The Labor Market between Firms:

Labor Sharing in Urban Uganda

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Small firms struggle to hire in LMICs

Small firms face difficulties building and sustaining their workforce

- Skills are hard to judge before hiring (Hardy & McCasland, 2023)
- Demand is volatile, so labor needs shift week to week (Bassi et al., 2022)
  - → referrals (Beaman & Magruder, 2012; Heath, 2018)
  - → temporary contract labor through agencies (Bertrand et al., 2025)

When both forces combine, standard responses can fall short

- Referrals screen and discipline longer-term hires (Dustmann et al., 2016; Heath, 2018)
- Short-term labor is flexible but lower-quality (Barker et al., 2025)

A different mode of hiring – Labor Sharing

An understudied hiring channel: Firms informally subcontract workers from nearby firms in the same sector ("*labor sharing*")

Allows firms to simultaneously address two problems:

1. **Screening:** Worker skills already verified on-the-job at the lending firm
2. **Flexibility:** Labor available from neighbors on-demand, for a temporary period

Prevalent but often overlooked:

- Many data sources (WB Enterprise Surveys) condition on full-time hires
- More detailed temporary LFS fold sharing into general referrals
- Case studies and qualitative studies exist; lack of linked detailed data (McKenzie, 2024)

Research question

This paper asks:

- How does labor sharing impact firm profits, worker welfare, and policy effectiveness?
  - How do firms use it to manage hiring frictions?
  - How do firms and workers value it compared to other modes of hiring?

Setting: Small, informal manufacturing firms (carpentry, metalworking) in Kampala.

This paper:

- Novel survey data of 515 firms and 1,001 matched workers in 30 neighborhoods
- Choice experiments simulating hiring choices and job offers
- Model of frictional firm hiring to estimate impacts, simulate policy experiments

Results preview

- Labor sharing is a common hiring strategy in use by **80% of firms**
- Firms value shared workers at a premium worth **25% of med. wage**

- Sharing **raises surplus by 7.0%** over an economy without it
  - **5% of firms exit** the market without sharing access
  - Closes **40%** of the misallocation gap

- Skilled labor is scarce, so training programs outperform certification
  - External training concentrates gains to high-productivity firms
  - Certification shifts surplus from low-skilled to high-skilled workers

Contributions

1. **Hiring frictions in LMICs**
   - Screening is costly; referrals and short-term hires each solve one problem (Barker et al., 2025; Dustmann et al., 2016; Hardy & McCasland, 2023; Hardy et al., 2024)

   → Documentation of informal institution that solves both

2. **How firms coordinate with one another**
   - Firms share capital and information in similar settings (Bassi et al., 2022; Cai & Szeidl, 2018)

   → Competitors share labor directly, replacing missing intermediaries

3. **Active labor market policy**
   - Training and certification have mixed, modest effects (Alfonsi et al., 2020; Bassi & Nansamba, 2022; Carranza & McKenzie, 2024)

   → Effects of ALMPs depend on informal institutions

Roadmap

1. **Data and descriptives**
   - How does labor sharing work?
2. **Model**
   - Firm-level labor supply with hiring frictions
     (Card et al., 2018)
3. **Choice experiments**
   - How do firms and workers value sharing?
   - Pin down sharing costs and the labor supply elasticity
4. **Estimation**
5. **Counterfactuals**
   - How does sharing affect welfare compared to an economy without it?
   - How does it interact with skill policy?

Data and Descriptives

Setting and data: Manufacturing firms in Kampala

Target: Carpentry and metalworking firms with 2-25 workers

Data: Linked surveys of 515 firms and 1,001 of their workers

Firm survey | Worker survey

Firms are small and flexible in this setting

- Average firm size: 3.1 workers
- Workers used in the past month: 5.7
- Median monthly revenue: $1,170 (USD)



Sampling Validity

Setting and data: Manufacturing firms in Kampala

Target: Carpentry and metalworking firms with 2-25 workers

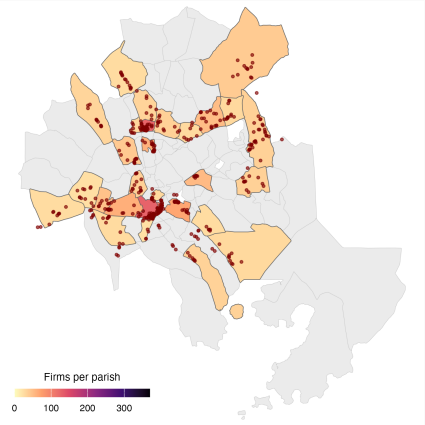
Data: Linked surveys of 515 firms and 1,001 of their workers

Firm survey | Worker survey

Firms exist in small clusters

- Average firm has 16 same-sector firms within 500m in target parishes (2010 CoBE)

Sampling: 30 high-density parishes; seed firms in each parish, then snowball along firm-to-firm ties



Sampling Validity

Hiring Landscape in Kampala

Firms hire through **4 recruitment channels** on **2 types of arrangements**:

Recruitment Channels

1. **Walk-in:** No prior connection
2. **Friend/Family Referral:** Social connection of owner/manager
3. **Employee Referral:** Social connection of existing worker
4. **Direct from other workshops:** Labor sharing (or lateral hires)

Arrangements

1. **Permanent:** The worker has a set expectation for work frequency
2. **Temporary:** The worker is only hired "on-need" (Barker et al., 2025)

Contract Structure: >90% of contracts are unwritten and paid piece-rate

Structure of Labor Sharing Arrangements

Labor sharing transactions have a consistent structure:

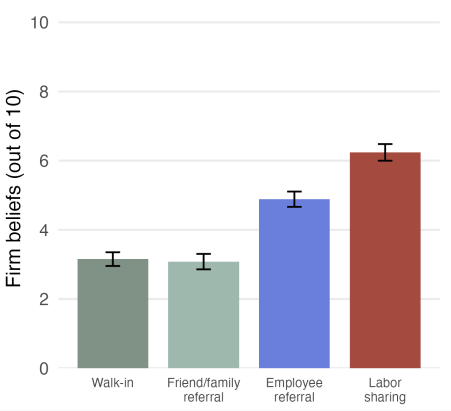
1. **Reciprocal:** in 76% of ties workers flow in both directions
2. **Unpriced:** 83% of ties no direct compensation for exchange
3. **Local:** median pair is 77m apart
4. **Firm-coordinated:** Owners arrange exchanges in 89% of ties

Median stint lasts **3 days**

Network map

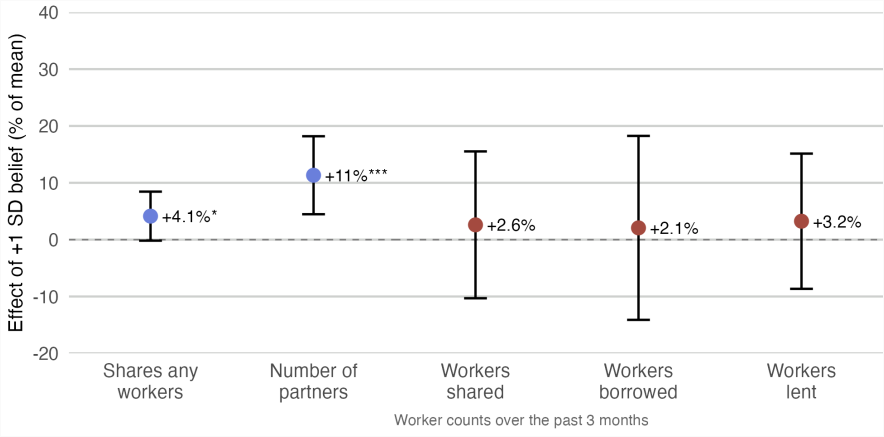
Fact 1: Sharing offers a way around hiring costs

- Formal credentials don't signal skill:
  - 84% learned on the job; 19% completed technical or vocational training
  - Firms put no significant value on a certificate (choice experiment)
- Saves substantial managerial time:
  - 1.9 days to screen (vs 4.1)
  - 2.8 hours of supervision (vs 5.2)



Of 10 new workers from [*source*], how many could make a [*core product*] at sellable quality?

