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

Vittorio Bassi\textsuperscript{1}  Aisha Nansamba\textsuperscript{2}

\textsuperscript{1}USC

\textsuperscript{2}BRAC NGO

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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 $\rightarrow$ misallocation of labor $\rightarrow$ lower productivity
- Particularly relevant in developing countries

This paper: productivity impacts of a new credible signal on worker skills.
Overview

- **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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  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
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
   - Richer set of outcomes including beliefs to get at mechanisms
   - Extension to informal labor markets with face-to-face job interviews

   - Symmetric information revelation → study how workers respond to info
   - Job testing vs certification policies
Timeline

**WORKERS**

- Census of eligible trainees N=1011
- Baseline of trainees and skills measurement N=787
- Matching + Signalling Intervention
- Worker Follow-up 1
- Worker Follow-up 2

<table>
<thead>
<tr>
<th>Event</th>
<th>Dates</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Census of eligible SMEs N=1086</td>
<td>Aug – Oct 14</td>
<td></td>
</tr>
<tr>
<td>Baseline of SMEs N=422</td>
<td>Nov 14 – Feb 15</td>
<td></td>
</tr>
<tr>
<td>Matching + Signalling Intervention</td>
<td>Apr – Jul 15 (2 months since baseline)</td>
<td></td>
</tr>
<tr>
<td>Firm Follow-up</td>
<td>6 months since matchings</td>
<td></td>
</tr>
<tr>
<td>Firm Follow-up</td>
<td>12 months since matchings</td>
<td></td>
</tr>
<tr>
<td>Firm Follow-up</td>
<td>26 months since matchings</td>
<td></td>
</tr>
</tbody>
</table>

**FIRMS**
Trainees Positively Selected on Soft Skills

Conscientiousness, by interest in the program

Not interested in the program
Interested in the program
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
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**
Experimental Design

SMEs (422)

Workers (787)

Firm balance
Worker balance
Match balance
Experimental Design

- **SMEs**: Treatment SMEs (211) vs. Control SMEs (211)
- **Workers**: Treatment workers (390) vs. Control workers (397)

**Balances**:
- Firm balance
- Worker balance
- Match balance
Experimental Design

SMEs (422)

Treatment SMEs (211) → Treatment matches (616) → Treatment workers (390)

Control SMEs (211) → Control matches (614) → Control workers (397)

SMEs (422)

Workers (787)
Experimental Design

Transcripts with grades shown during interviews

Treatment SMEs (211) → Treatment matches (616) → Treatment workers (390)

Placebo transcripts (no grades) shown during interviews

SMEs (422) → Control SMEs (211) → Control matches (614) → Control workers (397)

Workers (787)

Firm balance  Worker balance  Match balance
Compliance and Attrition

- **787 Workers**
  - **Matches**
    - Scheduled: 1230
    - Took place: 515 (42%)
  - **Worker Followup 1**
    - Target: 787
    - Surveyed: 676 (86%)
  - **Worker Followup 2**
    - Target: 787
    - Surveyed: 674 (86%)

- **422 Firms**
  - **Firm Followup**
    - Target: 422
    - Surveyed: 371 (88%)
Compliance and Attrition

787 Workers

Matches
Scheduled: 1230
Took place: 515 (42%)

422 Firms

Worker Followup 1
Target: 787
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Worker Followup 2
Target: 787
Surveyed: 674 (86%)

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No selective attrition or compliance
Balance at followup - workers
Balance at followup - firms
Balance conditional on meeting - match

Bassi (USC) and Nansamba (BRAC)
Revealing Soft Skills
May 10, 2018
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No selective attrition or compliance
Balance at followup - workers
Balance at followup - firms
Balance conditional on meeting - match
Main Regression Specifications

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

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

  - Two-way clustering of standard errors [Cameron et al 2011]
  - Estimation sample: all matches that took place (42%)
  - Estimates of $\beta_1$ recover ATE parameter for population that meets

- For the followup **worker-level analysis**, estimate by OLS, for $t = 1, 2$:

