

# **Labour market effects of digital matching platforms: experimental evidence from sub-Saharan Africa**

Sam Jones & Kunal Sen  
UNU-WIDER

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# Agenda

- 1** Motivation
- 2** Experimental design
- 3** Data & Methods
- 4** Results
- 5** Validation
- 6** Conclusion

## **(1) Motivation**

# Motivation

Youth employment crisis in sub-Saharan Africa: at least one in five adults looking for work.

But un(der)employment often coincides with unfilled vacancies.

Growing interest in role of 'matching frictions':

- Vacancy information (Dammert et al., 2015)
- Transport subsidies (Franklin, 2018)
- Subsidized skills screening (Abebe et al., 2021)
- Wage information (Jones & Santos, 2022)

Limited *rigorous* evidence on role of digital jobs platforms, esp. for informal or occasional work  $\implies$  we run an experiment

## **(2) Experimental design**

## Experimental design

Embedded in a longitudinal survey of TVET graduates (*Ensino Técnico Médio*) as they entered the labour market:

- All regions and types of schools (public/private) – Maputo City, Maputo Province, Tete, Nampula and Cabo Delgado
- Wide range of different courses, agriculture/industry/services
- Baseline face-to-face survey (N = 1639): October-Nov. 2019
- Follow-up telephone survey (4 waves): January-Nov. 2020

More information: [final survey report](#).

# Experimental design

Rely on a simple encouragement (nudge) intervention.

Sent SMS messages inviting *randomly-selected* participants to register on one of two local digital labour platforms:

- *Biscate*: for occasional, mainly manual work
- *Emprego*: for more professional work

## SMS invitation example:

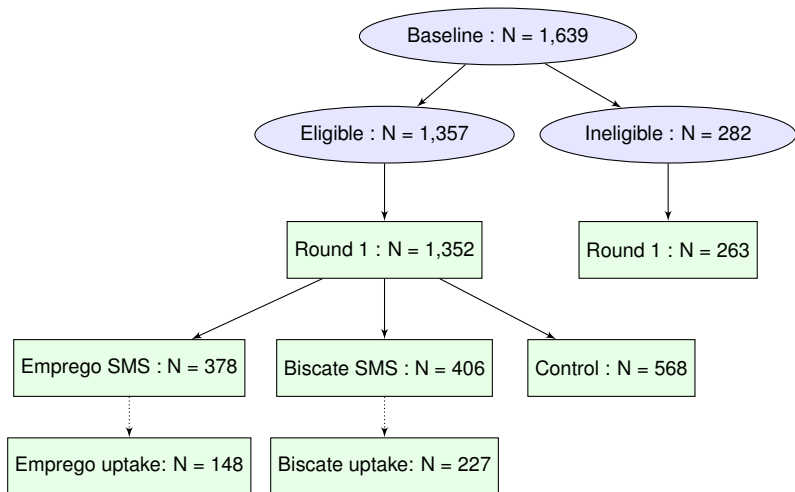
```
Mensagem para finalistas do curso Geologia:  
regista-te no Biscate para receberes oport-  
-unidades de trabalho. Liga gratuito para *770#
```

Main question: **does usage of digital platforms lead to better employment outcomes?**

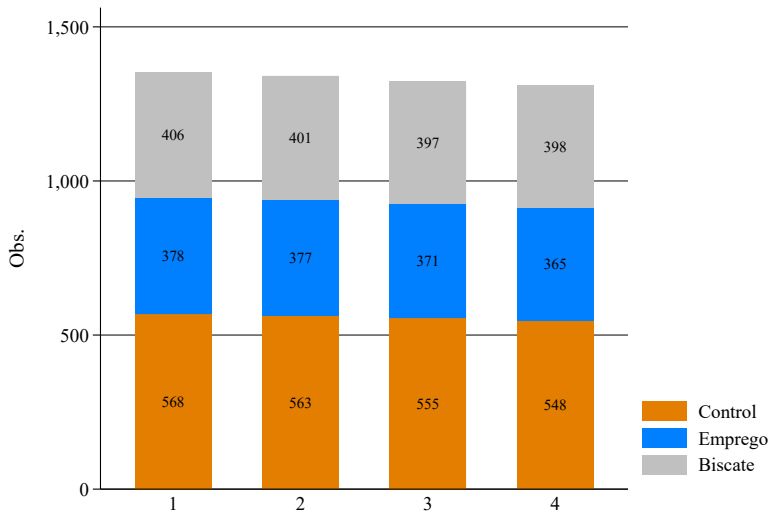
## **(3) Data & Methods**



# Sample structure

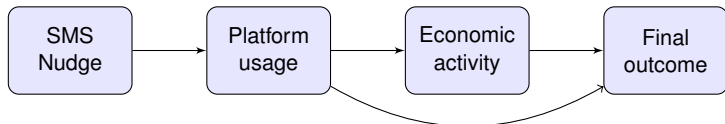


# Sample structure



# Analysis

Schematic:



Uptake regressions:

$$\text{Usage}_{it}^p = \alpha_j + \sum_p \beta_p \text{Nudge}_{it}^p + \mathbf{X}'_{it} \theta^p + \varepsilon_{it}^p \quad (1)$$

Outcome regression (intent-to-treat effect):

$$y_{it} = \alpha + \sum_p \delta_p \text{Nudge}_{it}^p + \mathbf{X}'_{it} \gamma + \phi_{it} \quad (2)$$

Complier average treatment effect (CATE):  $\delta_p / \beta_p$

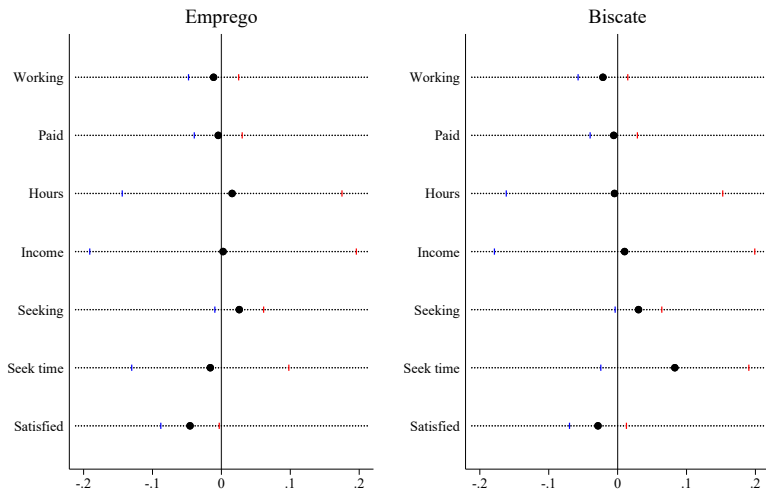
## **(4) Results**

# Results: did the nudge work?

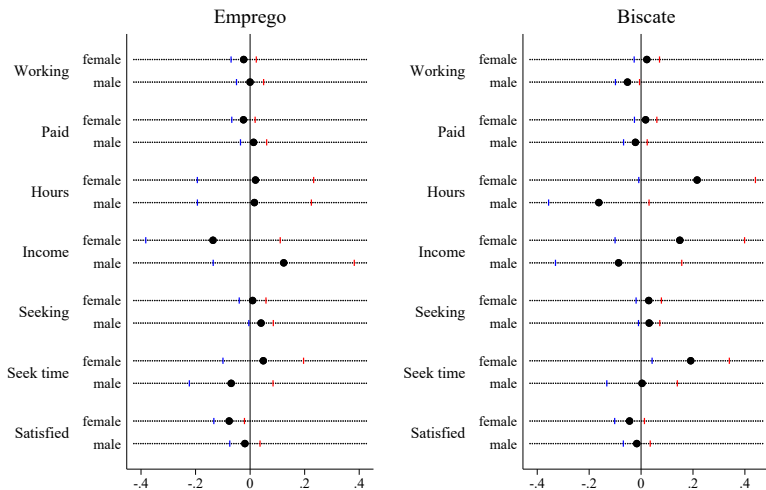
	(1) Emprego usage				(2) Biscate usage			
	Ext.	Self	Srch	Mean	Ext.	Self	Srch	Mean
Emprego SMS	0.09*** (0.02)	0.10*** (0.02)	0.03** (0.01)	0.07*** (0.01)	0.01 (0.01)	0.12*** (0.02)	0.02*** (0.01)	0.05*** (0.01)
Biscate SMS	-0.01 (0.01)	0.01 (0.02)	-0.01 (0.01)	-0.00 (0.01)	0.47*** (0.03)	0.27*** (0.02)	0.02*** (0.01)	0.25*** (0.01)
Manual course	-0.00 (0.01)	-0.00 (0.02)	-0.01 (0.01)	-0.01 (0.01)	0.04*** (0.01)	0.01 (0.02)	0.00 (0.00)	0.02** (0.01)
Female	-0.03*** (0.01)	-0.08*** (0.02)	-0.05*** (0.01)	-0.05*** (0.01)	-0.02* (0.01)	-0.04*** (0.01)	-0.00 (0.00)	-0.02*** (0.01)
Prev. experience	0.00 (0.01)	0.02 (0.01)	0.01 (0.01)	0.01 (0.01)	0.02* (0.01)	0.04*** (0.01)	0.00 (0.00)	0.02*** (0.01)
Obs	5,327	5,327	5,327	5,327	5,327	5,327	5,327	5,327
R <sup>2</sup> adj.	0.06	0.13	0.02	0.11	0.39	0.17	0.02	0.33