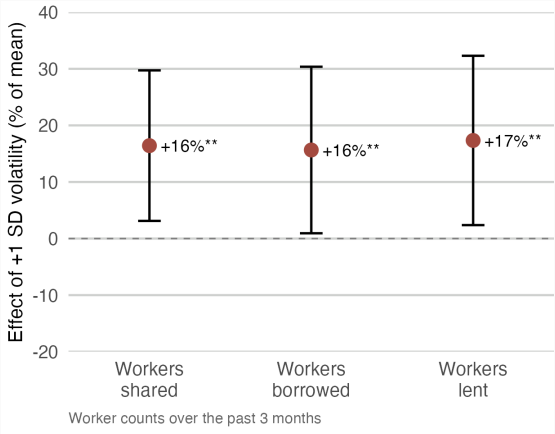
Fact 1: Firms share with firms who provide verified workers



How does network membership correlate with beliefs about shared workers?

Fact 2: Firms rely on sharing when demand is volatile

- Median coefficient of variation (CV) of monthly revenue: **0.75**
  - Small firms in US: median monthly CV of 0.42 (Balla-Elliott & Norwich, 2026)
- Swings are firm-specific: **50–80%** of within-firm variation

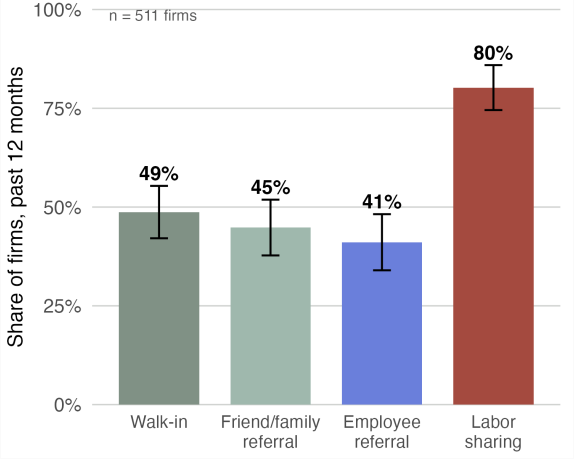


Revenue by demand state

Full results

Fact 3: Sharing is common, frequent and temporary

- Majority (57%) response to unanticipated demand shock: hiring via labor sharing

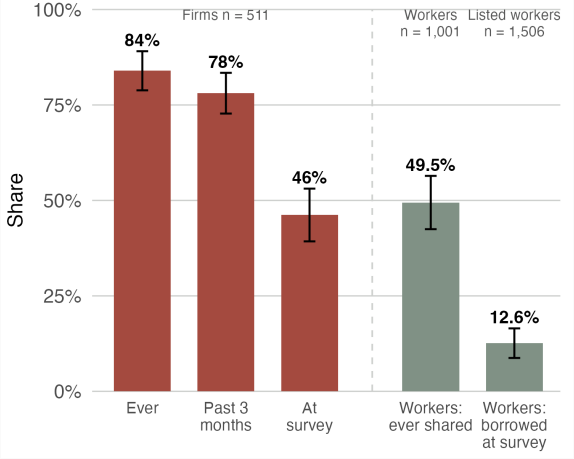


% firms hiring from source, prior 12mo.

Who gets shared?

Fact 3: Sharing is common, frequent and temporary

- Majority (57%) response to unanticipated demand shock: hiring via labor sharing
- Sharing firms average 9 stints per quarter (one every 10 days)



Who gets shared?

Fact 4: Sharing imposes transaction costs on firms and workers

Firm faced costs differ for borrowers and lenders:

- Owners fear losing workers (44%)
- 56% say lent workers stay away longer than expected

$\rightarrow$ In the model, these costs are a wedge τ between what borrowers pay and lenders receive

Implications for workers:

- 63 % of workers report < 1 day notice for relocation
- Shared workers are trained less ($\Delta = -0.9$ days/mo, $p = 0.033$)

Model

From descriptives to a model

The survey shows

- Fact 1: Sharing gets around hiring costs
- Fact 2: Demand is volatile
- Fact 3: Sharing is commonly used
- Fact 4: Sharing has transaction costs

The model answers

- When does sharing arise?
- What is the market worth, and who gains?
- How does sharing change skill policy?

Starting point: firm-level labor supply from workers' job choices, with costly hiring and a wage norm (Card et al., 2018; Hall, 2005)

- Worker type unknown until hire
- Post-vacancies before demand is known
- Add-in labor sharing to adjust workforce after demand realization

Agents and Preferences

Workers are skilled ($\omega = H$) or less skilled ($\omega = L$). Choose whether to enter market based on prevailing wage for their type.

Then, standard logit job choice (Card et al., 2018)

$$U_{ij} = \underbrace{\varepsilon \ln w_{\omega,j}}_{\text{pay}} + \underbrace{a_j}_{\text{job features}} + \underbrace{e_{ij}}_{\text{personal taste}}$$

- Only pay depends on type $\Rightarrow$ every firm recruits the same skilled share Why one α?
- Firms face supply curves of $N_{j,\omega} = \Lambda_\omega \cdot \exp(a_j) \cdot w_{j,\omega}^{\varepsilon}$
- Workers quit for better outside offers; quits fall with pay (ε_s) Quits

Managers run a firm if expected profit plus a taste for ownership ζ_j beats their outside option.

Technology and wages

Production.

$$\underbrace{y_{d,j}}_{\text{revenue}} = \underbrace{\theta_d}_{\text{demand state}} \underbrace{A_j}_{\text{productivity}} \left(\underbrace{N_H}_{\text{skilled}} + \underbrace{a_L N_L}_{\text{less skilled}} + \underbrace{\ell}_{\substack{\text{net shared} \\ \text{workers}}} \right)^{\kappa} \quad \kappa < 1$$

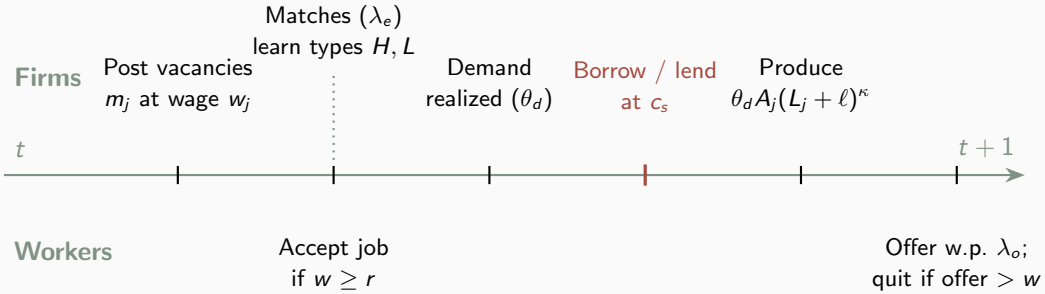
Demand. Busy ($d = b$) with probability q, slow ($d = s$) otherwise, with $\theta_s = \rho\,\theta_b$; independent across firms and periods

Wages. A wage norm in the log-additive rent-sharing form (Card et al., 2018; Hall, 2005)

$$\ln w_{\omega,j} = \underbrace{\mu_\omega}_{\text{type level}} + \underbrace{\xi_j}_{\text{firm premium}} + \underbrace{\beta_{\text{pt}} \ln \bar{y}_j}_{\text{pass-through}}$$

