

Revealing Soft Skills in the Labor Market: Experimental Evidence from Uganda

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- Matching the right skills to the right jobs is important for productivity
- Efficiency of the match relies on information on skills
 - Lack of info on skills → misallocation of labor → lower productivity
 - Particularly relevant in developing countries
- This paper: **productivity** impacts of a new **credible signal** on worker skills

- **Two-sided labor market experiment** in Uganda
 - 1 Schedule job interviews between young workers and small firms
 - 2 Experimental variation: symmetric disclosure of **new certificate** on **soft skills**
- Design allows to study impact of the signal on:
 - 1 Beliefs of **managers** on the skills of workers
 - 2 Beliefs of **workers** on their outside options
 - 3 **Employment** and **wages** in the two years post-intervention
- Two-sided design and beliefs analysis key for productivity interpretation
 - Rent-sharing vs productivity
 - Search direction/intensity vs productivity

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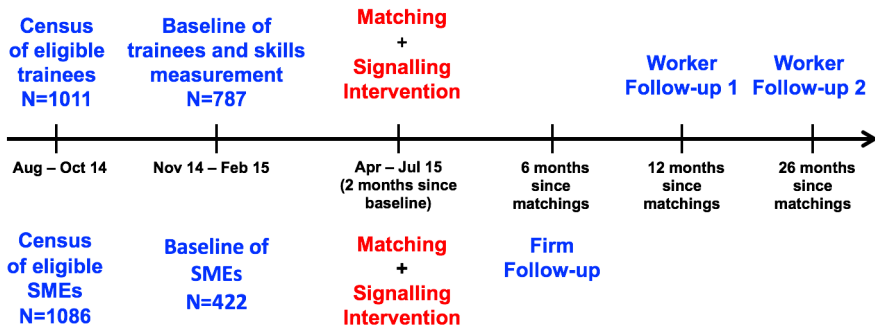
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Contribution to Related Literatures

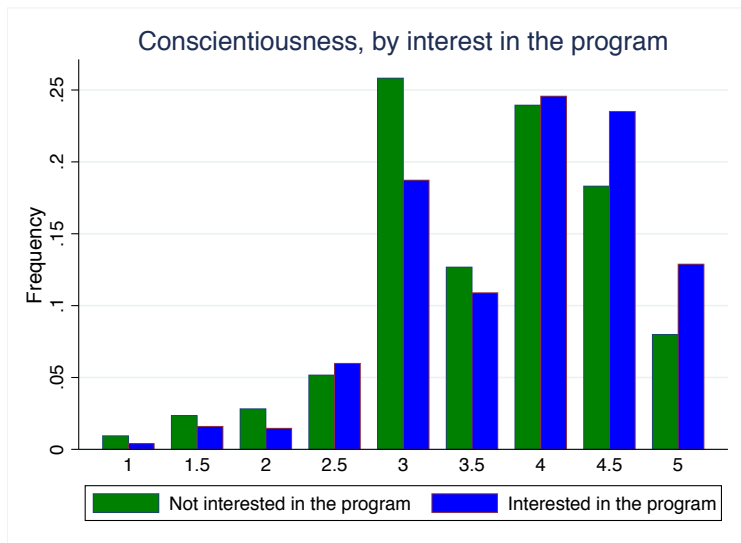
- 1 Labor market frictions and employment outcomes in developing countries [Abebe et al 2017; Abel et al 2017; Alfonsi et al 2017; Hardy and McCasland 2017]
 - Isolate **productivity** impacts of new information
 - Two-sided design, long-term experimental study
- 2 Observable worker ratings/experience in online labor markets [Pallais 2014, Stanton and Thomas 2015, Agrawal et al 2016]
 - Richer set of outcomes including beliefs to get at **mechanisms**
 - Extension to **informal labor markets** with face-to-face job interviews
- 3 Job-testing at recruitment [Autor and Scarborough 2008; Hoffman et al 2017]
 - Symmetric information revelation → study how **workers** respond to info
 - Job testing vs **certification policies**

Timeline

WORKERS



Trainees Positively Selected on Soft Skills



Do Soft Skills Matter in SMEs?

