Matching with the Right Attitude:
The Effect of Matching Firms with Refugee Workers

Francesco Loiacono

EBRD

Mariajose Silva-Vargas

JPAL

EEA-ESEM
Barcelona
August 29, 2023

Motivation and Question

- Pressing global question: how to integrate immigrants and refugees

Motivation and Question

- Pressing global question: how to integrate immigrants and refugees

- Why are workers from these groups poorly integrated in local labor markets?

Motivation and Question

- Pressing global question: how to integrate immigrants and refugees

- Why are workers from these groups poorly integrated in local labor markets?

    - Lack of human capital

Motivation and Question

- Pressing global question: how to integrate immigrants and refugees

- Why are workers from these groups poorly integrated in local labor markets?

  - Lack of human capital

  - Entry barriers

    - Incorrect beliefs

Motivation and Question

- Pressing global question: how to integrate immigrants and refugees

- Why are workers from these groups poorly integrated in local labor markets?

    - Lack of human capital

    - Entry barriers

        - Incorrect beliefs

        - Attitudes/prejudices

Motivation and Question

- Pressing global question: how to integrate immigrants and refugees

- Why are workers from these groups poorly integrated in local labor markets?

    - Lack of human capital

    - Entry barriers

        - Incorrect beliefs

        - Attitudes/prejudices

  $\rightarrow$ Possible solution: facilitate employers' learning (e.g. exposure by working together for a short period of time)

Motivation and Question

- Pressing global question: how to integrate immigrants and refugees

- Why are workers from these groups poorly integrated in local labor markets?

    - Lack of human capital

    - Entry barriers

        - Incorrect beliefs

        - Attitudes/prejudices

  $\rightarrow$ Possible solution: facilitate employers' learning (e.g. exposure by working together for a short period of time)

  Does exposure to a refugee increase local employers' hiring of refugees?
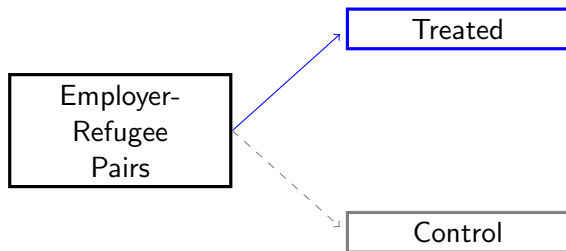
Refugees

- A large disadvantaged group in many societies

- Unemployment rates higher than natives and other migrants

- Cost: human capital, political, economic

- Forced displacement lasting for many years: investing in their integration as a policy tool

This study

- Randomized experiment in Uganda, *one of the largest* refugee-host country in the world and *largest* in Africa

    - Refugee workers with employable skills

    - Micro and small firms active in urban markets where refugees' skills can be employed

This study

- Randomized experiment in Uganda, *one of the largest* refugee-host country in the world and *largest* in Africa

    - Refugee workers with employable skills

    - Micro and small firms active in urban markets where refugees' skills can be employed

- Treated employers: internship to one refugee for one week. Control employers: no meeting with the refugee worker
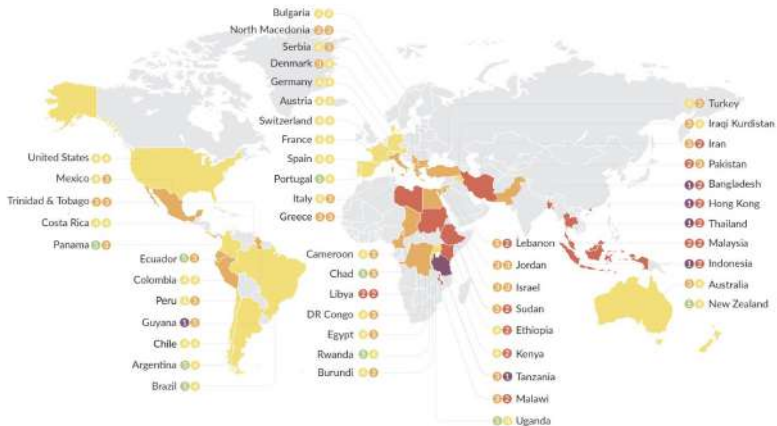
Context

Refugees' origin

Source: UNHCR 2022

Policy support globally, de jure and de facto

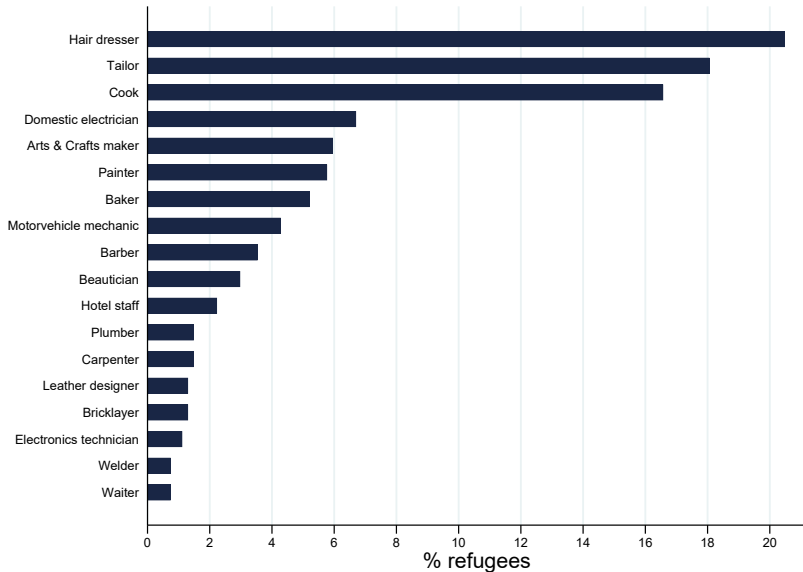Figure 2. Map of refugees' work rights

Countries are shaded based on their overall de facto score in the 2021 Refugee Access to Work Rights Dataset. Countries are listed with their de jure score, left, and de facto score. Source: Ginn et al (2022). 2022 Global Refugee Work Rights Report.
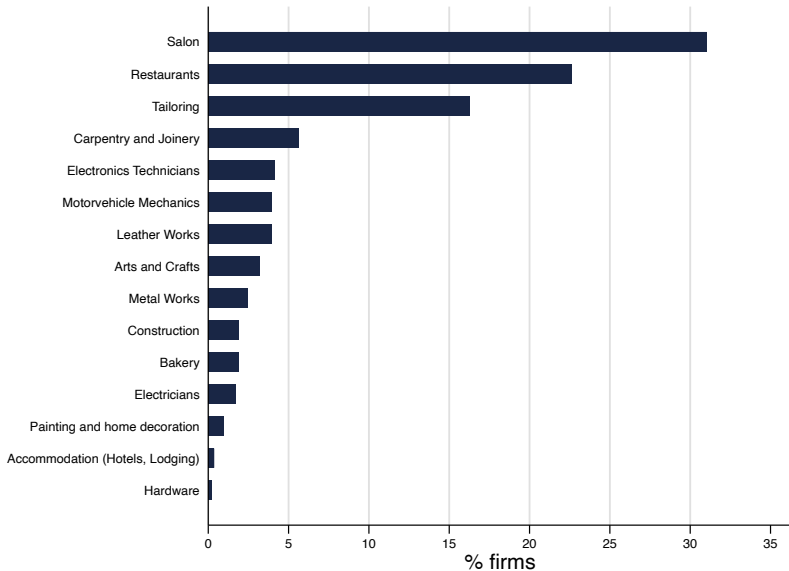
Kampala

- This experiment: carried out in Kampala Map firms and refugees
    - Host to approximately 8.5% total refugees in the country UNHCR 2022
    - Host to 44% of all business establishments and almost 50% of all non-agricultural jobs in Uganda Sladoje et al 2019

- Descriptive evidence from pilot: refugees in two of largest cities (Kampala and Mbarara) are more educated and more likely to look for jobs Evidence from pilot

- Comparing refugees with natives in Kampala: refugees more educated, but less employed and earn less Comparison with UNRHS 2018

Refugees' occupations

Firms' sectors

Skills test

Timeline and data

Timeline

Listing of refugees

Skills testing refugees

Baseline of refugees

First listing firms

Tracking of refugees

Baseline firms + new listing of firms

Internships

Follow-up 1

Follow-up 2

FEB 21   MAY 21   JUN 21   SEP 21   OCT 21   NOV 21   AUG 22

COUNTRY-WIDE LOCKDOWN

CITY-WIDE LOCKDOWN

Experiment protocol

```
                                            ┌──────────────────┐
                                            │   Treated        │
                                            │   (N=325)        │
                                            └──────────────────┘
                                       p = 0 ↗
        ┌──────────────────┐     ┌──────────────────┐
        │ Employers with   │ ───┤ Employers with    │
        │ WTP≥0            │     │ WTP≥0            │
        │ (N=535)          │     │ (N=535)          │────
        └──────────────────┘     └──────────────────┘    p = max ↘
                                                              ┌──────────────────┐
┌──────────────────┐                                         │   Control        │
│ Employer-         │                                         │   (N=210)        │
│ Refugee           │                                         └──────────────────┘
│ Pairs             │
│ (N=1,196)         │
└──────────────────┘
                     ┌──────────────────┐
                     │ Employers with   │ - - - -→  ┌──────────────────┐
                     │ WTP<0            │           │   Select out     │
                     │ (N=661)          │           └──────────────────┘
                     └──────────────────┘
```

CVs of refugee worker: an example

Wisdom Karungu

Tel: 0772 608515

Resident: Kampala, Nsambya, since: 2015

Age: 34

Expertise: cook

Years of experience as a cook: 8

Gender: Male

Nationality: Congolese

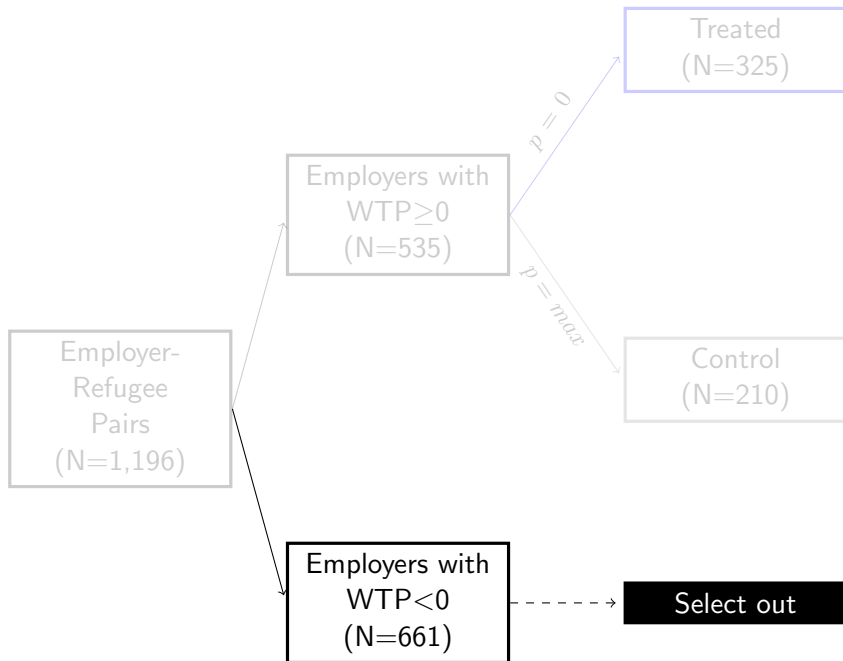**Knowledge of English** (self-reported scale 1-5):