Wage evidence

Timing and information



The firm's problem, solved backward

Step 1, after demand is known: share. Busy firms borrow ($\ell > 0$), slow firms lend ($\ell < 0$)

$$\pi_{d,j}(N_H, N_L) = \max_{\ell} \Big\{ \underbrace{\theta_d A_j (N_H + a_L N_L + \ell)^{\kappa}}_{\text{revenue}} - \underbrace{w_{H,j} N_H - w_{L,j} N_L}_{\text{wage bill}} - \underbrace{p_{d,j} \ell}_{\text{shared workers}} \Big\}$$

Prices: borrower pays $p_{b,j} = w_{H,j} + c_s + \tau$; lender gets $p_{s,j} = w_{H,j} + c_s$ (saved wage + fee)

Rationing: prices do not clear the sharing market (Breza, Kaur & Shamdasani, 2021; Macchiavello & Morjaria, 2015)

Setting marginal product equal to the price of a shared worker gives the target workforce

$$\boxed{L^*_{d,j} = \left(\kappa \theta_d A_j / p_{d,j}\right)^{1/(1-\kappa)}}$$

Why one α? Eqm. Statement

The firm's problem, solved backward

Step 1 gives profit after sharing, $\tilde{\pi}_{d,j}(N_H, N_L)$, in each demand state d

Step 2, before demand is known: hire. Post m vacancies at convex cost $C(m)$ with curvature ϕ; vacancies fill at rate λ_e, a share α of hires is skilled, and type is learned at hire

$$V_j(N_H, N_L) = \max_{m \geq 0} \Big\{ \underbrace{\mathbb{E}_d \left[\tilde{\pi}_{d,j}(N_H + \alpha\lambda_e m,\ N_L + (1-\alpha)\lambda_e m) \right]}_{\text{expected profit after sharing}} - \underbrace{C(m)}_{\text{vacancy cost}} + \beta V_j(N_H', N_L') \Big\}$$

Why one α? Eqm. Statement

When does sharing arise?

Flexibility: demand swings are larger than the sharing wedge

$$\rho \equiv \frac{\theta_s}{\theta_b} < \frac{w_H + c_s}{w_H + c_s + \tau}$$

Screening: a worker of known skill is cheaper per unit of output

$$a_L < w_L / w_H$$

Who shares: hiring costs and productivity sort firms into lenders and borrowers.

Data: more productive firms borrow more; better managers borrow and lend more

Regression What sharing does

Choice Experiments

What we need to estimate

Object	Meaning	Source
$c_s + \tau$, c_s	Borrower's price; lender's receipt	Firm choice experiments (borrowing, lending)
ε	Workers' pay sensitivity	Worker choice experiment
ρ	Slow / busy demand ratio	SMM: revenue by state, sharing flows
ϕ	Curvature of the vacancy cost	SMM: firm size, sharing
$\mu_H - \mu_L$	Skill wage gap	SMM: wages by type
a_L, α, λ_e, q	Less-skilled productivity, skilled share of hires, vacancy fill rate, busy probability	Survey questions directly

Skip to results

Firm DCE: design

Choice 1 of 6

You receive an order for 10 four-panel door which need to be produced very quickly. In addition to your usual workers, which of these workers would you prefer to hire?

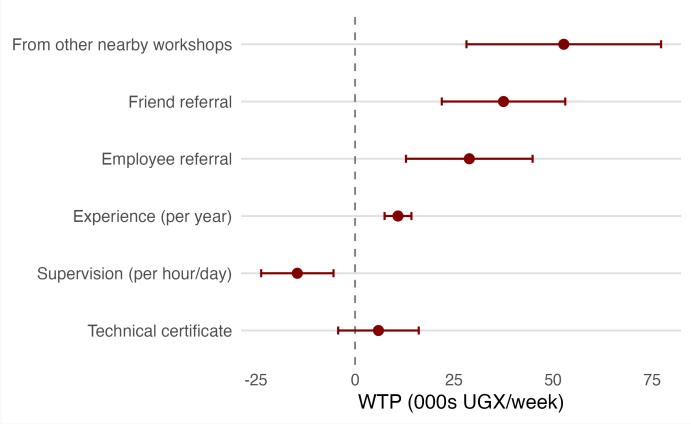
Note that you can choose to not hire either worker, but this may result in delays or difficulties.

	Worker A	Worker B
Weekly wage	200K	80K
Experience	6 years	2 years
Source	Employee referral	Walk-in
Supervision	None	1 hour/day
Certification	No certification	Has technical certificate

- **Scenario:** a rush order of industry-standard products
- **Three experiments:** hiring, borrowing a shared worker, lending; six tasks each
- **Design:** Bayesian D-efficient tasks, priors from the pilot; each firm gets 1 of 10 task sets at random
- **Sample:** 515 firms $\times$ 6 tasks

Attributes and levels

Firm DCE: Owners highly value shared workers



Base worker: Walk-in hire, 2-year experience, no supervision required, no certificate

Borrowing experiment

Estimate sharing premium:

$$c_s + \tau = -\frac{\beta_{\text{shared}} - \bar{\beta}_{\text{other}}}{\beta_{wage}}$$

$$\bar{\beta}_{\text{other}} = \sum_k \pi_k \, \beta_k$$

$$\implies c_s + \tau \approx 29.4\text{k UGX/wk}$$

$$\approx \textbf{2.7 yr.} \text{ experience}$$

Lending experiment: lenders receive $c_s \approx 13.9$k

$\Rightarrow$ $\tau \approx$ **15.4k**: about half the price never reaches the lender

Lending experiment

Worker DCE: design

Choice 4 of 6

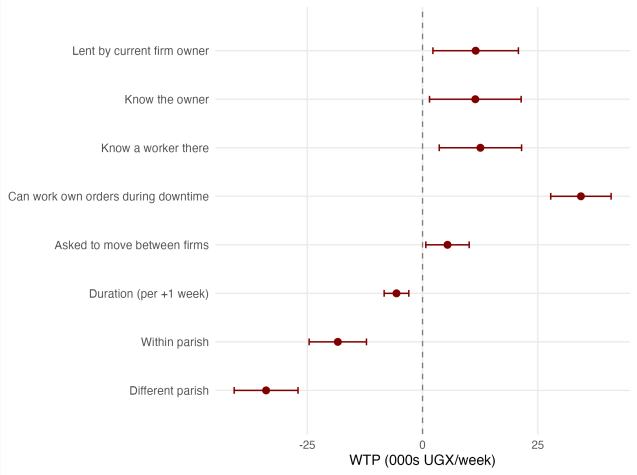
Consider a situation where you are not employed. You are offered the following jobs at different firms in this industry. Which of the following would you accept?

Note that you can say no to both if you believe you could find a better job elsewhere or would rather remain unemployed.