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

  - Robust standard errors
  - Estimation sample: all workers who do not attrit over the study period (86%)
  - Estimates of $\beta_1$ recover ITT parameter
Main Regression Specifications

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

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

(1)

- Two-way clustering of standard errors [Cameron et al 2011]
- Estimation sample: all matches that took place (42%)
- Estimates of \( \beta_1 \) recover ATE parameter for population that meets

For the followup **worker-level analysis**, estimate by OLS, for \( t = 1, 2 \):

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

(2)

- Robust standard errors
- Estimation sample: all workers who do not attrit over the study period (86%)
- Estimates of \( \beta_1 \) recover ITT parameter
Do Firm Owners Update their Beliefs?

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

### Table 4: Impacts on firm owner beliefs about matched workers - Selected sample

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

Notes: *** (**) (*) denotes significance at the 1% (5%) (10%) level. Results from the matching surveys are reported. Standard errors are adjusted for heteroskedasticity. All regressions control for stratification variables (dummies for region and sector) as well as for dummies for month of interview. In addition, all regressions control for the following worker characteristics measured at baseline: a dummy for whether the worker had a pass grade (C or above) on all five soft skills measured in the baseline assessments; age and age squared; dummy for female; years of formal education; duration (in years) of the vocational training program the worker was attending at baseline; dummy for any past work experience. All regressions also control for the following firm characteristics measured at baseline: dummy for female owner; age and age squared of the owner; dummy for whether owner attended a VTI in the past; number of employees. Firm owners who scored on or above the median on a cognitive test administered at baseline are assigned to the High Ability group; owners who scored below the median are assigned to the Low Ability group. In Column 1 the sample includes all matches that took place. In Columns 2 and 5 it is restricted to matches with High Ability firm owners that took place. In Columns 3 and 6 it is restricted to matches with Low Ability firm owners that took place. The p-values in Column 4 and 7 are from similar OLS regressions estimated on the full sample of matches that took place and where each independent variable is interacted with the High Ability owner dummy.
Do Firm Owners Update their Beliefs?

\[ y_{ij} = \beta_0 + \beta_1 \text{Fail}_i \times \text{Treat}_{ij} + \beta_2 \text{Pass}_i \times \text{Treat}_{ij} + \theta' \text{Controls}_{ij} + \nu_{ij} \]

<table>
<thead>
<tr>
<th>Dependent variable:</th>
<th>Matched worker reported as MORE SKILLED than usual applicant [Yes=1]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample of firm owners:</td>
<td>All</td>
</tr>
<tr>
<td>---------------------</td>
<td>----------------</td>
</tr>
<tr>
<td>Treatment</td>
<td>.001</td>
</tr>
<tr>
<td></td>
<td>(.025)</td>
</tr>
<tr>
<td>Fail grade on at least one skill X Treatment</td>
<td></td>
</tr>
<tr>
<td>Pass grade on all skills X Treatment</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean of dep. var. in Control group</td>
<td>.097</td>
</tr>
<tr>
<td>P-value Fail = Pass</td>
<td>[.194]</td>
</tr>
<tr>
<td>Number of observations (matches)</td>
<td>515</td>
</tr>
</tbody>
</table>
Do Workers Update their Outside Options?

\[ y_{it} = \beta_0 + \beta_1 TREAT_{it} + \beta_2 y_{i0} + \delta \mathbb{1}_{\{t=2\}} + \theta' Controls_i + \nu_{it} \]

### BELIEFS related to outside options

<table>
<thead>
<tr>
<th>Monthly expected earnings from triangular distribution [USD]</th>
<th>Expected probability of employment in the next six months (0 to 10 scale)</th>
<th>Expected bargaining over wages (standardized index)</th>
<th>Ideal job is in large firm [Yes=1]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.93***</td>
<td>.283**</td>
<td>.231*</td>
<td>.067**</td>
</tr>
<tr>
<td>(2.76)</td>
<td>(.114)</td>
<td>(.131)</td>
<td>(.033)</td>
</tr>
<tr>
<td>Mean of dep. var. in Control group</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>122.1</td>
<td>5.53</td>
<td>0</td>
<td>.624</td>
</tr>
<tr>
<td>Controls for baseline value of outcome</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Uses data from first followup</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Uses data from second followup</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Number of observations</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1,326</td>
<td>1,349</td>
<td>663</td>
<td>668</td>
</tr>
</tbody>
</table>
Do Workers Update their Outside Options?