Reading:	*Speaking:*	*Writing:*	*Listening:*
3=Moderately well	2=Not well	2=Not well	3=Moderately well

Knowledge of Luganda (self-reported scale 1-5):

Reading:	*Speaking:*	*Writing:*	*Listening:*
3=Moderately well	3=Moderately well	1=Not at all	3=Moderately well

WTP elicitation

- Show CVs

- Multiple Price List (BDM elicitation) WTP Script

    - *Would you be willing to hire this worker for one week under probation starting up to 8 days from today if you:*
        1. *can hire him/her for free*
        2. *have to pay him/her a salary of* $[5,000]UGX$*?*
        3. *have to pay him/her a salary of* $[10,000]UGX$*?*
            ...
        21. *have to pay him/her a salary of* $[100,000]UGX$*?*

Treated
(N=325)

Employers with
WTP≥0
(N=535)

$p = 0$

$p = max$

Employer-
Refugee
Pairs
(N=1,196)

Control
(N=210)

Employers with
WTP<0
(N=661)

Select out

Treated
(N=325)

Employers with
WTP≥0
(N=535)

$p = 0$

$p = max$

Employer-
Refugee
Pairs
(N=1,196)

Control
(N=210)

Employers with
WTP<0
(N=661)

Select out
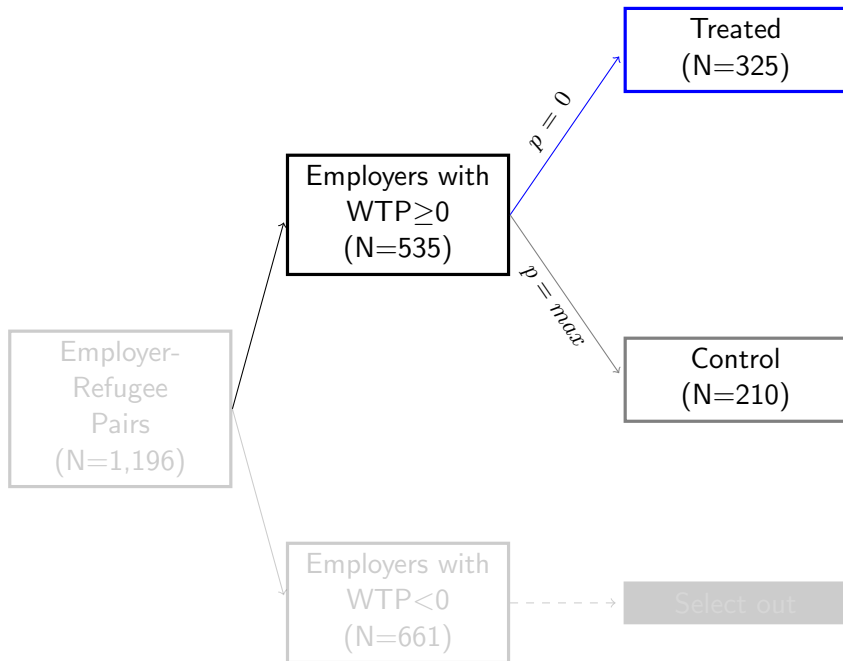
Randomization into treatment and control

- Envelope with random price (incentive-compatible mechanism) Burchardi et al 2021:

    - $w = 0$: The salary you found is lower (or equal) than the salary you stated as the maximum salary you are willing to pay for the worker. Congratulations, you can hire this worker!

    - $w = 100,000$: The salary you found is above the salary you stated as the maximum salary you are willing to pay for this worker. I am sorry, but you can not hire this worker.

Descriptives of firms   Descriptives of refugees   Firms that select in vs those who select out   Refugees re-matched
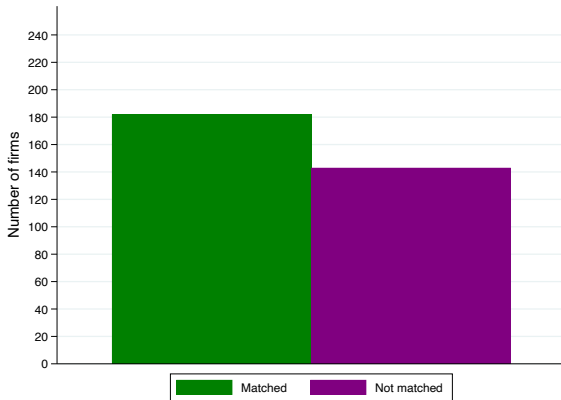
The matching process

- Appointment by phone (one to three days before) with both refugee and firm

Trial protocol: take up and randomization check

- Refugee compliance problematic if workers are selected on firm characteristics
- But the refugees did not know anything about the firms they were matched to (besides location of meeting point) Refugees that show up at the internship

Trial protocol: take up and randomization check

- Two samples Compare samples   Unmatched firms
    - Full sample (535 firms): intention-to-treat effect of the experiment
    - Exposed sample (392 firms): effect of exposure

- Balance checks Balance

- Attrition checks Attrition

Outcome variables

Experiment investigates how exposure, based on observing 1 refugee for 1 week:

- Affects demand for new refugees

- Affects the firm's beliefs about refugees' skills and abilities

Outcome variables

Experiment investigates how exposure, based on observing 1 refugee for 1 week:

- Affects demand for new refugees

- Affects the firm's beliefs about refugees' skills and abilities

Outcomes:

- Number of refugees hired after experiment

- Willingness to hire a refugee (dummy if non-negative)
    - New hypothetical refugee worker, characteristics similar across CVs: Age=26yo; Experience=4y; Knowledge of lang=4 out of 5; Nationality=Congolese

- Expected quality of refugees in terms of
    - hard skills (theoretical, practical and unit performance)
    - soft skills (time management, team work, work ethics, trust, respect)

Hiring WTP Skills

Conceptual framework

Conceptual framework

- Worker's output a contains info regarding group mean θ : $a = f(\theta, \varepsilon)$

Conceptual framework

- Worker's output a contains info regarding group mean θ : $a = f(\theta, \varepsilon)$

- Exposure produces signal on the worker's ability: $s = a$

Conceptual framework

- Worker's output a contains info regarding group mean θ : $a = f(\theta, \varepsilon)$

- Exposure produces signal on the worker's ability: $s = a$

- Firm cannot observe group component, but has biased prior beliefs about it: $m_0 < \theta$
  Survey evidence on biased firm beliefs

Conceptual framework

- Worker's output a contains info regarding group mean θ : $a = f(\theta, \varepsilon)$

- Exposure produces signal on the worker's ability: $s = a$

- Firm cannot observe group component, but has biased prior beliefs about it: $m_0 < \theta$
  Survey evidence on biased firm beliefs

- Firm's willingness to hire refugee is a function of initial beliefs about θ

Conceptual framework

- Worker's output a contains info regarding group mean $\theta : a = f(\theta, \varepsilon)$

- Exposure produces signal on the worker's ability: $s = a$

- Firm cannot observe group component, but has biased prior beliefs about it: $m_0 < \theta$
  Survey evidence on biased firm beliefs

- Firm's willingness to hire refugee is a function of initial beliefs about θ

  $\rightarrow$ Firm will update beliefs upwards

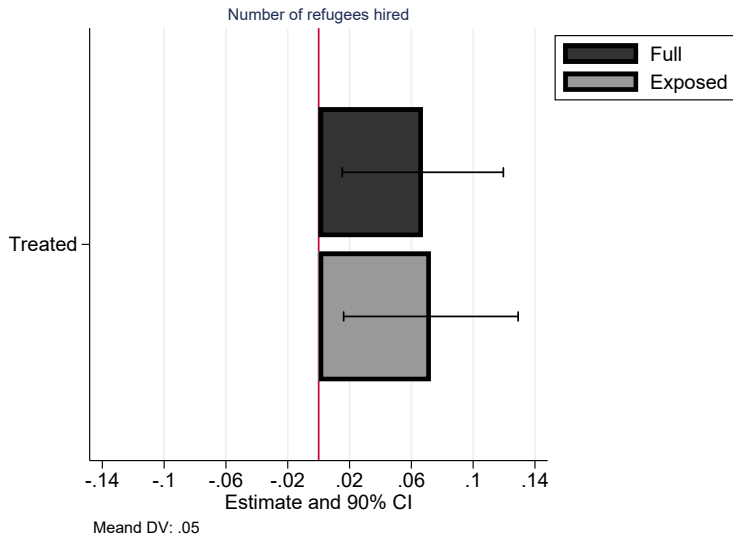 $\rightarrow$ Firm's willingness to hire will increase