	Offer A	Offer B
Weekly wage	100K	150K
Guaranteed duration	1 month	1 month
Location	Within cluster	Same parish outside cluster
Relationship to firm	Know a worker there	Sent by owner of another firm
Stability	Full-time at same firm	Asked to move between multiple firms
Personal orders	Cannot work on own orders	Can work on own orders during downtime

- **Scenario:** unemployed worker gets two job offers
- **Tasks:** six choices; two offers plus "neither"
- **Design:** D-efficient, priors from piloting; each worker gets 1 of 10 task sets at random
- **Attention check:** 928 of 1,001 pass a practice task

Worker DCE: results



Base job: Walk-in hire, no self-emp option, 1 week duration, within cluster

Estimating LS elasticity:

$$\varepsilon = \underbrace{\beta_w \bar{w}}_{\text{response to own wage}} \times \underbrace{(1 - P_j)}_{\text{one rival offer}}$$

$$\varepsilon = \mathbf{1.28}$$

Reference elasticities:
(Sokolova & Sorensen, 2021)

- Global median: 1.27
- LMIC median: 1.16

Estimation

Where each parameter comes from

- **From choice experiments:**
  price of a shared worker $c_s + \tau$ (lender receives c_s); workers' pay sensitivity ε
- **From survey questions:**
  hiring rate λ_e; probability of a busy period q; skilled share of hires α; less-skilled productivity a_L; spread of taste for owning a firm σ_e
- **Pinned from external source:**
  returns to scale κ

Moments

Jointly Estimated by SMM (13)

ϕ	**Vacancy cost curvature**
θ_b	Busy-state TFP
ρ	**Slow / busy demand ratio**
σ_u	SD of firm TFP
λ_z	Management loading on TFP
μ_H, μ_L	**Type wage levels (log)**
σ_ξ	SD of firm wage premium
β_{pt}	Revenue pass-through
$\rho_{\xi u}$	Wage premium–TFP corr.
$\delta_{0,H}, \delta_{0,L}$	Base separation rates
ε_s	Separation elasticity

Which moments pin which parameters

Moment group	n	Examples	Mainly pins	
Firm size	3	Mean and SD of log size	$\phi,\ \theta_b,\ \sigma_u,\ \lambda_z$	Def.
Revenue and demand	3	Busy / slow revenue ratio	$\rho,\ \theta_b$	Def.
Wage levels	3	Log skilled, less-skilled wages	$\mu_H,\ \mu_L$	Def.
Wage dispersion	4	Between-firm SD; pass-through	$\sigma_\xi,\ \beta_{pt},\ \rho_{\xi u}$	Def.
Turnover and tenure	5	Separation rate; tenure ratio	$\delta_{0,H},\ \delta_{0,L},\ \varepsilon_s$	Def.
Labor sharing	3	Borrowed share; fill rate	$\rho,\ \phi,\ \theta_b$	Def.

21 targeted moments; weighted SMM with fixed simulation draws

Model Fit Untargeted moments

What the key estimates mean

Parameter	Estimate	What it means
ρ: slow / busy demand ratio	0.54	A slow week brings about half the demand of a busy week; target workforce falls to a third of its busy-week level
ϕ: vacancy cost curvature	3,533	The marginal hire costs $\sim$1.6 weeks of a skilled worker's wage
$\mu_H - \mu_L$: skill wage gap	0.21	Skilled workers earn $\sim$23% more than less-skilled workers

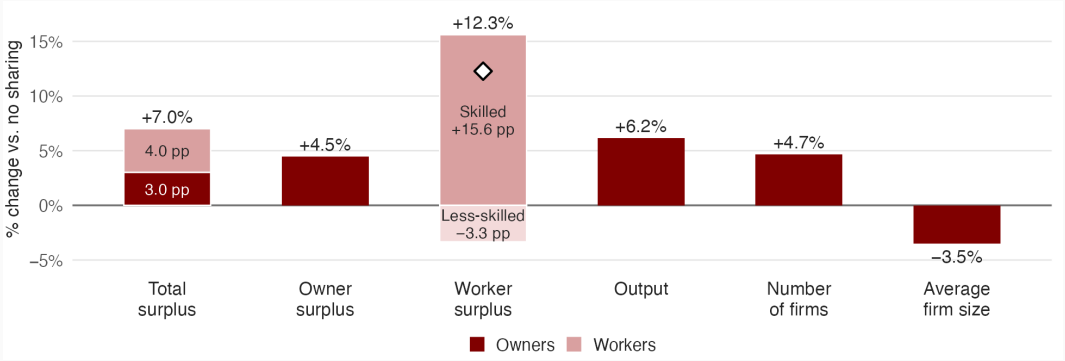
Counterfactuals

Quantifying the importance of labor sharing

- Benchmark: the economy without sharing
- Welfare = owner surplus + worker surplus
  - Owner surplus = firm profits - owner outside option
  - Worker surplus = earnings net of reservation wage
- **Second benchmark:** the same workers, allocated to equalize marginal products (Hsieh & Klenow, 2009)

  — how much of the gap does sharing close?

Sharing raises surplus by 7.0%



Wage Impacts

How much of the gap does sharing close?

- Benchmark: the same workers, allocated across firms and demand states to equalize marginal products (Hsieh & Klenow, 2009)
- Without sharing, output is 8.7p.p. below the benchmark
- With sharing, 5.2p.p. below this benchmark
- **Sharing closes 40% of the gap**

Where skilled weeks go

Policy experiments

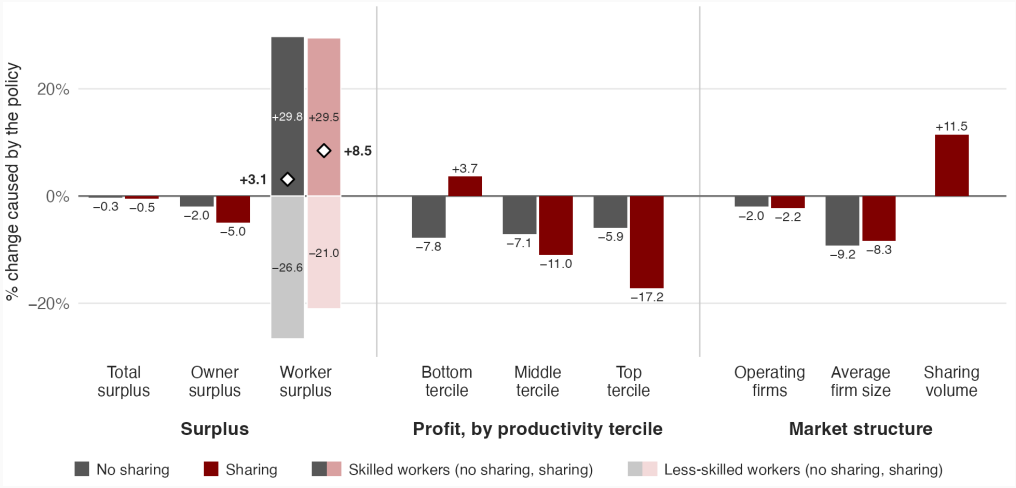
Two common skill policies, evaluated with and without sharing

- **External Training:** Converts *L*-type workers to *H*-type workers in the external market
- **Certification:** Improves probability α that firms can match with *H*-type workers in external market

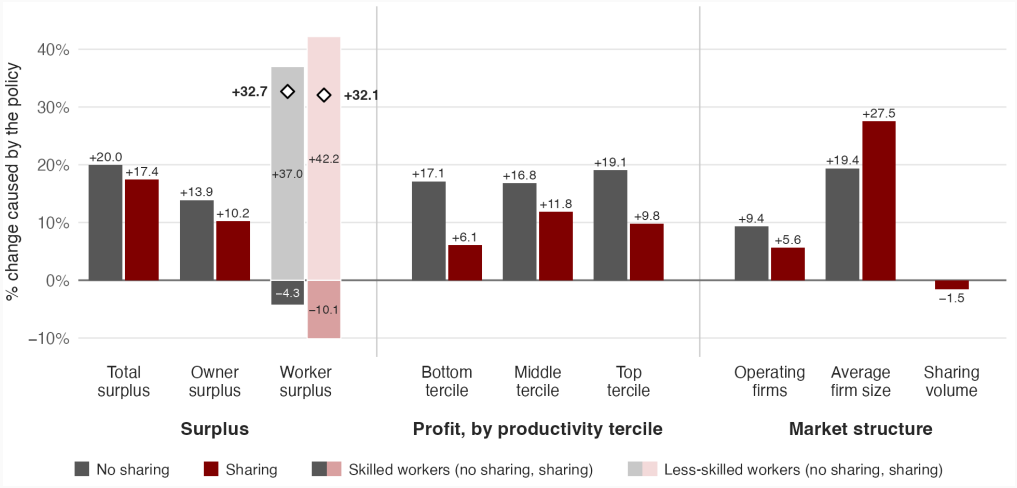
Prior evidence:

- certificates reallocate workers without raising overall employment (Bassi & Nansamba, 2022)
- matter less when firms have other information on skill (Carranza et al., 2022)

Policy Experiment 1: Certification



Policy Experiment 2: External Training



Conclusion

What I do

- New linked survey of 515 firms and 1,001 workers in Kampala
- Choice experiments price sharing for firms and workers
- Equilibrium model of hiring with a market for shared workers

What I find

- 80% of firms hire through sharing; it solves screening and volatile demand
- A shared worker is worth $\sim$3 more years of experience to firms
- Improves welfare by $+7.0\%$, over half to workers; closes misallocation by 40%
- **Policy:** training ($+17\%$) beats certification (-0.5%), concentrates gains among high-prod. firms

Thank you!