- **Soft skills** reported as **important** but **difficult to observe** by SMEs
 - Stealing is a major concern for managers
- Soft skills perceived as **scarcer** than practical skills
- **Heterogeneity** among managers
 - Variation in **cognitive skills** of managers
 - Cognitive skills predict profits and perceived returns to soft skills

Figure

Figure

Figure

Cogs

Table

Skills Measurement and Information Revelation

- Focus skills measurements on **five soft skills**
 - Trustworthiness, creativity, communication, pro-sociality, attendance
 - Teacher surveys and self-reported assessments at VTIs
- Create **certificates** with absolute grades on the five skills
 - Grades positively correlated to Big 5 traits
 - Information is **credible**

Ranks

Grades

Correlation

Example

Experimental Design

SMEs
(422)

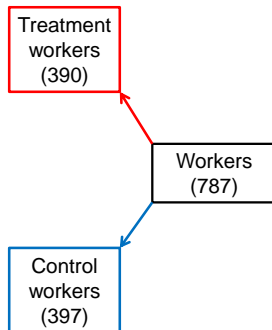
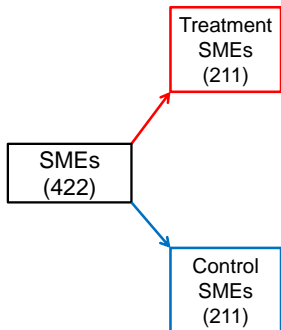
Workers
(787)

Firm balance

Worker balance

Match balance

Experimental Design

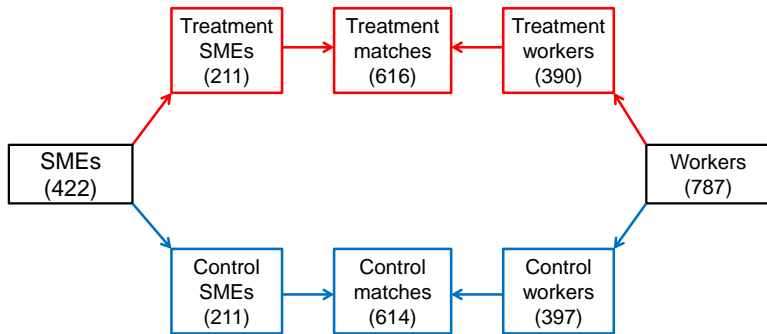


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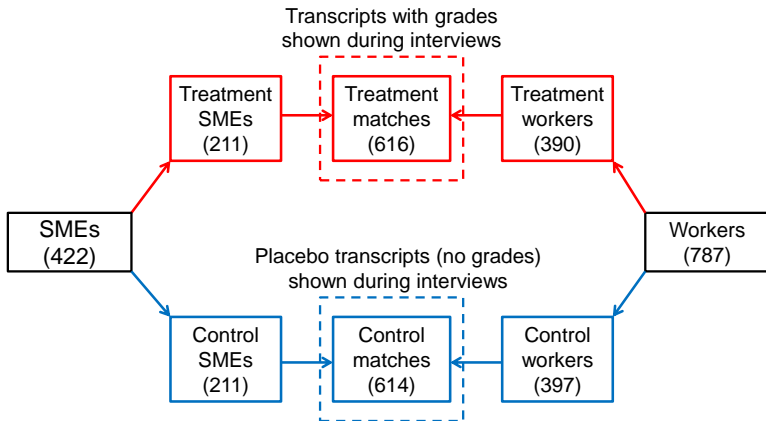


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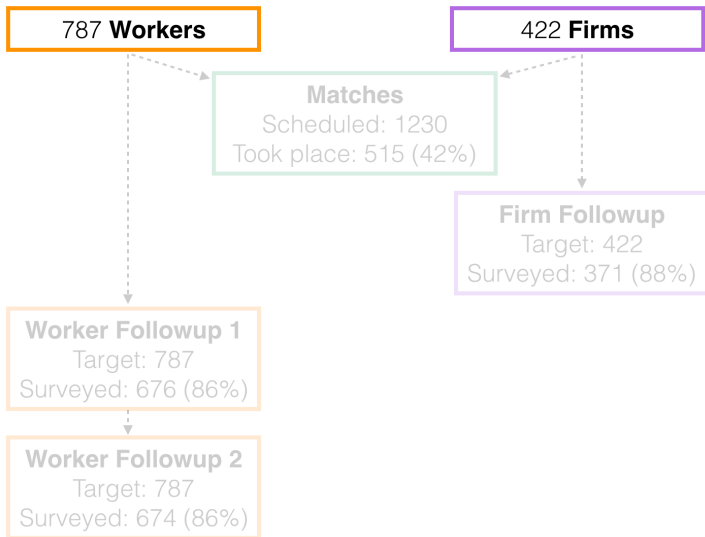