Example: normally distributed beliefs

Main Results

More refugees hired 8 months after exposure

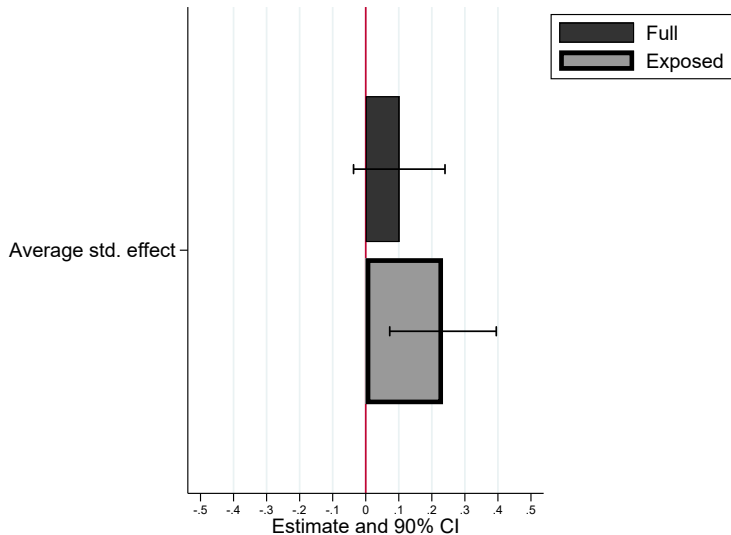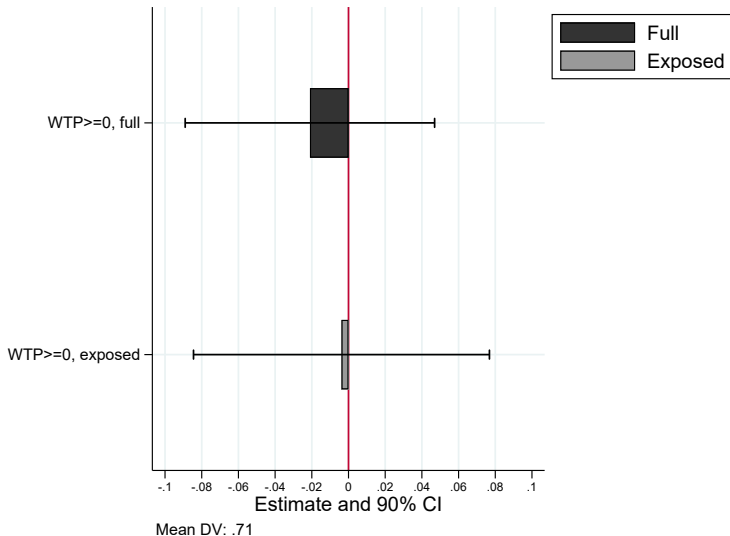Not driven by matched worker   No displacement effects

Number of refugees hired

Legend:
- Full
- Exposed

Treated

Estimate and 90% CI

Meand DV: .05

Employers update about refugees' skills Components

Average std. effect

Legend: Full, Exposed

-.5 -.4 -.3 -.2 -.1 0 .1 .2 .3 .4 .5
Estimate and 90% CI

But no clear average effect on demand in the short-term Curves

Mean DV: .71

Why is there no average effect on the demand for refugees in the short run?

An agnostic approach: causal forest

An agnostic approach: causal forest

- Let the data speak about heterogeneous treatment effects

An agnostic approach: causal forest

- Let the data speak about heterogeneous treatment effects
- Feed algorithm with baseline attributes and indices using factor analysis

An agnostic approach: causal forest

- Let the data speak about heterogeneous treatment effects

- Feed algorithm with baseline attributes and indices using factor analysis

    - Refugee's characteristics (refugee's ability, initial attitudes, and more)

    - Firm's characteristics (size and willingness to expand (i.e. has vacancies), initial beliefs, initial attitudes, and more)

    - Match-related characteristics (same neighborhood, same gender)

Firms' and workers' characteristics   What is a causal forest

Investigate heterogeneity

- Dividing sample in high predicted CATE vs low predicted CATE (top and bottom 50%). Balance test various characteristics across two groups, correcting for Familywise Error Rate, using List, Shaikh, and Zu (2015) Athey et al, 2021; Carlana et al 2022

    - Additional robustness check: best linear projection: $\tau(X) = \beta_0 + \beta 1 * X$ using doubly robust estimator Chernozhukov et al, 2018

Causal forest

Variable	Low CATE	High CATE	Diff.	MHT pval
Ever hired a migrant	0.383	0.344	-0.040	0.976
Owner is Muganda	0.705	0.635	-0.069	0.818
Employer's attitudes	0.642	0.839	0.196	0.000
Firm's beliefs	0.430	0.552	0.122	0.192
Employer's perceived cost of learn.	0.528	0.490	-0.039	0.970
Firm's expansion plan	0.269	0.286	0.017	0.918
Firm's quality	0.446	0.521	0.075	0.825
Firm's size	0.523	0.474	-0.049	0.975
Refugee's ability	0.534	0.469	-0.065	0.908
Refugee's attitudes	0.052	0.865	0.813	0.000
Refugee's knowledge of languages	0.161	0.104	-0.056	0.731
Manufacturing sector	0.316	0.339	0.022	0.953
Refugee ever employed by Ugandan	0.275	0.250	-0.025	0.972
Refugee's age	33.565	34.323	0.758	0.951
Refugee is Congolese	0.912	0.849	-0.063	0.499
Employer+worker live in same neigh	0.109	0.120	0.011	0.750
Employer+worker same gender	0.829	0.792	-0.037	0.963

Attitudes

Firm's attitudes:

- Agrees or agrees very much with the statement: "When jobs are scarce, Ugandans should have priority above refugees"
- Says no to the following question: "Do you think that refugees should be allowed to work in Uganda?"

Refugee's attitudes: Agrees or agrees very much with the statements (coded in the same direction):

- Ugandans discriminate towards refugees
- I assume that in general, Ugandans have only the best intentions
- Work between Ugandans and refugees is good for both groups
- I see myself similar to a Ugandan

Describe firms and refugees

Conceptual framework: why do attitudes matter?

- Suppose employers have to exert effort to learn about a refugee's skills
    - The higher their effort $\rightarrow$ the more they will learn

Conceptual framework: why do attitudes matter?

- Suppose employers have to exert effort to learn about a refugee's skills
  - The higher their effort $\rightarrow$ the more they will learn

- Employers have a taste parameter, indicating attitudes towards refugee workers
  - The more positive the attitudes $\rightarrow$ the higher the return to learning, and thus higher effort to learn

Conceptual framework: why do attitudes matter?

- Suppose employers have to exert effort to learn about a refugee's skills
  - The higher their effort $\rightarrow$ the more they will learn

- Employers have a taste parameter, indicating attitudes towards refugee workers
  - The more positive the attitudes $\rightarrow$ the higher the return to learning, and thus higher effort to learn

- Refugees' have attitudes towards natives, affect effort at work

Conceptual framework: why do attitudes matter?

- Suppose employers have to exert effort to learn about a refugee's skills
    - The higher their effort $\rightarrow$ the more they will learn

- Employers have a taste parameter, indicating attitudes towards refugee workers
    - The more positive the attitudes $\rightarrow$ the higher the return to learning, and thus higher effort to learn

- Refugees' have attitudes towards natives, affect effort at work
    - Refugees with positive attitudes $\rightarrow$ high effort on the job $\rightarrow$ firms update more about workers' skills. Viceversa, when refugees have negative attitudes

Conceptual framework: why do attitudes matter?

- Suppose employers have to exert effort to learn about a refugee's skills
  - The higher their effort $\rightarrow$ the more they will learn

- Employers have a taste parameter, indicating attitudes towards refugee workers
  - The more positive the attitudes $\rightarrow$ the higher the return to learning, and thus higher effort to learn

- Refugees' have attitudes towards natives, affect effort at work
  - Refugees with positive attitudes $\rightarrow$ high effort on the job $\rightarrow$ firms update more about workers' skills. Viceversa, when refugees have negative attitudes

- Positive match: employer with positive attitudes + refugee worker with positive attitudes. Predictions: update beliefs $\uparrow$ $\rightarrow$ willingness to hire refugees $\uparrow$

Conceptual framework: why do attitudes matter?

- Suppose employers have to exert effort to learn about a refugee's skills
  - The higher their effort $\rightarrow$ the more they will learn

- Employers have a taste parameter, indicating attitudes towards refugee workers
  - The more positive the attitudes $\rightarrow$ the higher the return to learning, and thus higher effort to learn

- Refugees' have attitudes towards natives, affect effort at work
  - Refugees with positive attitudes $\rightarrow$ high effort on the job $\rightarrow$ firms update more about workers' skills. Viceversa, when refugees have negative attitudes

- Positive match: employer with positive attitudes + refugee worker with positive attitudes. Predictions: update beliefs $\uparrow$ $\rightarrow$ willingness to hire refugees $\uparrow$

- Negative match: employer with negative attitudes + refugee worker with negative attitudes. Predictions: little or no learning $\rightarrow$ willingness to hire refugees $\downarrow$?; No change?

Positive vs negative contact

- Theory and lab experiments from social psychology

- Contact hypothesis: contact with a member of a stigmatized group improves relationship with members of that group

- Negative contact experiences can exacerbate rather than improve intergroup relations
  - *"As early as 1954, Allport warned that the 'wrong' kinds of contact could "...strengthen the adverse mental associations that we have" (p.264), prompting an increase in negative emotions and stereotypes" (McKeown and Dixon 2017)*
  - Polarizing effects of positive and negative contact experiences (Barlow et al 2012; Paolini et al 2010)

Positive vs negative contact

- Theory and lab experiments from social psychology

- Contact hypothesis: contact with a member of a stigmatized group improves relationship with members of that group

- Negative contact experiences can exacerbate rather than improve intergroup relations

  - *"As early as 1954, Allport warned that the 'wrong' kinds of contact could "...strengthen the adverse mental associations that we have" (p.264), prompting an increase in negative emotions and stereotypes"* (McKeown and Dixon 2017)

  - Polarizing effects of positive and negative contact experiences (Barlow et al 2012; Paolini et al 2010)

- Negative match: employer with negative attitudes + refugee worker with negative attitudes. Predictions: little or no learning → willingness to hire refugees ↓
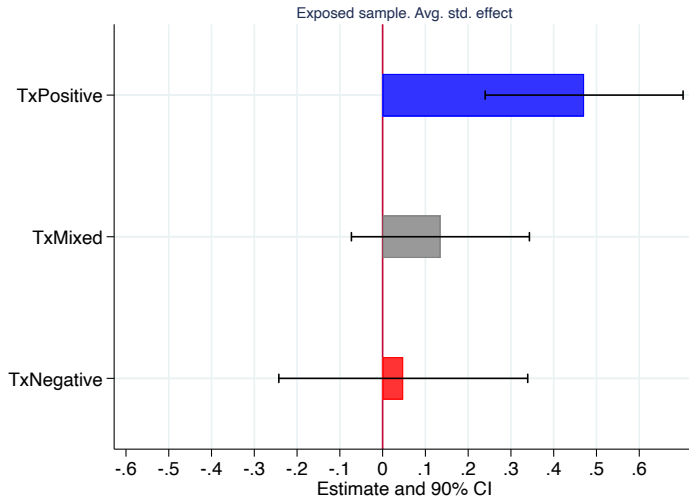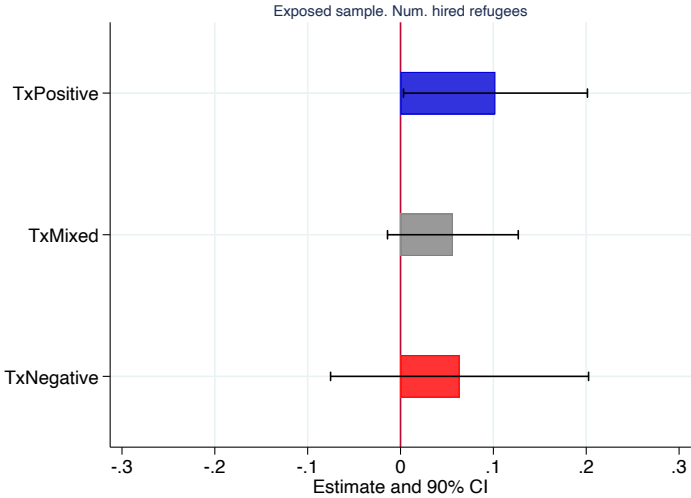
Describe internship