Draft available at: zachkulos.github.io/jmp

Key assumptions (1/2): workers and wages

Assumption	Evidence	What it implies
Two worker types: skilled ($\geq$5 years' experience) and less skilled	Skill premium of 27% in the data	Sorting and learning within a type are outside the model
Logit job choice: both types weigh pay and job features the same way	Worker DCE cannot reject equal pay elasticities by type	Every firm recruits the same skilled share; pay cannot screen
Wage norm: type level + firm premium + pass-through; same wage in busy and slow weeks	Owners pay nearly all workers per piece; pass-through of 0.10 on expected revenue	Slow weeks are absorbed by headcount, not wage cuts

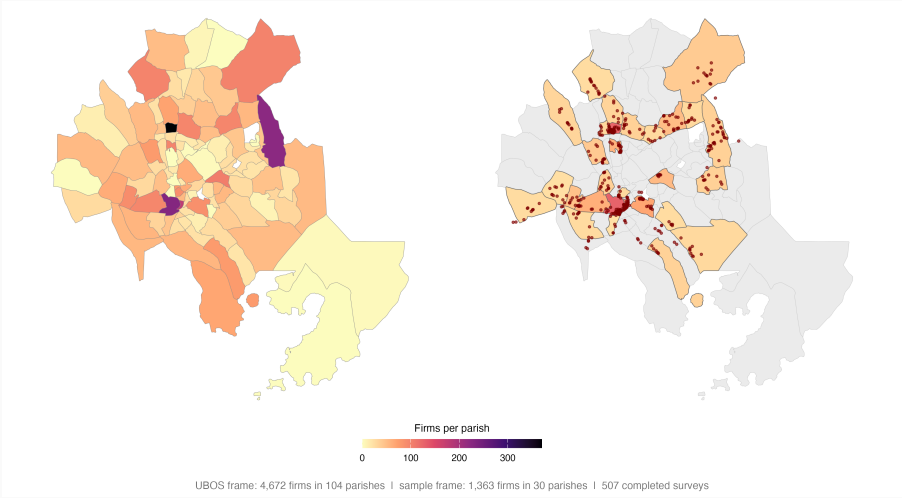
Why one α? Wage evidence Next ◂ Back

Key assumptions (2/2): demand, sharing and training

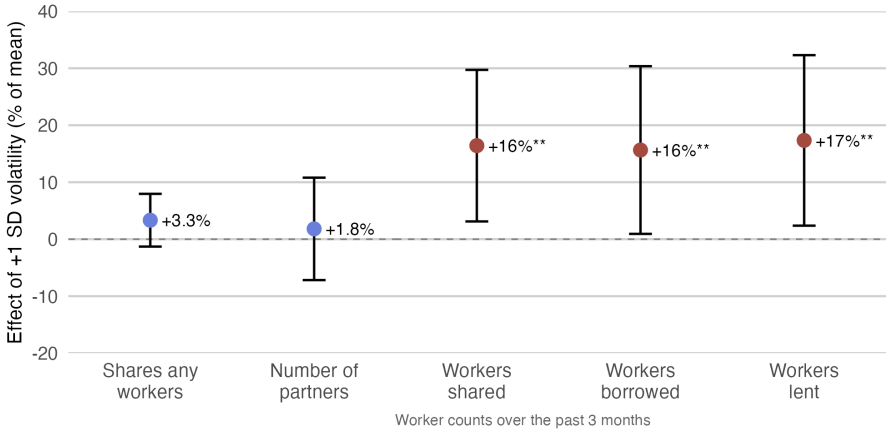
Assumption	Evidence	What it implies
Two demand states, independent across firms and over time	50–80% of revenue swings are firm-specific; <5% shared with neighbors	Neighbors are rarely slow together, so lenders are there when borrowers need them
Sharing: skilled workers, nearby firms, no separate wage for shared workers; prices do not clear	Fact 3; no wage penalty for shared workers	The long side of the sharing market is rationed
Training is fixed	Shared workers get 0.8 fewer training days a month	The model cannot say how sharing changes training

◂ Back

515 Firms, 1,001 workers sampled across 30 parishes

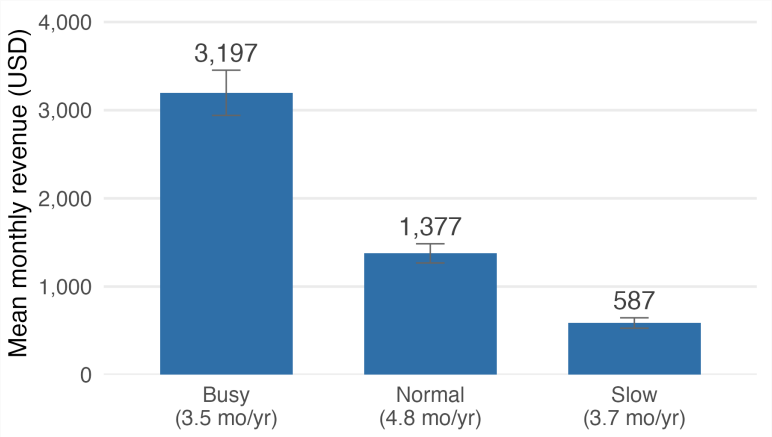


Fact 2: full results



Back

Monthly revenue by reported demand state



Back

Separability: one skilled share for every firm

Lemma 1. Suppose both types share the wage coefficient ε and the amenity a_j, and wages are type-neutral, $\ln w_{\omega,j} = \mu_\omega + \psi_j$. Then every firm's recruits have skilled share

$$\alpha = \frac{R_{H,j}}{R_{H,j} + R_{L,j}} = \frac{e^{\Lambda_H + \varepsilon \mu_H}}{e^{\Lambda_H + \varepsilon \mu_H} + e^{\Lambda_L + \varepsilon \mu_L}},$$

the same at every firm and independent of the firm's wage.

- A higher wage brings more willing recruits, but not a better mix
- Owners pay nearly all workers per piece: one rate per piece, so pay cannot favor one type
- The worker choice experiment cannot reject equal wage elasticities across types

Skilled share in the data

◂ Back

Skilled share across firms in the data

	Revenue per worker	Management score	Log headcount
Change, p25 to p75 (pp)	+2.3	−0.9	−3.2
	(2.6)	(2.6)	(1.1)
p-value	0.39	0.71	0.007
Firms	453	503	511
Tercile means (low/mid/high)	0.65 / 0.71 / 0.73	0.67 / 0.77 / 0.66	0.70 / 0.75 / 0.64

Owner-reported skilled share of the workforce (mean 0.70). Each column is a separate regression with parish × industry fixed effects and the controls of the sorting table; standard errors clustered by parish × industry.