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

<table>
<thead>
<tr>
<th>BEHAVIOR related to outside options</th>
<th>Any casual work in the last week</th>
<th>Looked for a job in the public or ngo sector in the last year</th>
<th>Looked for a job in the last year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment</td>
<td>-0.052** (0.024)</td>
<td>0.104*** (0.036)</td>
<td>-0.018 (0.024)</td>
</tr>
<tr>
<td>Mean of dep. var. in Control group</td>
<td>0.323</td>
<td>0.268</td>
<td>0.749</td>
</tr>
<tr>
<td>Controls for baseline value of outcome</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Uses data from first followup</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Uses data from second followup</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Number of observations</td>
<td>1,350</td>
<td>674</td>
<td>1,350</td>
</tr>
</tbody>
</table>

Notes: *** (**) (*) denotes significance at the 1% (5%) (10%) level. Results from the worker follow-up survey are reported. Standard errors are adjusted for heteroskedasticity. Worker controls (measured at baseline) include: dummy for female, age and age squared, dummy for any work experience, duration of VTI course, prior formal education level, dummies for the largest VTIs (3 dummies), dummy for whether the trainee scored on or above the median on a cognitive test. Match controls include: dummies for sector of match (5 dummies), dummies for region of match (3 dummies), month of first match dummies (2 dummies), number of firms assigned to be matched to the worker, dummy for whether the worker was not matched in the preferred urban area. Interview controls include: dummy for month of interview. The variable High Score takes value one if the worker ranked at the median or above on the first principal component of the five soft skills reported on the transcripts, and zero otherwise. The Low Score variable is defined as 1 - High Score. Firm owners that scored on or above the median on a cognitive test administered at baseline are assigned to the High Ability group; owners that scored below the median are assigned to the Low Ability group. In Columns 1, 5 and 9 the sample includes all workers. In Columns 2, 6 and 10 the sample is restricted to workers assigned to meet only High Ability owners. In Columns 3, 7 and 11 the sample is restricted to workers assigned to meet only Low Ability owners. The dependent variable in Columns 5-7 is the log of the average...
Do Workers Update their Outside Options?

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

### BEHAVIOR related to outside options

<table>
<thead>
<tr>
<th></th>
<th>Any casual work in the last week</th>
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<th>Looked for a job in the last year</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td></td>
</tr>
<tr>
<td>Treatment</td>
<td>-.052**</td>
<td>.104***</td>
<td>-.018</td>
</tr>
<tr>
<td></td>
<td>(.024)</td>
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<td>.749</td>
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<tr>
<td>Controls for baseline value of outcome</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Uses data from first followup</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Uses data from second followup</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Number of observations</td>
<td>1,350</td>
<td>674</td>
<td>1,350</td>
</tr>
</tbody>
</table>

Reaction due to improved perceived ability to signal skills

Reason

Heterogeneous
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
- Reduced form evidence on employment and wages
Do firms update their beliefs?

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What is the impact of the intervention on employment and wages?
- Theoretical framework to link updating to employment and wage outcomes
- Reduced form evidence on employment and wages
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
Impacts on Earnings: Long-Run Evidence