Demand for refugees and initial attitudes

Exposed sample. WTP>=0

Estimate and 90% CI
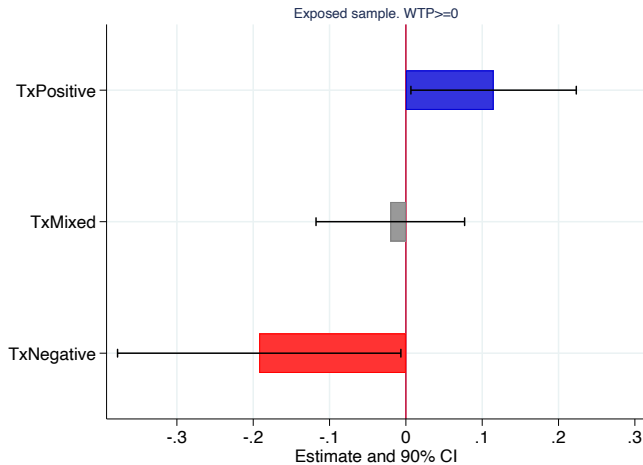
$\rightarrow$ ↑ **when matching with the right attitudes; ↓ when negative**

Beliefs updating by initial attitudes Components

Exposed sample. Avg. std. effect

TxPositive

TxMixed

TxNegative

-.6 -.5 -.4 -.3 -.2 -.1 0 .1 .2 .3 .4 .5 .6

Estimate and 90% CI

Real hiring by initial attitudes

Exposed sample. Num. hired refugees

Estimate and 90% CI

Conclusion

- We run a randomized experiment to understand whether contact in the workplace affects firms' demand for disadvantaged workers with huge policy relevance: refugees

- Exposure increases number of refugees hired, especially when the employer-employee match was with positive attitudes

- Results can be explained combining models of learning and social psychology theories

    → Exposure generates long-term effect on firms' demand for refugee workers.
    → Initial attitudes matter in the workplace: how locals and refugees perceive each other matters for the quality of exposure

Appendix

Bonus slide

- More regarding the design: Certificate ; Script WTP

- Sectors: Sectors in Kampala ; Sectors in this study

- Descriptives of firms: Firms' size ; Descriptives of firms ; WTP curves ; Why firms are not willing to hire
  What skills do firms care about

- Refugees: Descriptives of refugees ; Refugees' take up ; Tested vs not ; Urban vs rural ; Refugees vs natives in Kampala ;
  Refugees vs refugees in Kampala

- Trial protocol: Compare samples ; Balance ; Attrition ; Rematching

- Firms' beliefs: Survey evidence on biased firm beliefs ; General beliefs

- Outcomes: Hiring ; Skills ; Trust ; Respect ; WTP ; Indices ; Attitudes

- Results: New WTP curves ; Learning, components ; Learning, by attitudes

- Internships: Descriptives internship ; Internship outcomes, by attitudes

- Conceptual framework: Example: normally distributed beliefs

Certification of existing skills Back

(a)

(b)

Sectors in Kampala (UBOS, 2010) Back

Restaurants
Tailoring
Real Estate & Business Services
Recreation & Personal Services
Hardware
Other Manufacturing
Salon
Bar
Education, Health & Social Work
Information & Communication
Financial & Insurance Services
Transport & Storage
Metal Works
Construction
Leather Works
Motorvehicle Mechanics
Accommodation (Hotels, Lodging)
Food Processing
Arts and Crafts
Carpentry and Joinery
Electronics Technicians
Agriculture
Bakery
Catering
Utilities
Electricians
Mining & Quarrying
Forestry
Fishing
Plumbers

% of firms

Excluding trade, 60% of firms in Kampala

Kampala

Refugees
261

2
Other parishes
Firms
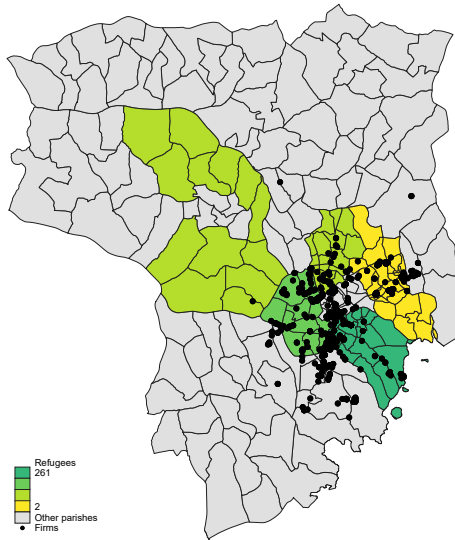
Firms' size Back
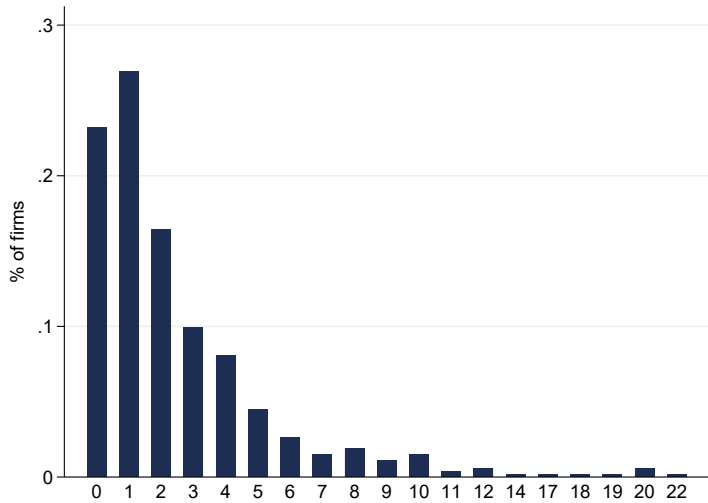
Why firms won't hire refugees? Back

Do not have enough work	
Lack of language skills	
Age	
General lack of trust	
Do not trust/like refugees	
Gender	
Lack of general skills	
Changed mind on phone	
Wants to be paid	
No interest in this occupation	
Other	
No full managerial powers	

0 .05 .1 .15 .2 .25 .3 .35 .4 .45 .5 .55 .6
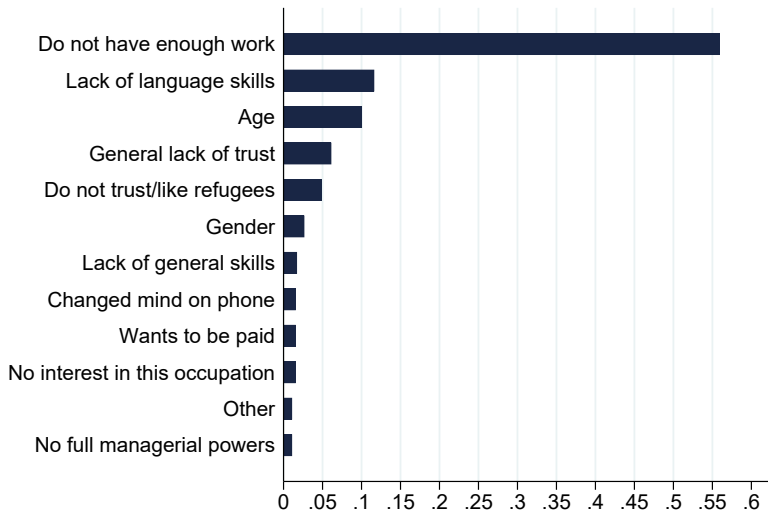
Firms: N=636

What skills do firms care about

Balance checks `Back`

Full sample   Exposed sample
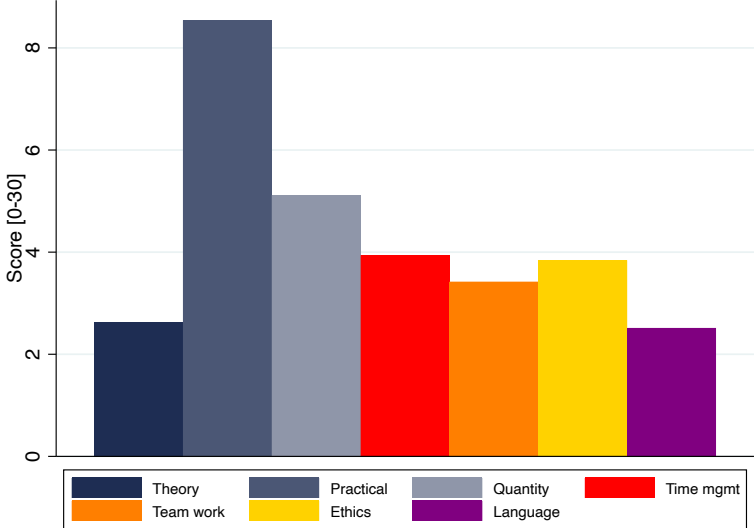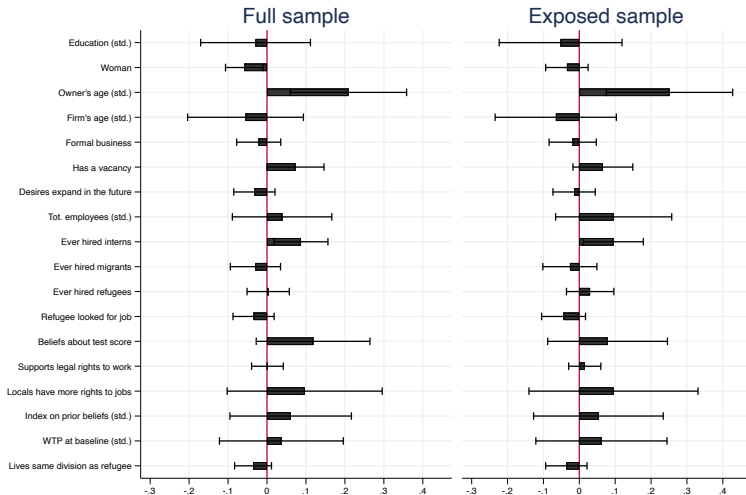
Estimate and 90% CI