Back

Wage rule

Firms take wages as given when posting vacancies. With hiring frictions, a range of wages keeps both sides in the match; a wage norm selects one (Hall, 2005)

$$\ln w_{\omega,j} = \underbrace{\mu_\omega}_{\text{type}} + \underbrace{\xi_j}_{\text{firm premium}} + \underbrace{\beta_{\text{pt}} \ln \bar{y}_j}_{\text{pass-through}}$$

Built to match three facts about wages:

- A skill premium: skilled workers earn 27% more
- Wide wage dispersion across firms
- Small pass-through of revenue per worker to wages: 0.10, inside the 0.05–0.15 range of the rent-sharing literature

Log-additive rent sharing (Card et al., 2018; Lamadon et al., 2022)

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Equilibrium

A **stationary equilibrium** is a set of operating firms, firm policies, stocks, wages and fill rates such that

1. **Managers choose to operate** if $\bar{\pi}_j + \zeta_j \geq w_j^o$
   expected profit, operating cost, taste for ownership, outside option
2. **Firms hire and share optimally**, taking wages and fill rates as given
3. **Workers optimize**: participate, choose a firm, quit
4. **Stocks are stationary**: $N_j = h_j \bar{T}_j$, with hires $h_j = \lambda_e m_j$
5. **Wages** follow the wage rule; μ_ω clears each type's market: $\sum_{j \in S} \alpha_\omega^N N_j = N_\omega^m$
6. **Fill rates ration the sharing market**:

$$\lambda_b = \min\left\{1, \frac{D_s}{D_b}\right\}, \quad \lambda_s = \min\left\{1, \frac{D_b}{D_s}\right\}, \qquad D_b = q \sum_j \ell_{b,j}^*, \;\; D_s = (1-q) \sum_j |\ell_{s,j}^*|$$

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What sharing does

1. **Hiring:** firms that expect to lend hire more, since idle labor earns c_s when slow; firms that expect to borrow hire less and buy labor when busy
   Holding wages and fill rates fixed
2. **Entry:** a firm can always stay out of the sharing market, so profits rise weakly and weakly more firms operate
   Holding wages and fill rates fixed
3. **Allocation:** each trade moves a skilled worker from a slow firm to a busy one, where the marginal product is higher
   Holding firms and headcounts fixed, letting the sharing market adjust

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Who borrows and who lends?

	All firms			Firms that share		
	Borrowed	Lent	Net	Borrowed	Lent	Net
Panel A. Management score						
Management score (z)	0.329**	0.395**	−0.065	0.323	0.499*	−0.176
	(0.162)	(0.177)	(0.170)	(0.216)	(0.257)	(0.219)
Observations	503	503	503	360	360	360
Panel B. Revenue per worker						
Log revenue per own worker (z)	0.301**	−0.295	0.596*	0.454***	−0.391	0.845**
	(0.130)	(0.364)	(0.299)	(0.140)	(0.462)	(0.386)
Observations	453	453	453	327	327	327
Mean of dep. var.	2.060	1.803	0.256	2.811	2.447	0.364

Distinct workers borrowed, lent, or net borrowed in the past 3 months; coefficients per 1 SD of the regressor. Parish × industry FE; controls for Pr(busy), Pr(quiet) and respondent type. Wild-cluster bootstrap SEs by market. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

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Quits

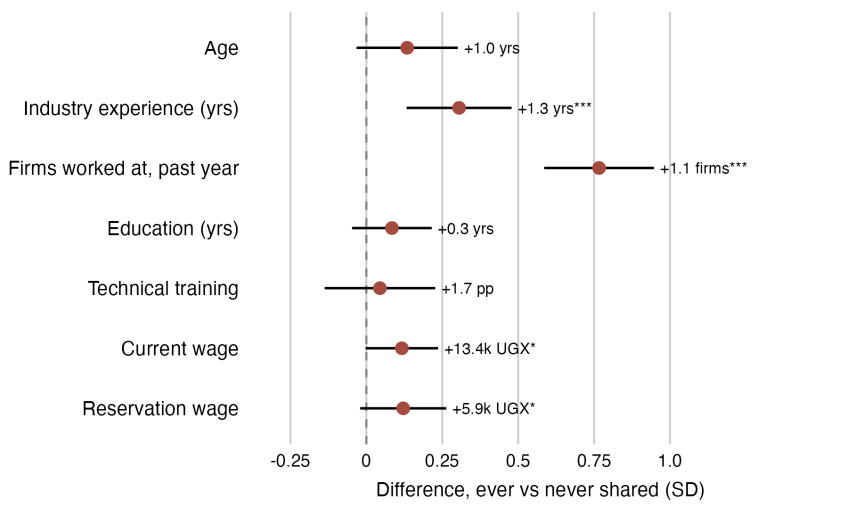
Workers stay unless an outside offer, arriving at rate λ_o, pays more than the current wage

$$\underbrace{\delta_{\omega,j}}_{\text{quit rate}} = \underbrace{\delta_{0,\omega}}_{\text{base quit rate}} \left(\underbrace{w_{\omega,j}/W_{\omega}}_{\text{wage relative to market wage for the type}} \right)^{-\varepsilon_s}$$

ε_s: quits fall with pay

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Who gets shared? Ever vs never shared workers



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Moment definitions: Firm size

Moment	Definition	Data
Mean log firm size	Log of mean headcount across firms, winsorized at the 1st/99th percentiles	1.17
SD of log firm size	Cross-firm SD of log headcount, winsorized at the 1st/99th percentiles	0.44
Log size on management score	Slope of log headcount on the standardized management index	0.069

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Moment definitions: Revenue and demand

Moment	Definition	Data
Mean log monthly revenue	Mean log monthly revenue, weighting busy, normal and slow months by their reported shares	15.37
Busy to other-month revenue	Mean busy-month revenue over the share-weighted mean of normal and slow months	3.05
SD of log revenue per worker	Cross-firm SD of log normal-month revenue per worker present	0.88

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Moment definitions: Wage levels

Moment	Definition	Data
Log mean skilled wage	Log of mean weekly wage of skilled workers, net of self-employment income	5.07
Log mean less-skilled wage	Same, for less-skilled workers	4.82
Log mean wage, owner-reported	Log of the firm-mean weekly pay owners report for listed workers, winsorized	4.68

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Moment definitions: Wage dispersion

Moment	Definition	Data
Between-firm SD of log wages	SD of worker log-wage residuals net of age, experience, education, skill and task	0.38
Revenue pass-through	Elasticity of the piece rate to expected revenue per worker, within task, worker type and parish $\times$ industry	0.10
Firm wage on log size	Slope of the firm-mean log wage on log size, within parish $\times$ industry	0.030
Firm wage on management score	Slope of the firm-mean log weekly wage on the standardized management index	0.032

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Moment definitions: Turnover and tenure

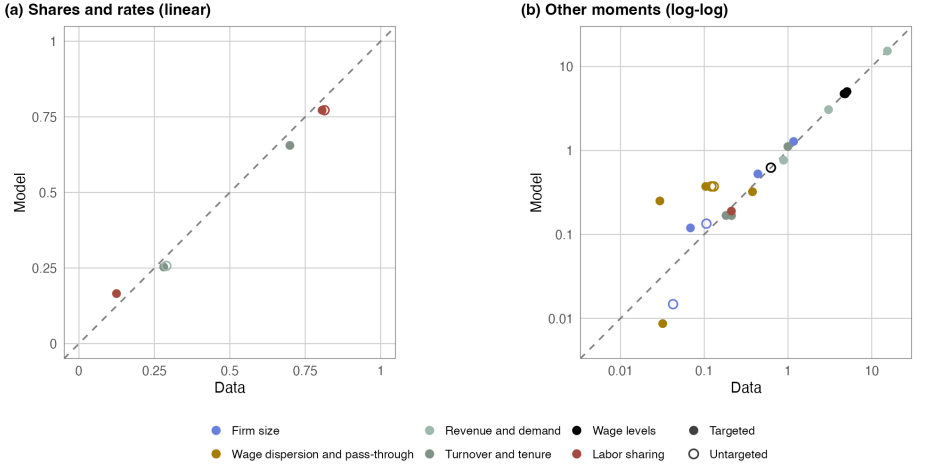
Moment	Definition	Data
Annual separation rate	Inverse of employment-weighted mean tenure, annualized	0.28
Log tenure ratio, skilled to less-skilled	Log of mean current-job tenure, skilled over less-skilled	1.00
Tenure on wage, skilled	Elasticity of current-job tenure to the weekly wage, skilled workers	0.21
Tenure on wage, less-skilled	Same, for less-skilled workers	0.18
Mean skilled share	Firm mean of the share of workers the owner rates as skilled	0.70