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

<table>
<thead>
<tr>
<th>Dependent variable:</th>
<th>Any paid work in the last month</th>
<th>Total earnings in the last month [USD]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample of workers:</td>
<td>All, OLS (1)</td>
<td>All, OLS (2) All, Q(25) (3) All, Q(50) (4) All, Q(75) (5) Positive earnings, OLS (6)</td>
</tr>
<tr>
<td>Treatment</td>
<td>-.014 (.024)</td>
<td>3.78 (2.89) .454 (1.36) 1.69 (3.03) 7.59* (4.11) 7.17** (3.23)</td>
</tr>
<tr>
<td>Mean of dep. var. in Control group</td>
<td>.750 47.1 47.1 47.1 47.1 63.0</td>
<td></td>
</tr>
<tr>
<td>Controls for baseline value of outcome</td>
<td>Yes Yes Yes Yes Yes Yes</td>
<td></td>
</tr>
<tr>
<td>Uses data from first followup</td>
<td>Yes Yes Yes Yes Yes Yes</td>
<td></td>
</tr>
<tr>
<td>Uses data from second followup</td>
<td>Yes Yes Yes Yes Yes Yes</td>
<td></td>
</tr>
<tr>
<td>Number of observations</td>
<td>1,338 1,329 1,329 1,329 1,329 988</td>
<td></td>
</tr>
</tbody>
</table>
Panel A reports the empirical CDF of total labor earnings from all activities in the month prior to the survey, by treatment group, and pooling all workers from both the first and second followup. Panel B reports quantile regression estimates of treatment effects on total labor earnings from all activities in the month prior to the survey. Standard errors are bootstrapped (with 600 replications) in these quantile regressions. The sample includes all workers from first and second followup. The regressions in Panel B control for stratification variables (dummies for region and sector), a dummy for second followup and dummies for month of interview. In addition, all regressions control for the following worker characteristics measured at baseline: a dummy for whether the worker had a pass grade (C or above) on all five soft skills measured in the baseline assessments and disclosed on the Treatment group certificates; age and age squared; dummy for female; years of formal education; duration (in years) of the vocational training program the worker was attending at baseline; dummy for any past work experience; expected earnings at baseline. Expected earnings are constructed as follows: respondents were asked to report: (i) their minimum expected earnings; (ii) their maximum expected earnings; (iii) the probability that they could earn at least the midpoint. We use this information to fit a triangular probability distribution of expected earnings for each respondent. All monetary amounts are deflated and expressed in terms of the price level in January 2015, using the monthly consumer price index published by the Uganda Bureau of Statistics. Deflated monetary amounts are then converted in January 2015 USD. The top 1% values of total earnings are excluded from both the analysis in Panel A and Panel B.
### Table A6: Worker balance at followup, conditional on positive earnings

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

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

<table>
<thead>
<tr>
<th>Dependent variable: Any paid work in the last month</th>
<th>Total earnings in the last month [USD]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample of workers: All, OLS (1)</td>
<td>All, OLS (2) All, Q(25) (3) All, Q(50) (4) All, Q(75) (5) Positive earnings, OLS (6)</td>
</tr>
<tr>
<td>Treatment</td>
<td>3.78 (.89) .454 (1.36) 1.69 (3.03) 7.59* (4.11) 7.17** (3.23)</td>
</tr>
<tr>
<td>Mean of dep. var. in Control group</td>
<td>.750 47.1 47.1 47.1 47.1 63.0</td>
</tr>
<tr>
<td>Controls for baseline value of outcome</td>
<td>Yes Yes Yes Yes Yes Yes</td>
</tr>
<tr>
<td>Uses data from first followup</td>
<td>Yes Yes Yes Yes Yes Yes</td>
</tr>
<tr>
<td>Uses data from second followup</td>
<td>Yes Yes Yes Yes Yes Yes</td>
</tr>
<tr>
<td>Number of observations</td>
<td>1,338 1,329 1,329 1,329 1,329 988</td>
</tr>
</tbody>
</table>

Notes:
- Number of observations
- Uses data from second followup
- Bootstrapped standard errors in parentheses in columns 3, 4 and 5
- Robust standard errors in parentheses in columns 1, 2 and 6
- Quantile regression coefficients in columns 3, 4 and 5
- OLS regression coefficients in columns 1, 2 and 6

Recall: 7% impact on expected earnings

Revealing Soft Skills
Why Are Certificates Not Provided in Equilibrium?

- 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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⇒ Potential role of the government in providing certificates
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]