Compare matched vs unmatched firms vs control

Estimate and 90% CI
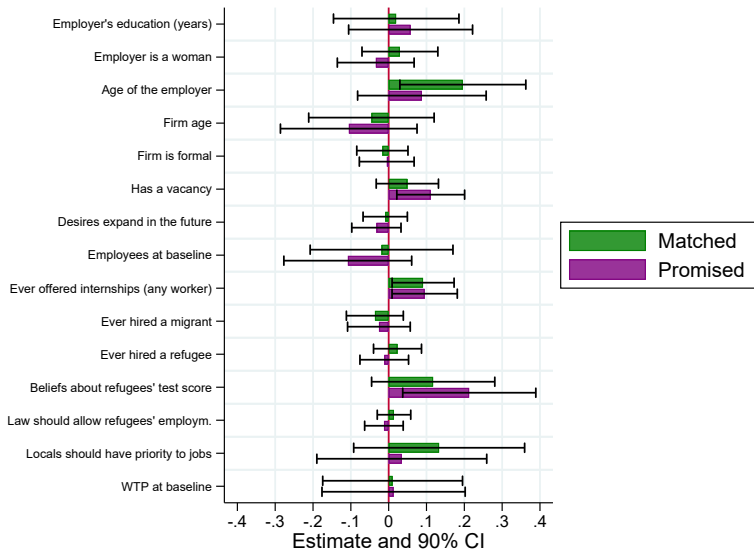
Refugees showing up at the test Back

Estimate and 90% CI
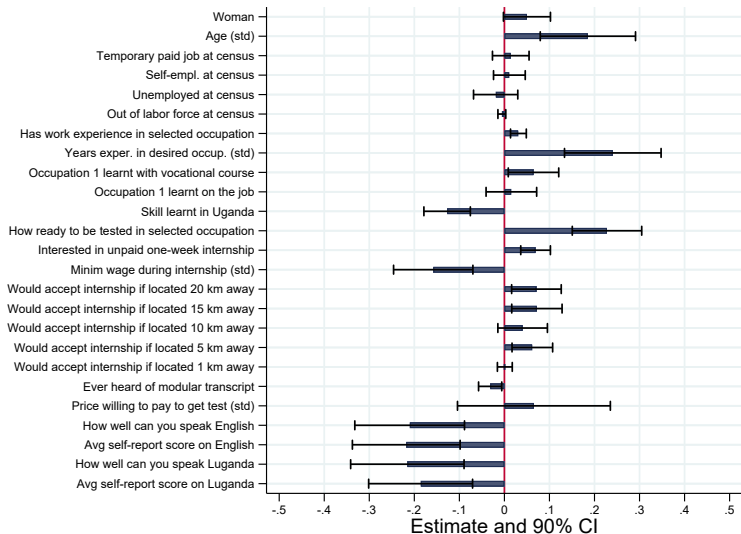
Refugees in urban vs rural areas Back

Estimate and 90% CI
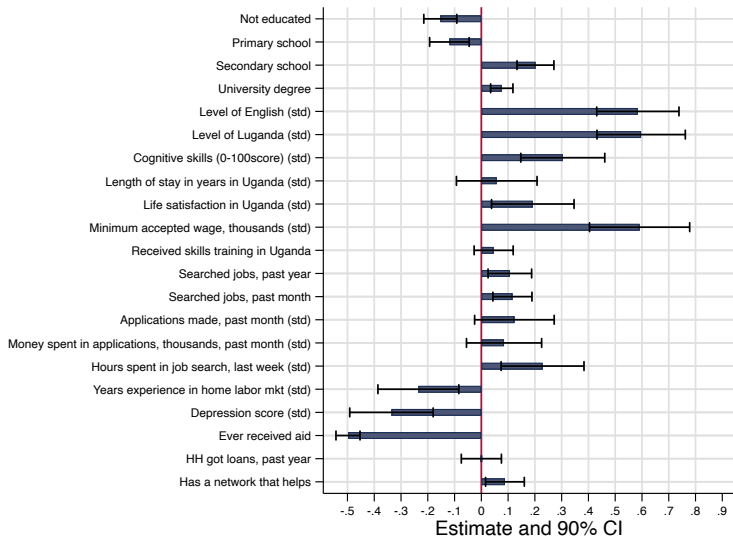
Refugees vs other refugees in Kampala[1] `Back`

		UNRHS			Baseline survey		
	N	Mean	SD	N	Mean	SD	Diff
Education: None	135	0.14	0.35	527	0.01	0.10	-0.131***
Education: Primary	135	0.67	0.47	527	0.11	0.32	-0.560***
Education: Secondary	135	0.20	0.40	527	0.88	0.33	0.677***
Employed	155	0.25	0.43	527	0.48	0.50	0.239***
Unemployed	155	0.30	0.46	527	0.16	0.37	-0.137***
Out of labor force	155	0.46	0.50	527	0.36	0.48	-0.101**
Monthly earnings	24	1421.46	4283.85	255	301.54	294.08	-1,119.917
Years since in Uganda	140	4.47	5.68	527	6.62	3.71	2.151***
Is registered in Uganda	142	0.89	0.31	527	0.88	0.32	-0.012
Received remittances	148	0.37	0.48	527	0.48	0.50	0.105**
Total remittances	53	4773.40	5754.06	251	129.33	238.67	-4,644.062***
Received relief aid	155	0.12	0.33	527	0.18	0.38	0.056*

---

[1]Disclaimer: World Bank had lots of refusals from refugee community in Kampala. Also: they employed Ugandan data collectors.

Firms that select in the experiment [Back]

	WTP < 0			WTP ≥ 0			
	N	Mean	SD	N	Mean	SD	Diff
Employer is a woman	661	0.53	0.50	535	0.57	0.50	0.044
Firm age	649	8.11	7.12	535	7.81	6.64	-0.299
Revenues past month, M-UGX	278	4.04	13.90	499	1.88	2.77	-2.164**
Firm is formal	661	0.13	0.34	535	0.19	0.39	0.052**
Has a vacancy	661	0.14	0.35	535	0.42	0.49	0.280***
Desires expand in the future	661	0.64	0.48	535	0.86	0.35	0.215***
Employees at baseline	660	2.81	3.49	535	2.49	3.15	-0.318
Num. of rooms in business premises	402	1.76	3.47	535	1.17	0.81	-0.584***
Manufacturing sector	661	0.36	0.48	535	0.33	0.47	-0.023
Ever offered internships	649	0.52	0.50	535	0.61	0.49	0.090***
Ever hired a migrant	661	0.28	0.45	535	0.36	0.48	0.081***
Ever hired a refugee	659	0.17	0.38	535	0.18	0.38	0.004
Beliefs about refugees' test score	661	62.69	15.79	535	64.13	15.14	1.436
Supports refugees' empl. rights	659	0.89	0.31	535	0.92	0.27	0.033**
Jobs to locals first	659	3.36	1.36	535	3.36	1.27	-0.003

Smaller, in expansion, less discriminating, more open to migrants

Rematched refugees: $x =$ average "success" Back
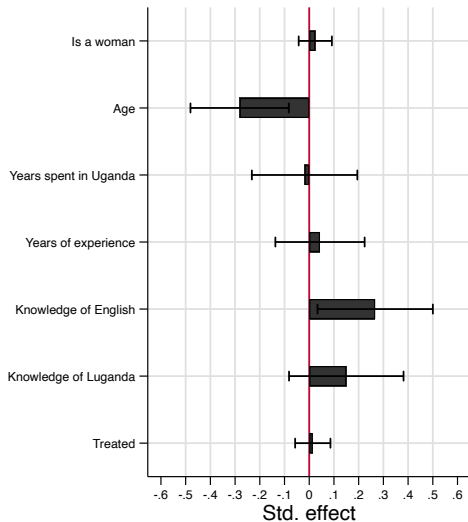
Refugees' take-up: more wealthy and self-employed Back

Demographics
- Refugee worker is a woman
- Age of the refugee worker
- Refugee worker is Congolese
- Years living in Uganda
- Years of education
- Work experience (years)
- English speaking level
- Luganda speaking level
- Positive refugee attitude
- Refugee worker is married with kids

Wellbeing
- HH inc./adult('000UGX)
- Index food security, May 21
- Remittances received('000UGX)
- Tot. savings, Sept 21
- Has received relief aid, Sept 21
- Life satisfaction, 1-10

Employment
- Ever employed by Ugandan
- Was employed by someone, Sept 21
- Was self-employed, Sept 21
- Unemployed, past 7 days, Sept 21
- Out of labor force, past 7 days, Sept 21
- Hours worked past 7 days
- Total earnings, past 30 days, Sept 21
- Looked for jobs, past 30 days, Sept 21
- Hours spent looking for jobs, Sept 21
- Interested in unpaid one-week internship
- Minimum wage for one-week internship
- Distance

Estimate and 90% CI

- "[...] He was also disappointed with us not giving him a worker"

- "He is not happy with us because he told us to match the worker on the day he had agreed with us which was Saturday but up to know he is still waiting for her and no response is getting"

- "The firm owner was very disappointed with the worker who was given a place for internship but didn't show up for work"

How did the internship go by match quality Back

Rate overall satisfaction with matched refugee
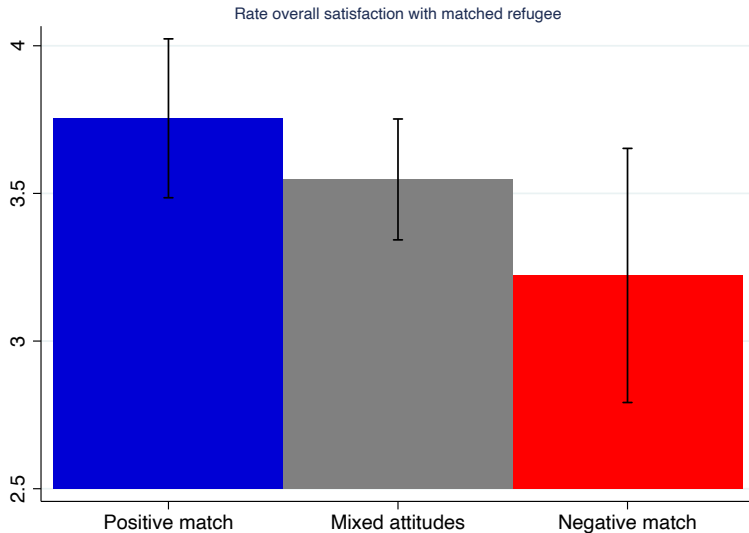
Not driven by hiring same worker Back