significance: \* 10%, \*\* 5%, \*\*\* 1%

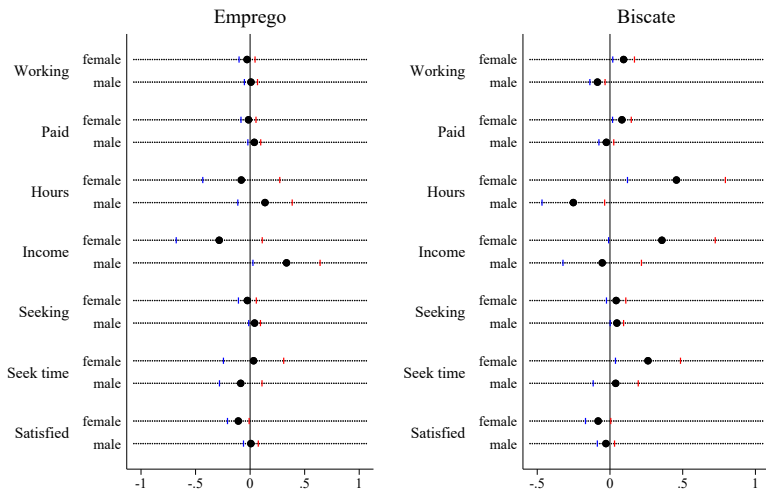
# Results: pooled (ITT)



# Results: gender differences (ITT)



# Results: gender differences, manual courses (ITT)





## **(5) Validation**

# Demand on the Biscate platform

	(I) Contact rate		(II) Agreement rate		(III) Demand index	
	(a)	(c)	(a)	(c)	(a)	(c)
Female	-0.87 (0.86)	-2.86*** (0.75)	-0.41 (0.38)	-1.22*** (0.36)	2.45* (1.34)	0.44 (1.28)
Female × Age		0.98 (1.20)		-0.24 (0.53)		5.72** (2.36)
Female × Edu.		-5.02*** (1.72)		-0.92 (0.78)		-9.06*** (3.06)
Female × Manual		12.55*** (3.04)		4.95*** (1.19)		15.41*** (4.66)
Age	-0.03 (0.16)	-0.23 (0.24)	-0.12 (0.08)	-0.07 (0.11)	1.16*** (0.35)	-0.21 (0.47)
Education	-0.78** (0.35)	0.37 (0.40)	-0.23 (0.15)	0.02 (0.19)	-0.03 (0.58)	1.34 (0.83)
Experience	-0.70** (0.33)	0.01 (0.31)	-0.17 (0.16)	0.05 (0.16)	-0.29 (0.70)	1.14 (0.80)
Constant	7.09*** (0.55)	6.09*** (0.50)	2.74*** (0.25)	2.42*** (0.22)	9.14*** (0.93)	8.62*** (0.87)
Obs.	20,850	20,850	20,850	20,850	20,850	20,850
R <sup>2</sup>	0.41	0.52	0.35	0.44	0.24	0.32

significance: \* 10%, \*\* 5%, \*\*\* 1%

## **(6) Conclusion**

# Highlights

- 1 Contribute experimental evidence on role of digital platforms to support youth employment in an under-studied context, covering both formal and informal activity
  - 2 For the average TVET graduate in Mozambique, we found no evidence digital platforms yield significantly better outcomes. BUT weak evidence of higher search and lower satisfaction
  - 3 Heterogeneous effects seem important: positive effects for women who register on the Biscate platform, esp. those with manual qualifications. Consistent with evidence of higher demand for female-manual workers on the platform
- = **Digital platforms may help serve labour market 'niches', but unlikely to be a general panacea to jobs challenges**