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Compliance and Attrition



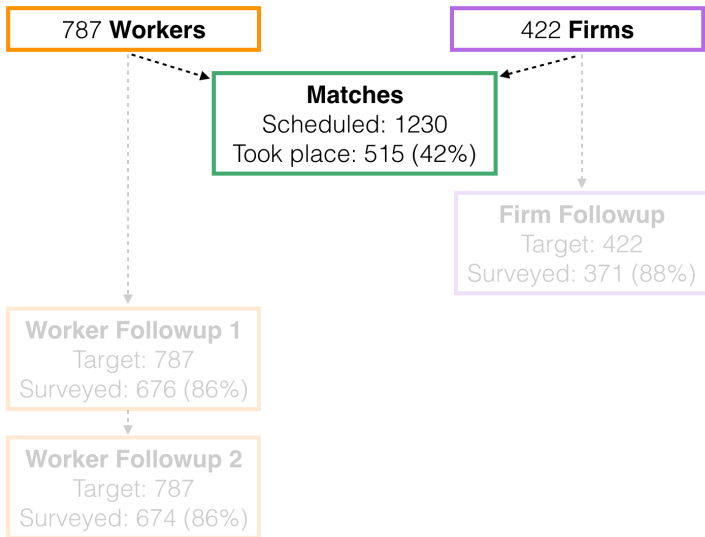
No selective attrition or compliance

Balance at followup - workers

Balance at followup - firms

Balance conditional on meeting - match

Compliance and Attrition



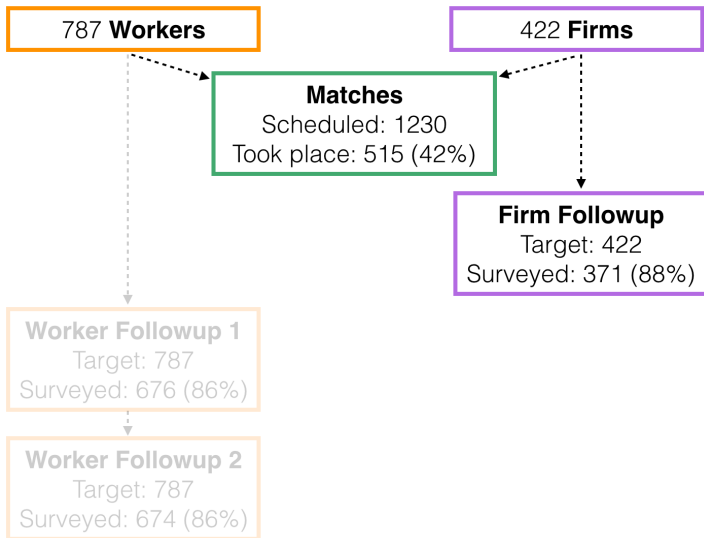
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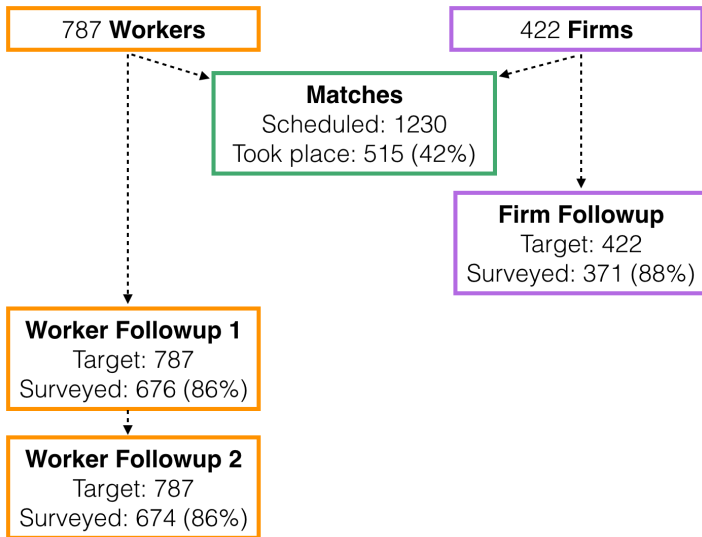
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Main Regression Specifications