Number of refugees hired

Estimate and 90% CI

Meand DV: .05
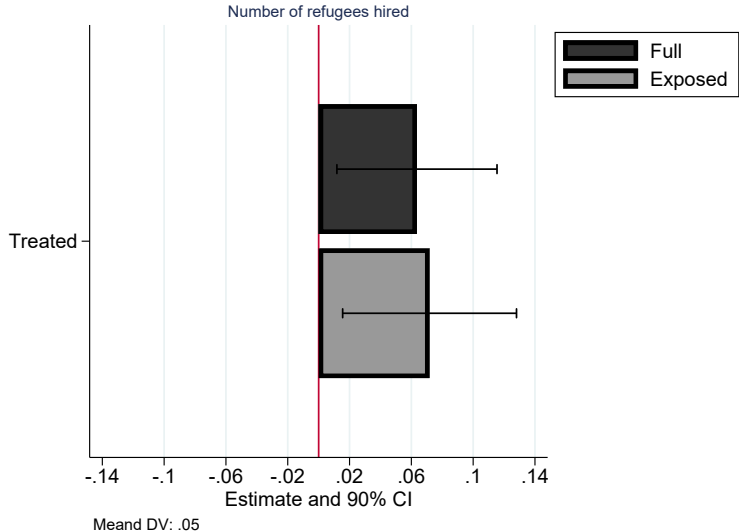
No displacement effect on Ugandan workers Back

Exposed sample. Num. workers

Treated

Legend:
- Total
- Ugandans
- Refugees

Estimate and 90% CI

-.3 -.24 -.18 -.12 -.06 0 .06 .12 .18 .24 .3 .36
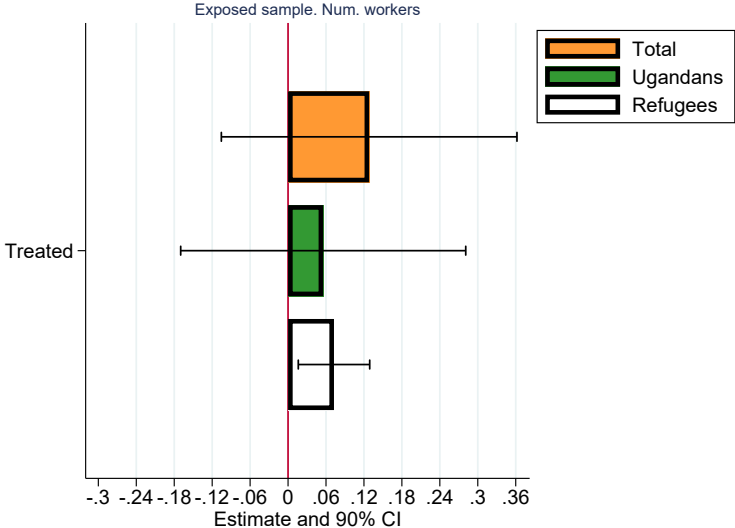
Firms by positive vs negative attitudes

		Positive			Negative		
	n	mean	sd	n	mean	sd	Diff
Employer is a woman	399	0.58	0.49	136	0.54	0.50	-0.016
Firm age	399	7.90	6.63	136	7.57	6.71	0.781
Revenues past month, M-UGX	399	1.79	2.73	136	2.16	2.47	-0.034
Firm is formal	399	0.19	0.40	136	0.16	0.37	0.051
Has a vacancy	399	0.45	0.50	136	0.34	0.47	0.105**
Desires expand in the future	399	0.88	0.33	136	0.81	0.39	0.061
Employees at baseline	399	2.27	2.79	136	3.15	3.95	-0.287
Num. of rooms in business premises	399	1.19	0.79	136	1.12	0.85	0.043
Manufacturing sector	399	0.32	0.47	136	0.36	0.48	-0.011
Ever offered internships	399	0.64	0.48	136	0.52	0.50	0.154***
Ever hired a migrant	399	0.38	0.48	136	0.32	0.47	0.083*
Ever hired a refugee	399	0.18	0.38	136	0.18	0.38	0.006
Beliefs about refugees' test score	399	64.13	14.98	136	64.12	15.65	-0.541
Supports refugees' empl. rights	399	0.98	0.15	136	0.76	0.43	0.210***
Jobs to locals first	399	2.90	1.01	136	4.70	0.97	-1.854***
WTP at baseline	399	17.28	19.95	136	16.18	17.75	2.778*
I(WTP at baseline)>0	399	0.74	0.44	136	0.74	0.44	0.006

Refugees by positive vs negative attitudes

		Positive			Negative		
	n	mean	sd	n	mean	sd	Diff
English speaking level	191	2.80	1.14	212	2.60	1.12	0.143
Luganda speaking level	191	2.73	1.19	212	2.61	1.20	0.118
Years living in Uganda	191	6.23	3.41	212	7.00	4.14	-0.905**
Refugee worker is a woman	191	0.64	0.48	212	0.68	0.47	-0.016
Age of the refugee worker	191	33.20	10.15	212	33.93	10.45	-0.317
Ever worked in Uganda	191	0.82	0.38	212	0.79	0.41	0.015
Ever employed by Ugandan	191	0.29	0.46	212	0.22	0.42	0.058
% of connections that are Uga.	191	0.13	0.27	212	0.14	0.26	-0.009
HH consum. per capita	191	23.91	28.94	212	22.61	35.25	0.594
Had a job, past 7 days, Sept 21	191	0.48	0.50	212	0.49	0.50	-0.013
Was employed by someone	191	0.10	0.31	212	0.10	0.30	0.005
Was self-employed, Sept 21	191	0.37	0.48	212	0.39	0.49	-0.019
Applied to jobs	191	0.35	0.48	212	0.26	0.44	0.093**
%jobs applied to Ugandans	191	0.26	0.40	212	0.17	0.35	0.092**
HH size, May 21	191	5.41	2.95	212	6.03	2.94	-0.494
Tot. savings, Sept 21	191	90.04	175.47	212	92.50	199.11	-4.853
Will live in Kampala	191	0.29	0.45	212	0.24	0.43	0.050

Do firms update beliefs about generic refugee after exposure? Back

Estimate and 90% CI

Legend: Full, Exposed

Categories (top to bottom): Index hard skills, Index soft skills, Trust, Respect

X-axis: -.5 -.4 -.3 -.2 -.1 0 .1 .2 .3 .4 .5
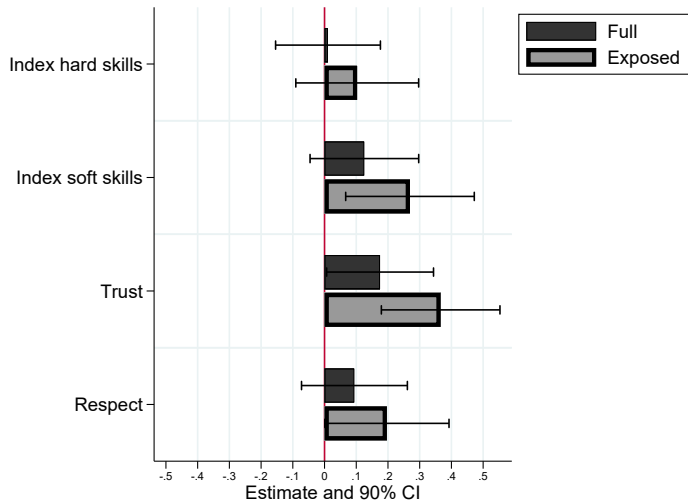
Do firms update beliefs about generic refugee after exposure?

	Learning				
	(1)	(2)	(3)	(4)	(5)
Exposed	0.103	0.269**	0.366***	0.197*	0.234**
	(0.118)	(0.123)	(0.114)	(0.119)	(0.098)
	[0.382]	[0.030]	[0.001]	[0.099]	[0.017]
N	385	385	385	385	385
Mean DV	-0.000	0.000	0.000	0.000	
Area FE	Yes	Yes	Yes	Yes	
Covariates	OLS	OLS	OLS	OLS	

The effect of exposure on firms' WTP [Back]
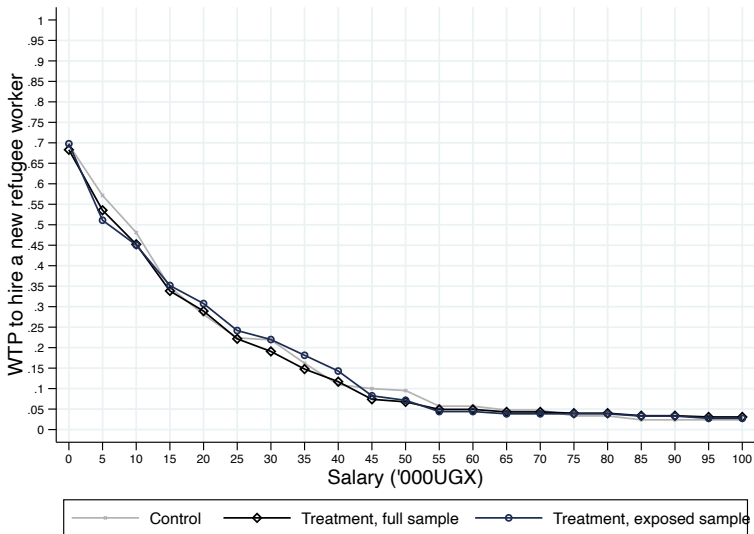
Learning about skills Back

Exposed sample. Rating skills [1-5]

Legend:
- Hard skills
- Soft skills
- Trust
- Respect

Categories: TxPositive, TxMixed, TxNegative

X-axis: -.6 -.5 -.4 -.3 -.2 -.1 0 .1 .2 .3 .4 .5 .6 .7 .8 .9 1
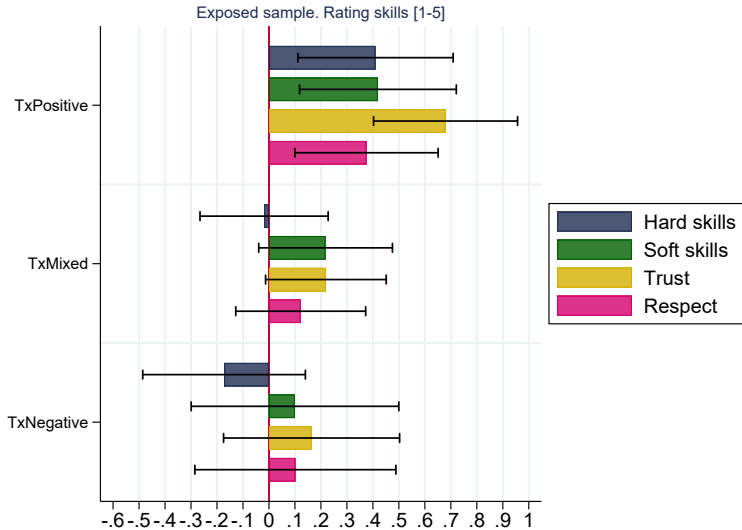
Beliefs about tested skills and actual test scores Back

X-axis: Test score (0 to 100)
Y-axis: 0 to .14

Vertical lines at 63 and 84.

