Does Poverty Lower Productivity?

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Poverty and Attentional Load

• Idea: poverty has adverse psychological effects
  – Financial vulnerability imposes mental tax

• Links between poverty and cognition/decision-making
  – Mullainathan Shafir (2013); Haushofer Fehr (2014); Mani et al. (2013); Chemin et al. (2013); Carvalho et al. (2016)
  – Existing evidence: lab measures (e.g. Ravens)

• Test for effects on field behavior: productivity
  – If cognitive effects matter, may expect them to show up here
How worried are you about your finances?

N=352 rural workers, Odisha, India. Data collected by authors.
This Paper

- Field experiment with low income manufacturing workers
- Test for direct relationship between financial constraints and productivity
- Mechanism? Test for attentional (cognitive) constraints as contributing mechanism
Design: Key Ingredients

- Setting: Cognitive load has potential to affect productivity and earnings

- Core test: Do financial constraints affect productivity?

- Mechanism: Role of changes in cognition?
Setting

• Low-skill manufacturing
  – Infrastructure from Breza, Kaur, Shamdasani (2018)
  – Disposable plates: constructed by stitching together sal leaves
  – Partner with local contractors (set training and quality standards), output sold in local wholesale market

• Workers employed full-time over 2 weeks
  – Seasonal contract jobs (common during agricultural lean seasons)
  – Primary source of earnings

• Piece rates for production
  – Flat base wage for attendance + piece rate
Making Disposable Plates
Design: Key Ingredients

• Setting: Cognitive load has potential to affect productivity and earnings

• Core test: Do financial constraints affect productivity?
  – Exogenously induced reduction in financial constraints (via timing of earnings payout)
  – Varies constraints, holding fixed other components of wealth

• Mechanism: Role of changes in cognition?
Cash Treatment

- Payments in evenings (only for amount earned till date)
- Build trust with day 1 payment
- Residual earnings paid on final day
Cash Effects on Productivity

- Cash payment should relieve financial stress
  - Amounts to almost a month’s worth of wage earnings
  - Within two days after pay, 58% of the early cash group pays off loans (18% for the late cash group)

- The hourly output of the early cash group increases by 5% more after pay, compared to the late pay group (p<0.05)

- In particular, the positive effect of cash is concentrated in those participants with lower wealth measures
Cash Effects by Wealth

Notes: N=22,470 worker-hours. Round*workhour, calendar hour, and experience day fixed effects. Standard errors clustered by worker.
Design: Key Ingredients

• Setting: Cognitive load has potential to affect productivity and earnings

• Core test: Do financial constraints affect productivity?

• Mechanism: Role of changes in cognition?
  – Measure attentional mistakes in production
  – Induce focus on finances through salience exercise
Attentional Mistakes

• Cognitively demanding production task

• Measure 3 markers of attentional errors
  1. Number of “double holes” (re-doing work due to an error)
  2. Number of leaves (doing more work than you need to)
  3. Number of stitches (doing more work than you need to)

• Findings
  – Early cash group makes fewer mistakes during the treatment period (0.1 std. dev. effect, p<0.05)
  – These effects also driven by those with lower wealth
Cash Effects on Attention

Notes: N=15,227 worker-hours. Round*workhour, calendar hour, and experience day fixed effects. Standard errors clustered by worker.
Design: Key Ingredients

• Setting: Cognitive load has potential to affect productivity and earnings

• Core test: Do financial constraints affect productivity?

• Mechanism: Role of changes in cognition?
  – Measure attentional mistakes in production
  – Induce focus on finances through salience exercise
Financial Salience

• Make worker finances salient: vignette and loan discussions

• Conceptually, 2 competing effects
  – Positive motivational effect: perceived return to effort higher (e.g. Karlan et al. 2016) \(\rightarrow\) increase output
  – Negative cognition effect: increased focus on financial worries \(\rightarrow\) decrease output

• Challenges
  – Could be potentially non-monotonic
  – What specifically is being “primed”: loans?
  – Fickleness of instrument (e.g. Kahneman 2012)
Financial Salience

• Design
  – Use variation in cash drops: salience before or after cash drop
  – Prediction: negative cognition effects larger before cash drop

• Implementation
  – At conclusion of salience discussions, worker is asked:
    “Suppose you needed to come up with a large amount for an emergency. How would you obtain the funds?”

• Findings
  – Overall positive effect on output with increases in mistakes
    • Motivational effect appears to dominate
  – Productivity increases concentrated fully in post-cash period
    • Attentional outcomes noisy and only suggestive
Conclusion

- Direct relationship between the experience of financial constraints and productivity

- Suggests that poverty itself may be detrimental for earnings

- Evidence for cognition as one mediating mechanism
  - Increases in productivity spurred through reductions in attentional errors
  - Supportive but only suggestive evidence from salience