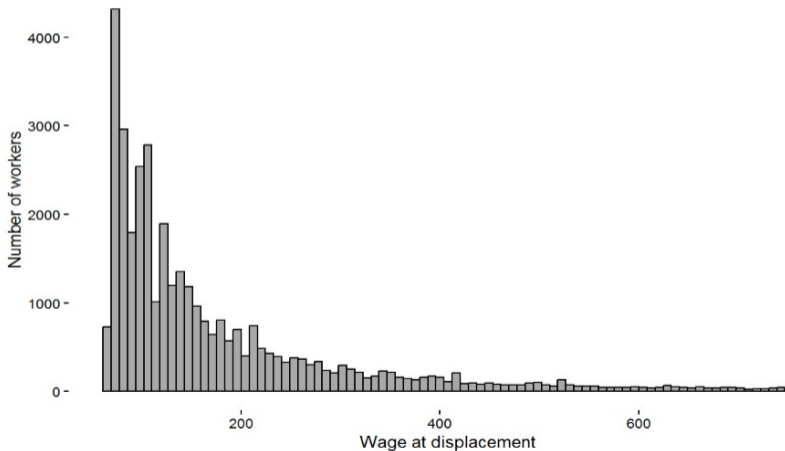
Sample Construction

- Unit of Observation: Formal sector worker displaced by a firm closure
- Time period: June 2014 – May 2015
- Sample Selection Steps:
 - ① Identify companies that disappear between month to month records
 - ② Filter to closures without mass worker transfers (to avoid M&A)
 - ③ Restrict to firms with 5–50 employees to ensure social proximity
 - ④ Keep only workers with ≥ 36 months of formal employment (2010–2014)
- Final sample: $\sim 37,860$ displaced workers tracked monthly for 24 months post-closure

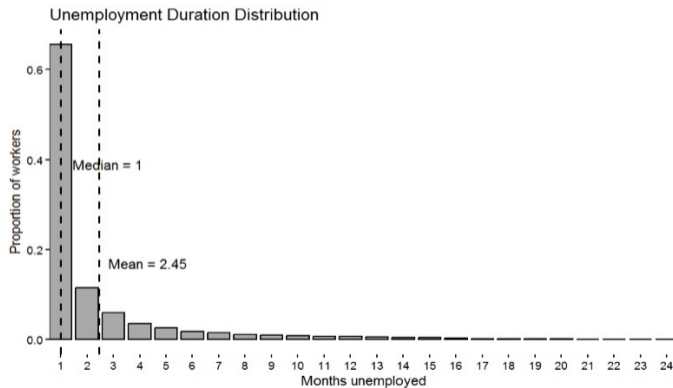
Distribution of Ages



Distribution of Wage Pre-Displacement



Distribution of Unemployment

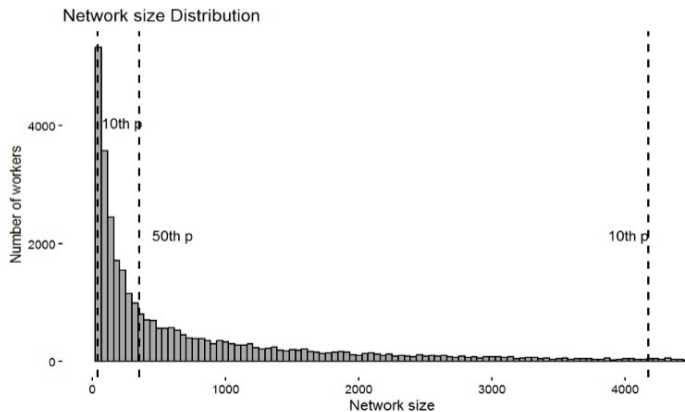


Descriptive Statistics: Categorical Variables

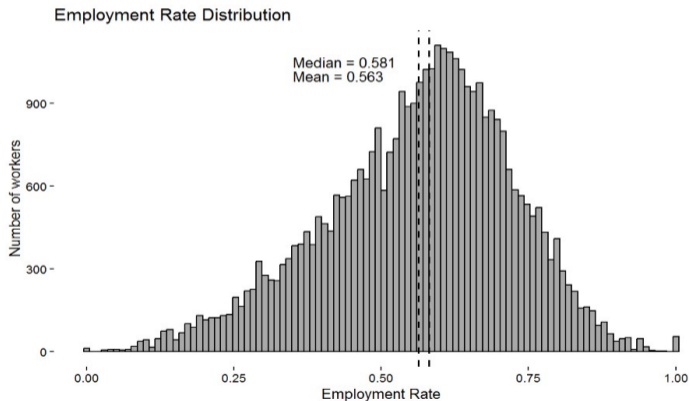
Industry		State	
Category	Frequency	Category	Frequency
Business services	12,427	Mexico City	5,332
Construction	9,234	Jalisco	4,070
Commerce	6,923	Nuevo León	3,947
Manufacturing	5,022	State of Mexico	3,216
Transportation	2,452	Veracruz	1,807