- For the **match-level analysis**, estimate by OLS:

$$y_{ij} = \beta_0 + \beta_1 \text{Treat}_{ij} + \theta' \text{Controls}_{ij} + \nu_{ij} \quad (1)$$

- Two-way clustering of standard errors [Cameron et al 2011]
 - Estimation sample: all matches that took place (42%)
 - Estimates of β_1 recover **ATE** parameter for population that meets
- For the followup **worker-level analysis**, estimate by OLS, for $t = 1, 2$:

$$y_{it} = \beta_0 + \beta_1 \text{Treat}_i + \beta_2 y_{i0} + \delta \mathbb{1}_{\{t=2\}} + \theta' \text{Controls}_i + \nu_{it} \quad (2)$$

- Robust standard errors
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Do Firm Owners Update their Beliefs?

$$y_{ij} = \beta_0 + \beta_1 \text{Treat}_{ij} + \theta' \text{Controls}_{ij} + \nu_{ij}$$

Dependent variable: **Matched worker reported as MORE SKILLED than usual applicant [Yes=1]**

Sample of firm owners:	All	High Ability Owners	Low Ability Owners	P-value (2) = (3)	High Ability Owners	Low Ability Owners	P-value (5) = (6)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Treatment	.001 (.025)	.105** (.045)	-.040 (.045)	[.036]			
Fail grade on at least one skill X Treatment					.072 (.050)	-.026 (.065)	[.267]
Pass grade on all skills X Treatment					.174** (.072)	-.064 (.065)	[.015]
Mean of dep. var. in Control group	.097	.079	.115		.079	.115	
P-value Fail = Pass					[.194]	[.699]	
Number of observations (matches)	515	232	222		232	222	

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BELIEFS related to outside options

	Monthly expected earnings from triangular distribution [USD]	Expected probability of employment in the next six months (0 to 10 scale)	Expected bargaining over wages (standardized index)	Ideal job is in large firm [Yes=1]
	(1)	(2)	(3)	(4)
Treatment	7.93*** (2.76)	.283** (.114)	.231* (.131)	.067** (.033)
Mean of dep. var. in Control group	122.1	5.53	0	.624
Controls for baseline value of outcome	Yes	Yes	Yes	No
Uses data from first followup	Yes	Yes	No	No
Uses data from second followup	Yes	Yes	Yes	Yes
Number of observations	1,326	1,349	663	668

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BEHAVIOR related to outside options

	Any casual work in the last week	Looked for a job in the public or ngo sector in the last year	Looked for a job in the last year
	(1)	(2)	(3)
Treatment	-.052** (.024)	.104*** (.036)	-.018 (.024)
Mean of dep. var. in Control group	.323	.268	.749
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- Reaction due to improved perceived ability to signal skills

Reason Heterogeneous

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Do **firms** update their **beliefs**?

- **High ability** owners update positively their assessment of matched workers
 - Consistent with positive worker selection and low priors on skills

Do **workers** update their **beliefs**?

- Positive revision of outside options
 - Due to improved ability to signal skills

What is the impact of the intervention on **employment** and **wages**?

- **Theoretical framework** to link updating to employment and wage outcomes
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Impacts on Employment: Summary

- **Short-run:** some evidence of employment impacts at matched firms
 - Increase in employment for workers matched to high ability managers
 - No impact for workers matched to low ability managers
- **Long-run:** no significant impact on employment outcomes
 - No impact on probability of wage employment and hours worked
 - No impact on probability of working in a large firm or public/ngo sector