Legend: ----- Beliefs about refugees ——— True score refugees
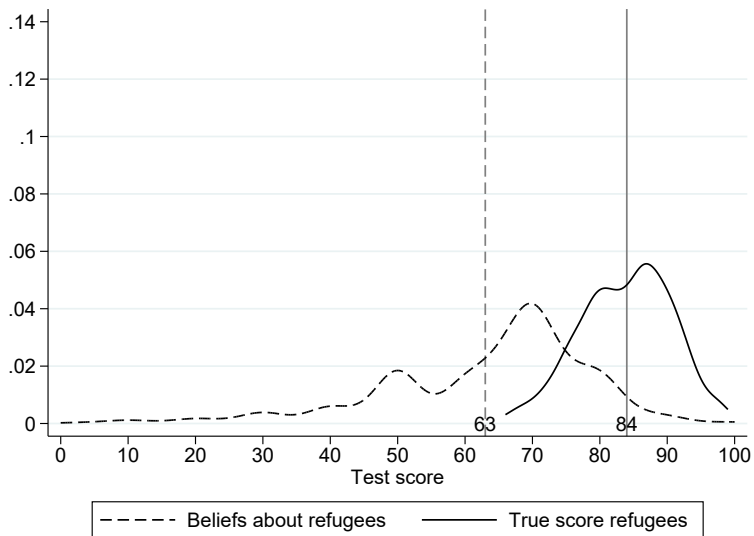
Beliefs and actual test scores, including Ugandans Back

Legend:
- - - - Beliefs about refugees
- - - - Beliefs about Ugandans
——— True score refugees
——— True score Ugandans

X-axis: Test score

Attrition [Back]
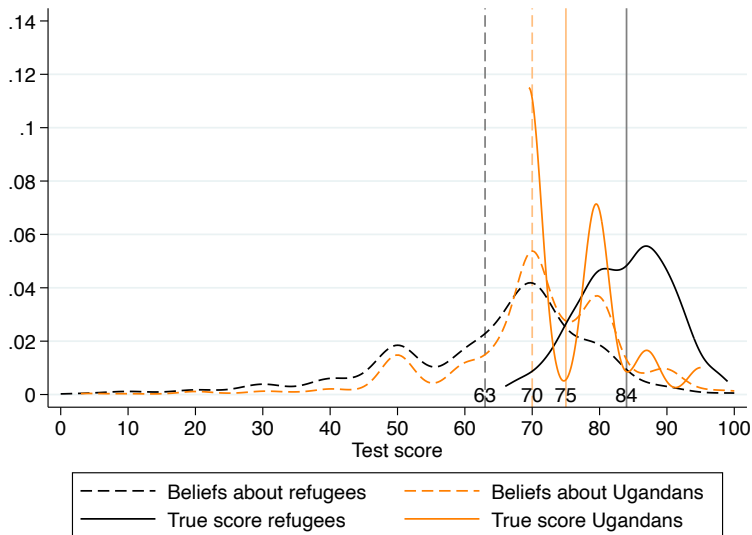
	Full sample		Exposed sample	
	(1)	(2)	(3)	(4)
	Follow-up 1	Follow-up 2	Follow-up 1	Follow-up 2
Treated	0.004	-0.010	0.005	-0.041
	(0.011)	(0.030)	(0.013)	(0.036)
Control	0.981	0.886	0.981	0.886
Firms	525	474	385	343

Descriptives of refugees [Back]

	Mean	Median	SD	Min	Max	N
Refugee worker is a woman	0.620	1	0.486	0	1	527
Age of the refugee worker	34.139	33	10.291	15	67	527
Refugee worker is Congolese	0.850	1	0.357	0	1	527
Result on DIT test	83.892	84	6.739	66	99	527
Years of education	11.947	12	3.724	0	21	527
Work experience in tested occupation (years)	4.462	2	6.594	0	51	526
Years living in Uganda	6.622	6	3.714	1	22	527
Ever had Ugandan employer	0.250	0	0.434	0	1	527
Employed by someone, past week	0.112	0	0.316	0	1	527
Self-employed, past week	0.372	0	0.484	0	1	527
Unemployed, past week	0.159	0	0.366	0	1	527
Out of labor force, past week	0.357	0	0.479	0	1	527
Applied to jobs, past month	0.298	0	0.458	0	1	527
Monthly earnings main job	142.863	65	214.704	0	1700	527
HH income per capita, past month	143.408	100	150.671	0	1500	527
Number of adults in hh	3.156	3	1.965	1	18	527
Number of children in hh	2.651	3	2.024	0	9	527
Life satisfaction, 1-10	2.226	2	1.483	1	9	527

Descriptives of firms [Back]

	Mean	Median	SD	Min	Max	N
Employer is a woman	0.570	1	0.496	0	1	535
Firm age	7.815	5	6.644	0	38	535
Revenues past month, M-UGX	1.880	1	2.672	0	32	535
Firm is formal	0.185	0	0.389	0	1	535
Has a vacancy	0.419	0	0.494	0	1	535
Desires expand in the future	0.860	1	0.348	0	1	535
Employees at baseline	2.492	1	3.147	0	22	535
Num. of rooms in business premises	1.172	1	0.810	0	8	535
Manufacturing sector	0.333	0	0.472	0	1	535
Ever offered internships	0.609	1	0.488	0	1	535
Ever hired a migrant	0.361	0	0.481	0	1	535
Ever hired a refugee	0.176	0	0.381	0	1	535
Beliefs about refugees' test score	64.131	70	15.141	5	100	535
Supports refugees' empl. rights	0.923	1	0.266	0	1	535
Jobs to locals first	3.355	3	1.268	1	5	535

Descriptives of the internship

|	Mean	Median	SD	Min	Max	N
Agreed days of internship	7.419	7	2.994	1	30	179
Completed days of internship	5.324	7	2.847	1	14	179
Internship was extended	0.101	0	0.302	0	1	179
Hours worked by intern each day	7.331	8	2.637	0	12	179
Intern asked to be paid	0.078	0	0.269	0	1	179
Intern was paid during internship	0.425	0	0.496	0	1	179
Intern total payment ('000UGX)	19.730	10	21.113	0	140	74
Max tasks difficulty	3.229	3	1.116	1	5	179
Intern supervised by manager	0.911	1	0.286	0	1	179
Daily firm-hours spent in supervision	5.771	5	4.135	0	20	179
Supervised more than other workers	0.571	1	0.497	0	1	133
Rate how demanding superv. this worker	2.553	2	1.250	1	5	179
How hard communic. [1=Easy, 5=Hard]	3.335	3	1.302	1	5	179
Rate overall experience with worker	3.564	4	1.227	1	5	179
Rate relationship with other employees	3.632	4	1.228	1	5	133
WTP re-hire same, non-neg.	0.676	1	0.469	0	1	179
Intern was hired	0.039	0	0.194	0	1	179
Exchanged phone numbers	0.363	0	0.482	0	1	179
Intern recommended to other firms	0.134	0	0.342	0	1	179
Would recommend worker to other firms	0.709	1	0.455	0	1	179
Learnt some positive about hard skills	0.061	0	0.241	0	1	179
Learnt some positive about soft skills	0.313	0	0.465	0	1	179

Describe causal forest

- Idea based on *random forests*: predict individual outcome Y_i using mean Y of observations sharing similar X

- What is similar? "Leaves" of observations, created splitting sample with certain values of X

- Split decided by "goodness-of-fit" criterion, such as MSE

- Split until "terminal leaf" l, assigning $\hat{y}_i = \bar{y}_l$

- Penalty to avoid over-fitting using cross-validation

- Reduce variance bootstrapping creating many trees, that is: a forest. Individual outcome is given by averages of all $\hat{y}_i$ across trees

- *Causal forest*: maximize variance of treatment effects across leaves minus penalty for within-leaf variance. CATEs are given by $\hat{\tau}_l = \bar{y_{Tl}} - \bar{y_{Cl}}$

Indices

- **Refugee's ability**: cognitive skills; years of education; years of experience in tested occupation; result on the skills test.

- **Refugee's knowledge of languages**: can speak Luganda or English

- **Refugee's level of integration**: has ever been employed by a Ugandan

Indices

- **Firm's size**: number of employees; number of tasks conducted in the firm; number of rooms in main business premises

- **Firm's initial beliefs**: what score do you think the typical refugee job seeker in Kampala would get on the DIT test?

- **Firm's experience interacting with any foreigner**: has ever hired a migrant

- **Firm's perceived cost of learning about refugees**: days it takes to learn about the hard skills and the soft skills of a refugee; believes that refugees would not be able to pass the skills test

- **Firm's quality**: owns business premises; is formal; keeps accounting books, separate bank accounts and advertise regularly products/services
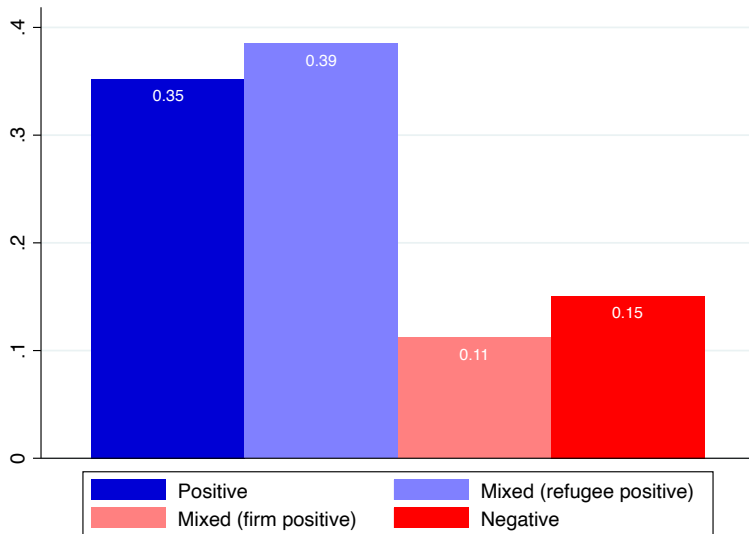
Firms' attitudes