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Moment definitions: Labor sharing

Moment	Definition	Data
Share of listed workers borrowed	Firm mean share of listed workers currently borrowed from another firm	0.12
Borrowing on management score	Slope of asinh(workers borrowed in the past 3 months) on the management index	0.21
Pool fill rate	Firm mean share of attempts to hire from another workshop that succeeded in the past 3 months	0.81

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(a) Shares and rates (linear)
Model
Data
0
0.25
0.5
0.75
1
(b) Other moments (log-log)
Model
Data
0.01
0.1
1
10
Firm size
Wage dispersion and pass-through
Revenue and demand
Turnover and tenure
Wage levels
Labor sharing
Targeted
Untargeted

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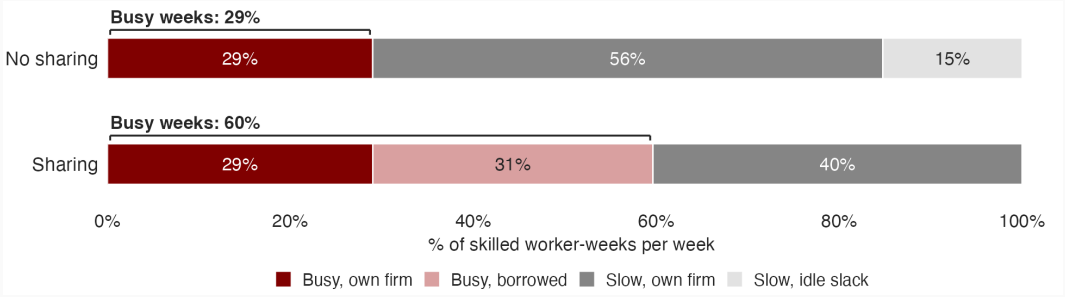
Untargeted moments

Moment	Data	(SE)	Model
Median reservation wage relative to wage	0.625	(0.061)	0.624
Log revenue on management score	0.106	(0.065)	0.134
Log revenue per worker on management score	0.042	(0.064)	0.015
Median labor share of revenue	0.290	(0.030)	0.257
Pool fill rate, pooled ratio	0.814	(0.030)	0.772

None of these moments is targeted in estimation. Model values at the current estimate.

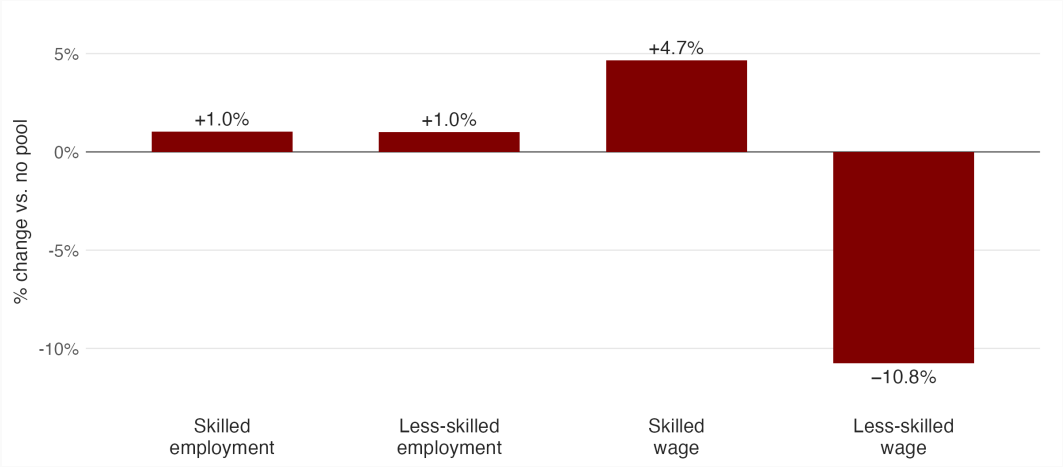
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Sharing improves allocative efficiency



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Gains concentrate among skilled workers



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Firm choice experiment 1 (hiring): attributes and levels

Attribute	Levels
Weekly wage (000s UGX/week)	80, 120, 150, 200, 250
Hiring source	[Walk-in], Friend referral, Employee referral, From other nearby workshops
Experience (years)	2, 4, 6
Supervision (hrs/day)	0, 1, 2
Technical certificate	[No certification], Has certificate

[] = base level. Six tasks per experiment; two profiles plus "neither".

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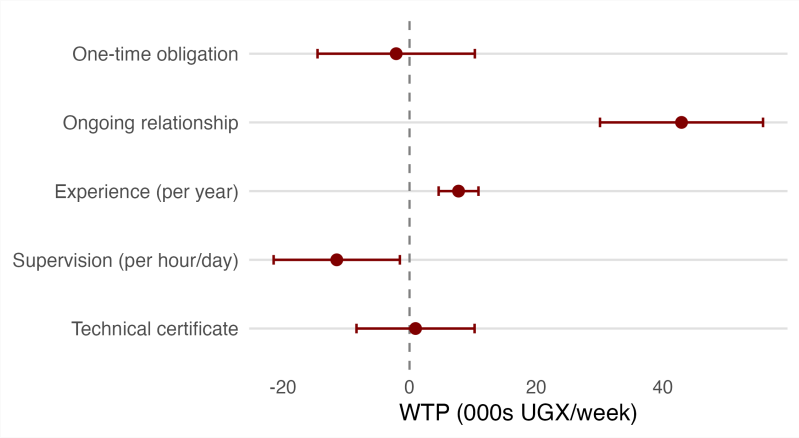
Firm choice experiment 2 (borrowing a shared worker): attributes and levels

Attribute	Levels
Weekly wage (000s UGX/week)	80, 120, 150, 200, 250
Experience (years)	2, 4, 6
Supervision (hrs/day)	0, 1, 2
Technical certificate	[No certification], Has certificate
Reciprocity terms	[No relationship], Must lend once, Ongoing relationship

[] = base level. Six tasks per experiment; two profiles plus "neither".

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Borrowing experiment: results



Attributes and levels

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Firm choice experiment 3 (lending): attributes and levels

Attribute	Levels
Lending fee (000s UGX/week)	10, 30, 55, 80, 120
Reciprocity terms	[No relationship], Can borrow once in the future, Ongoing relationship
Recall right	[Cannot recall], Can recall
Borrower location	[Within cluster], Within parish, Different parish (same division)
Demand state	Slow, Normal, Busy (scenario)

[] = base level. Six tasks per experiment; two profiles plus "neither".

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Lending experiment: what lenders receive

- Owners choose whether to lend a worker; offers vary the lending fee, reciprocity terms, recall right, borrower location, and demand state
- What lenders receive: the fee-equivalent of an ongoing sharing relationship, in slow-week tasks

$$c_s \;=\; \frac{\beta_{\text{ongoing}}}{\partial U / \partial \,\text{fee}} \;\approx\; 13.9\text{k UGX/wk} \quad \text{(SE 2.9)}$$

$$\tau \;=\; (c_s + \tau) - c_s \;\approx\; 29.4\text{k} - 13.9\text{k} \;\approx\; 15.4\text{k UGX/wk}$$

- Reading c_s as weekly pay assumes the lender's value of the ongoing relationship is what lending earns per week

Attributes and levels

◂ Back

Worker choice experiment: attributes and levels

Attribute	Levels
Weekly wage (000s UGX/week)	40, 60, 100, 150, 200, 250
Contract duration	1 week, 2 weeks, 1 month
Location	[Within cluster], Within parish, Different parish
Relationship to firm	[No connection], Know a worker there, Know the owner, Sent by current firm owner (referral)
Split time between firms	[Full-time at one firm], Split time / moves between firms
Self-employment permission	[Cannot work own orders], Can work own orders during idle time

[] = base level. Six tasks; two job offers plus "neither".