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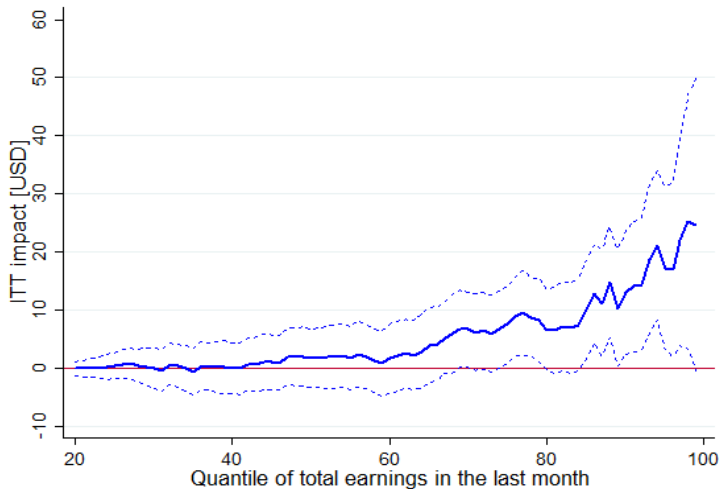
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Impacts on Earnings: Long-Run Evidence

$$y_{it} = \beta_0 + \beta_1 \text{Treat}_i + \beta_2 y_{i0} + \delta \mathbb{1}_{\{t=2\}} + \theta' \text{Controls}_i + \nu_{it}$$

Dependent variable:	Any paid work in the last month	Total earnings in the last month [USD]				
	Sample of workers:	All, OLS	All, OLS	All, Q(25)	All, Q(50)	All, Q(75)
	(1)	(2)	(3)	(4)	(5)	(6)
Treatment	-.014 (.024)	3.78 (2.89)	.454 (1.36)	1.69 (3.03)	7.59* (4.11)	7.17** (3.23)
Mean of dep. var. in Control group	.750	47.1	47.1	47.1	47.1	63.0
Controls for baseline value of outcome	Yes	Yes	Yes	Yes	Yes	Yes
Uses data from first followup	Yes	Yes	Yes	Yes	Yes	Yes
Uses data from second followup	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	1,338	1,329	1,329	1,329	1,329	988

Impacts on Earnings: Quantile Regression Evidence



Balance Conditional on Any Paid Work at Followup

	Control Workers (1)	Treatment Workers (2)	P-value (3)	Normalized Differences (4)
Number of observations	500	497		
A. Background characteristics at baseline				
Age [Years]	20.4 (2.24)	20.7 (2.76)	[.103]	-.084
Female	.459 (.499)	.464 (.499)	[.759]	-.007
Completed prior education [Years]	10.4 (1.77)	10.4 (1.70)	[.951]	.000
Course duration [Years]	1.54 (.879)	1.49 (.862)	[.557]	.041
Ever employed	.217 (.413)	.212 (.409)	[.816]	.009
Monthly expected earnings [USD]	126.1 (76.0)	123.4 (68.7)	[.662]	.026
B. Skills at baseline				
Attendance [1-5 scale]	3.35 (1.12)	3.33 (1.14)	[.975]	.013
Communication skills [1-5 scale]	3.20 (1.07)	3.27 (1.15)	[.186]	-.045
Creativity [1-5 scale]	3.43 (1.12)	3.48 (1.06)	[.220]	-.032
Trustworthiness [1-5 scale]	3.49 (.982)	3.50 (.959)	[.774]	-.007
Willingness to help others [1-5 scale]	3.34 (1.08)	3.30 (1.07)	[.840]	.026
Cognitive test score [0-10 scale]	5.37 (2.40)	5.21 (2.37)	[.281]	.047
F-test of joint significance	{.384}			

Impacts on Earnings: Long-Run Evidence

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- Recall: 7% impact on expected earnings

Why Are Certificates Not Provided in Equilibrium?

CBA

- Intervention is cost-effective for average participant worker
- There is substantial **demand** for certificates by program participants:
 - Average WTP for certificate in Control: \$18.6 (44% of monthly income)
 - Cost of certificate is \$19.1
- Provider must build up **reputation** of providing truthful information
 - BRAC is the largest NGO in the country
- VTIs might be worried about how this affects **enrolment decisions**
 - Not clear that providing certificates on soft skills is profit maximizing for VTIs

⇒ Potential role of the government in providing certificates

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Conclusion

- Study the impacts of revealing credible information on soft skills
 - Two-sided **labor market experiment** in Uganda
- Main results:
 - 1 Both firms and workers respond to new information in terms of **beliefs**
 - 2 11% increase in **earnings**, no change in employment
 - ⇒ Productivity effects of the certificates
- Results have **implications** for:
 - 1 Debate on labor market frictions and productivity in developing countries
 - 2 Labor market policies: certification policies vs job testing [Hoffman et al. 2017]