Refugees' attitudes
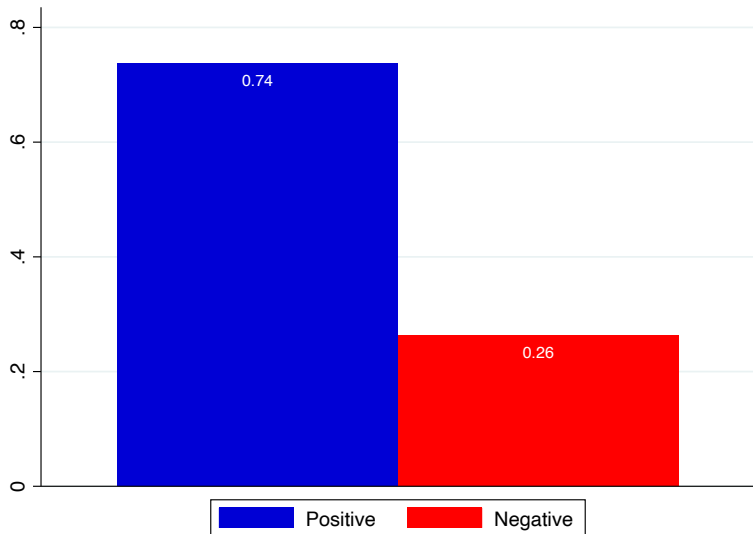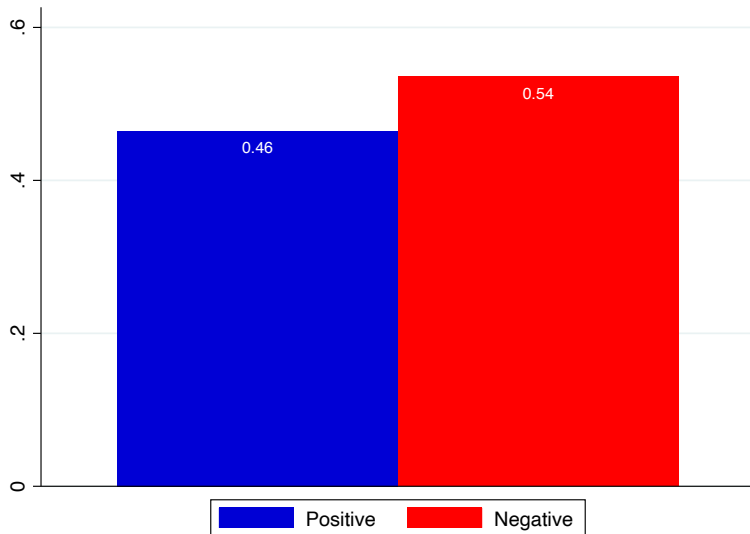
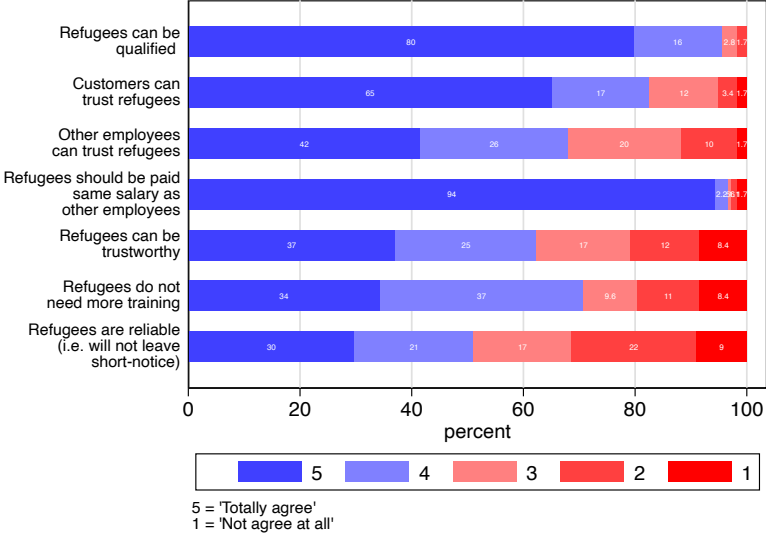# Firms by firms' attitudes and refugees' attitudes Back

What firms think about refugees (pilot evidence)

	5	4	3	2	1

5 = 'Totally agree'
1 = 'Not agree at all'

Outcomes: real hirings

- Have you offered work on probation to any worker since January 2022?

- If yes, to how many workers have you offered work on probation?

- How many were from Uganda?

- How many were refugees?

Outcomes: skills

- For the next set of questions, I want you to think about the typical refugee job seeker in Kampala. Think about this worker's ...
    - ... theoretical knowledge (e.g.theoretical skills that are relevant to work in a firm like yours). ...
    - ... practical skills (e.g. technical skills that can be applied to work in a firm like yours). ...
    - ... performance at work (e.g. in terms of number of units serviced, quantity, number of pieces completed, etc.). ...
    - ... time management ability (i.e. the ability of completing an assigned task meeting a deadline). ...
    - ... team work ability (i.e. the ability of working in a team with other employees). ...
    - ... work ethics (i.e. discipline and hard-work abilities). ...
- On a scale between 1 and 5, where 1="Terrible" and 5="Excellent", how do you think would this person perform?

Outcomes: trust

- How much do you think you could trust this worker? Use a scale between 1 and 5, where 1="Not at all" and 5="Very much".

Outcomes: respect

- How much do you think this worker would respect you? Use a scale between 1 and 5, where 1="Not at all" and 5="Very much".

Outcomes: WTP new worker

Christelle Bahati

Tel: 0773882694

Resident: Kampala, Makindye , since: 2020

Age: 26

Expertise: cook

Years of experience as a cook: 4

Gender: Woman

Nationality: Congolese

Knowledge of English (self-reported scale 1-5):

Reading:	*Speaking:*	*Writing:*	*Listening:*
4=Well	4=Well	4=Well	4=Well

Knowledge of Luganda (self-reported scale 1-5):

Reading:	*Speaking:*	*Writing:*	*Listening:*
4=Well	4=Well	4=Well	4=Well

Outcomes: WTP new worker

- Would you be willing to hire this worker for one week under probation starting up to 8 days from today if you:
    1. can hire him/her for free
    2. have to pay him/her a salary of $[5,000]UGX$?
    3. have to pay him/her a salary of $[10,000]UGX$?
       ...
    21. have to pay him/her a salary of $[100,000]UGX$?

Script for WTP exercise

Before moving on with the explanation, I would like you to think about the following situation: imagine a job seeker come to look for a job at your firm. Usually, after getting some information on her, you might already have in mind what you would be willing to pay to hire her. In other words, you might think about what is the maximum price at which you would still hire the worker. Since you do not know the salary at which she would be willing to work for you, the salary you think about is usually your own valuation of the worker. Talking to her, you learn about the actual salary she wants to receive and you decide whether to hire her or not. Your decision will depend on the salary the worker is willing to accept: if the salary is higher than your valuation, you will not hire the worker. If instead the salary is equal or lower than your valuation, you will hire her.

We will ask you to form your own valuation about the maximum salaries you would pay for one worker looking to work for you for one week of probation. [This worker is hypothetical, i.e. s/he does not exist, although her characteristics are very similar to the types of workers we have interviewed few months ago.]

Script for WTP exercise

[...] After you have thought about this salary, we will present you a list of 21 possible salaries for this worker for one week of work [...]

Once you have answered all these questions, you will be given an envelope with a price like this one [Enumerator: show the envelope]. This price is between 0 and 100,000UGX. The price has been randomly selected by the computer and **I DO NOT KNOW IT, NEITHER I COULD CHANGE IT**. [...]

Conceptual framework (Back)

- Experiment investigates how exposure affects the firm's beliefs about refugees' skills and abilities based on observing 1 refugee for 1 week

- Refugee worker's ability: $a = \theta + \varepsilon$, with $\varepsilon \sim N(0, \sigma_\varepsilon^2)$

- Firm wants to infer θ from observing a

- Firm has normally distributed prior beliefs about group mean: $N(m_0, \sigma_0^2)$

- Firm's prior beliefs are biased (Survey evidence on biased firm beliefs)

- Profit from hiring a refugee is: $\Pi = a - w$

Conceptual framework

- Signal from hiring: $s = a = \theta + \varepsilon$

- Updated beliefs are given by $m_1 = \alpha s + (1 - \alpha)m_0$, where

$$\sigma_1^2 = \sigma_0^2 \frac{\sigma_\varepsilon^2}{\sigma_0^2 + \sigma_\varepsilon^2} < \sigma_0^2$$

and

$$\alpha = \frac{\sigma_1^2}{\sigma_\varepsilon^2}$$

- Average beliefs in the treatment group: $E[m_1] = \alpha\theta + (1 - \alpha)m_0$

- Assume a firm's WTP is a positive function of the firm's expected profit

$$E[\Pi] = E(m_1) - w$$

Conceptual framework: attitudes matter?

- Firms have attitudes, δ, where δ is a measure of attitudes towards refugees

- Learning is costly and a function of effort, $c(e)$

- Firm's expected utility is given by

$$E(U) = E(\Pi) - \delta - c(e)$$

- Firm's problem: chose effort and then update beliefs

- Solve problem working backwards

Conceptual framework: why do attitudes matter?

- New signal: $s^{'} = \theta + \varepsilon + \nu$, with $\nu \sim N(0, \sigma_\nu^2(e))$ measurement error, such that $\sigma_\nu^{2'}(e) < 0$

- Update beliefs as follows:

$$m_1(e) = \alpha^{'} s + (1 - \alpha^{'}) m_0$$

  where

$$\alpha^{'} = \frac{\sigma_1^2(e)}{\sigma_\varepsilon^2 + \sigma_\nu^2(e)}$$

Conceptual framework: why do attitudes matter?

- New signal: $s^{'} = \theta + \varepsilon + \nu$, with $\nu \sim N(0, \sigma_\nu^2(e))$ measurement error, such that $\sigma_\nu^{2'}(e) < 0$

- Update beliefs as follows:

$$m_1(e) = \alpha^{'} s + (1 - \alpha^{'}) m_0$$

where

$$\alpha^{'} = \frac{\sigma_1^2(e)}{\sigma_\varepsilon^2 + \sigma_\nu^2(e)}$$

- Higher effort leads to more precision ($\alpha^{'}$ higher) and thus less weight on prior

- First stage: firm choses effort to learn about the refugee during the internship

- From participation constraint note that a firm will not exert effort if:

$$E[m_1(e)] - w - c(e) < \delta \quad \forall e$$

Conceptual framework: why do attitudes matter?

- *Prediction 2*: With costly learning, there will be two types of firms:

  - Positive attitudes ($E[m_1(e^*)] - w - c(e^*) \geq \delta$) $\rightarrow$ exert effort to learn $\rightarrow$ update beliefs positively (in expectation) $\rightarrow$ increase demand for a generic refugee
  - Negative attitudes ($E[m_1(e)] - w - c(e) < \delta \quad \forall e$) $\rightarrow$ exert no effort to learn $\rightarrow$ update beliefs less than low group (in expectation)$\rightarrow$ smaller increase in demand for a generic refugee compared to low group