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The firm survey

I survey $N = 515$ firms in carpentry and metalworking:

1. **Firm characteristics**
2. **Worker listing**
3. **Owner beliefs**
   - Beliefs by source on: quality, screening time, risks, supervision costs (Delavande et al., 2011)
4. **Network relationships**
   - Maps the sharing network; prevalence and use
5. **Demand states**
   - Measure demand variation following Barker et al. (2025)
6. **Managerial skill**
   - Do better managers share differently? (McKenzie & Woodruff, 2017)
7. **Choice Experiment, hiring & lending**
   - Prices sharing costs, attributes of sharing agreements (Mas & Pallais, 2017)

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The worker survey

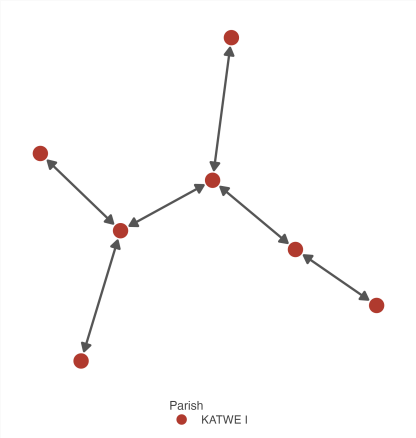
Across the surveyed firms, I survey $N = 1,001$ workers:

1. **Demographics**
2. **Employment history**
   - Document up to 3 most recent job stints
   - Hiring channel, wages, tasks
3. **Time use, search, self-employment**
   - Day-by-day diary of work at the firm (Arthi et al., 2018)
4. **Job offer choice experiment**
   - Choices among job offers with varying pay and features (Mas & Pallais, 2017)
     $\rightarrow$ Labor supply elasticity and reservation wages
5. **Skill assessment**
   - Practical test of industry-relevant knowledge and numeracy skills

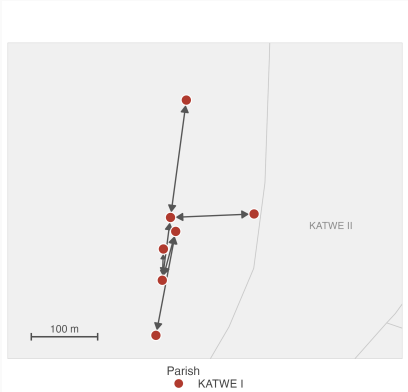
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Example sharing cluster (metalworking)

Sharing ties



On the map



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References i

Alfonsi, L., Bandiera, O., Bassi, V., Burgess, R., Rasul, I., Sulaiman, M., & Vitali, A. (2020).**Tackling youth unemployment: Evidence from a labor market experiment in uganda.** *Econometrica*, *88*(6), 2369–2414. https://doi.org/10.3982/ECTA15959

Arthi, V., Beegle, K., De Weerdt, J., & Palacios-López, A. (2018).**Not your average job: Measuring farm labor in tanzania.** *Journal of Development Economics*, *130*, 160–172. https://doi.org/10.1016/j.jdeveco.2017.10.005

Barker, N., Amit, I., Andrew, A., Garlick, R., Orkin, K., & Nekesa, C. (2025).**Flexibility versus performance: The determinants of labor contracts in nairobi, kenya.** *Working Paper*.

Bassi, V., Muoio, R., Porzio, T., Sen, R., & Tugume, E. (2022).**Achieving scale collectively.** *Econometrica*, *90*(6), 2937–2978. https://doi.org/10.3982/ECTA18773

Bassi, V., & Nansamba, A. (2022).**Screening and signalling non-cognitive skills: Experimental evidence from uganda.** *The Economic Journal*, *132*(642), 471–511. https://doi.org/10.1093/ej/ueab071

Beaman, L., & Magruder, J. (2012).**Who gets the job referral? evidence from a social networks experiment.** *American Economic Review*, *102*(7), 3574–3593. https://doi.org/10.1257/aer.102.7.3574

Bertrand, M., Hsieh, C.-T., & Tsivanidis, N. (2025).**Contract labor and establishment growth in india.** *Econometrica*, *93*(4), 1411–1448. https://doi.org/10.3982/ECTA20046

References ii

Cai, J., & Szeidl, A. (2018).**Interfirm relationships and business performance.** *The Quarterly Journal of Economics*, *133*(3), 1229–1282. https://doi.org/10.1093/qje/qjx049

Card, D., Cardoso, A. R., Heining, J., & Kline, P. (2018).**Firms and labor market inequality: Evidence and some theory.** *Journal of Labor Economics*, *36*, S13–S70. https://doi.org/10.1086/694153

Carranza, E., & McKenzie, D. (2024).**Job training and job search assistance policies in developing countries.** *Journal of Economic Perspectives*, *38*(1), 221–244. https://doi.org/10.1257/jep.38.1.221

Delavande, A., Giné, X., & McKenzie, D. (2011).**Measuring subjective expectations in developing countries: A critical review and new evidence.** *Journal of Development Economics*, *94*(2), 151–163. https://doi.org/10.1016/j.jdeveco.2010.01.008

Dustmann, C., Glitz, A., Schönberg, U., & Brücker, H. (2016).**Referral-based job search networks.** *The Review of Economic Studies*, *83*(2), 514–546. https://doi.org/10.1093/restud/rdv045

Hall, R. E. (2005).**Employment fluctuations with equilibrium wage stickiness.** *American Economic Review*, *95*(1), 50–65. https://doi.org/10.1257/0002828053828482

Hardy, M., Kim, S., McCasland, J., Menzel, A., & Witte, M. (2024).**Allocating labor across small firms: Experimental evidence on information constraints.** *Journal of Development Economics*, *171*, 103345. https://doi.org/10.1016/j.jdeveco.2024.103345

References iii

Hardy, M., & McCasland, J. (2023).**Are small firms labor constrained? experimental evidence from ghana.** *American Economic Journal: Applied Economics*, *15*(2), 253–284. https://doi.org/10.1257/app.20200503

Heath, R. (2018).**Why do firms hire using referrals? evidence from bangladeshi garment factories.** *Journal of Political Economy*, *126*(4), 1691–1746. https://doi.org/10.1086/697903

Hsieh, C.-T., & Klenow, P. J. (2009).**Misallocation and manufacturing TFP in china and india*.** *Quarterly Journal of Economics*, *124*(4), 1403–1448. https://doi.org/10.1162/qjec.2009.124.4.1403

Lamadon, T., Mogstad, M., & Setzler, B. (2022).**Imperfect competition, compensating differentials, and rent sharing in the US labor market.** *American Economic Review*, *112*(1), 169–212. https://doi.org/10.1257/aer.20190790

Mas, A., & Pallais, A. (2017).**Valuing alternative work arrangements.** *American Economic Review*, *107*(12), 3722–3759. https://doi.org/10.1257/aer.20161500

McKenzie, D., & Woodruff, C. (2017).**Business practices in small firms in developing countries.** *Management Science*, *63*(9), 2967–2981. https://doi.org/10.1287/mnsc.2016.2492

Sokolova, A., & Sorensen, T. (2021).**Monopsony in labor markets: A meta-analysis.** *ILR Review*, *74*(1), 27–55. https://doi.org/10.1177/0019793920965562