Municipality		Displacement Date	
Category	Frequency	Category	Frequency
Cuauhtemoc	3,383	December 2014	5,765
Zapopan	804	April 2015	3,469
Leon	701	May 2015	3,451
Guadalajara	656	October 2014	3,266
San Pedro Garza Garcia	629	September 2014	3,133

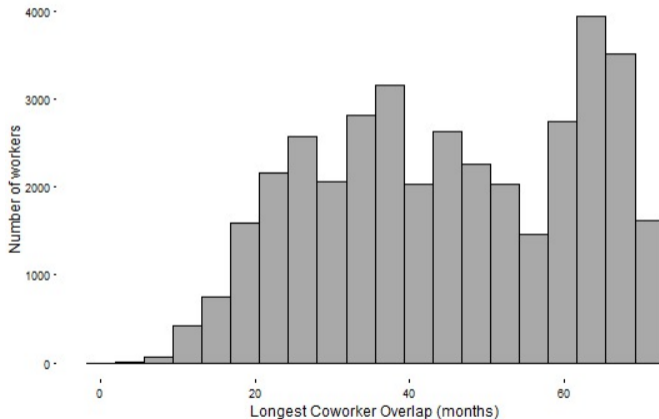
Network Size: Number of Coworkers (2010-14)



Employment Rate: Share of Network Employed



Longest Coworker Overlap in Network Building



Social Networks Associated with Improved Outcomes

	Months Unemployed		Post-Displacement Wage	
	(1)	(2)	(3)	(4)
Network Employment Rate	-4.59*** (0.12)	-4.46*** (0.12)	49.55*** (4.86)	49.20*** (4.79)
Log(Network size)	0.01 (0.01)		-0.57 (0.44)	
Longest coworker overlap (Months)	-0.01*** (0.001)		-0.06 (0.05)	
Age	-0.001 (0.003)	-0.005* (0.003)	0.42*** (0.12)	0.42*** (0.11)
Female	-0.14*** (0.04)	-0.17*** (0.04)	-3.65** (1.64)	-3.66** (1.63)
Wage at displacement	-0.0003*** (0.0001)	-0.0004*** (0.0001)	0.85*** (0.01)	0.85*** (0.01)
Years in formal sector	0.004 (0.003)	0.004 (0.003)	-0.24** (0.12)	-0.24** (0.12)
Observations	37,860	37,860	37,860	37,860

All specifications include FEs for Industry, State, Municipality, and Month.

Mean Wage at displacement is 230 MXN \sim 11.7 USD. Mean Unemployment Duration is 2.45 months.

Interpretation

- **Network employment rate** A 1 SD increase (16%) in ER causes:
 - 0.73 months (22 days) shorter unemployment
 - 7.93 MXN higher daily wage (3.45% increase)
- **Network size** is not significant → number of contacts matters less than their employment status
- **Tie strength** (overlap) is marginally significant for unemployment only
- **Controls behave as expected:**
 - Older workers tend to have higher wages
 - Female workers face a wage gap
 - Higher pre-displacement wages → better outcomes
- Alternative specification (columns 2 and 4) does not meaningfully change effects.

Comparison to Developing Countries

- All existing studies (Italy, Germany, Austria, Sweden, Portugal) find a positive network effect on duration of unemployment spell.
- The interesting part is to tease out the wage effect of networks.
 - In Italy, they didn't test it.
 - In Germany, it appeared in the OLS results but went away with the IV.
 - In Austria, they did not find a wage effect either.
 - In Sweden, the network allows low-wage firms to hire high-wage workers, so it reduces sorting and inequality.
 - in Portugal, they find small wage effect (2.9%) initially but differences in wage profile between referred and non-referred workers dissipate over time.
- What does our wage effect mean?

Next steps

- Robustness checks of Glitz (2017)
 - An IV strategy here: mass layoffs influence employer's outcomes through the network employment rate.
 - Use establishment fixed effects.
- Think more deeply about the matching mechanisms at play here.
 - The screening process of getting a job
 - The matching process within the firm
- Build wage profiles at the new firm.
- Analyze industry and region transitions.
- Account for the role of informality.

Conclusion

- We are only beginning to study market failures in developing countries.
- Mexico is an interesting case study because of the availability of good data.
- At the same time, insights from Mexico have the potential to generalize broadly.
- We use establishment closings as a quasi-exogenous shock.
- We find associations between social networks of past coworkers and improved job search outcomes:
 - Decreased unemployment spell duration
 - Increased post-displacement wage.
- We hope to clarify the second result.

Policy Implications

- In labor markets with weak formal channels, past coworker ties can play a vital role in job recovery.
- Supporting displaced workers through network-aware programs could boost reemployment and post-displacement wages.
- A recent review by Carranza and McKenzie (2024) of evidence on job search assistance programs in developing countries offers some promising ideas:
 - alumni tracking,
 - network-based job placement services
 - targeted support in occupations or regions with weaker social connectivity.

Thank you!

Questions?