

Measuring the Selection and Incentive Effects of Career and Financial Incentives

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Discussion – Etienne Lalé (Bristol and IZA)

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What is it about?

- ▶ The effects of work incentives on labor market outcomes
- ▶ Disentangle a selection effect from an effort effect
- ▶ Estimation in the context of a two-stage randomized experiment

I. Framework

Framework

Consider:

$$y = y(s, e)$$

- ▶ $s \sim H(\cdot)$ is heterogeneity (skills)
- ▶ e is a choice variable (effort)
- ▶ y increases with both s and e

In equilibrium

$$y^* = \mathbb{E}(y(s, e^*) | s > s^*)$$

Framework

Effects of an incentive i :

$$\frac{\partial y^*}{\partial i} = \underbrace{\frac{\partial s^*}{\partial i} \frac{h(s^*)}{1-H(s^*)} \mathbb{E}(y(s, e^*) - y(s^*, e^*) | s > s^*)}_{\text{selection effect (extensive margin)}} + \underbrace{\frac{\partial e^*}{\partial i} \mathbb{E}\left(\frac{\partial y}{\partial e}(s, e^*) | s > s^*\right)}_{\text{effort effect (intensive margin)}}$$

Remarks:

- ▶ No ambiguity as to the measurement of each margin:
 - ▶ Selection: increase in s holding the effort at e^*
 - ▶ Effort: increase in e holding the selection at s^*
- ▶ Need some structure (H and y)

Framework

At the mean:

$$\mathbb{E}(y(s, e_i^*) | s > s_i^*) - \mathbb{E}(y(s, e^*) | s > s^*)$$

2 decompositions:

$$\underbrace{\mathbb{E}(y(s, e_i^*) | s > s_i^*) - \mathbb{E}(y(s, e_i^*) | s > s^*)}_{\substack{\text{selection effect} \\ \text{(upper bound)}}} + \underbrace{\mathbb{E}(y(s, e_i^*) | s > s^*) - \mathbb{E}(y(s, e^*) | s > s^*)}_{\substack{\text{effort effect} \\ \text{(lower bound)}}} \quad (1)$$

and

$$\underbrace{\mathbb{E}(y(s, e^*) | s > s_i^*) - \mathbb{E}(y(s, e^*) | s > s^*)}_{\substack{\text{selection effect} \\ \text{(lower bound)}}} + \underbrace{\mathbb{E}(y(s, e_i^*) | s > s_i^*) - \mathbb{E}(y(s, e^*) | s > s_i^*)}_{\substack{\text{effort effect} \\ \text{(upper bound)}}} \quad (2)$$

- ▶ (1), big-S small-e: $\mathbb{E}(y(s, e_i^*) | s > s^*)$
- ▶ (2), small-s big-E: $\mathbb{E}(y(s, e^*) | s > s_i^*)$

II. This paper

This paper

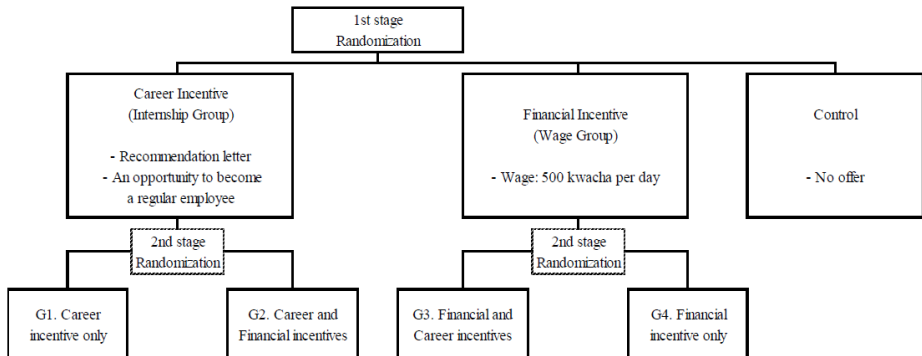


Figure 1: Experimental Design

This paper

$$i \in \{c, f, c+f\}$$

Preliminary observations:

1. ‘Control group’? not really
2. We have e_{c+f}^* , but not s_{c+f}^*

Identifying assumption (H1):

$$c+f = f+c$$

This paper

1st stage:

$$(G1 + G2) \text{ vs. } (G3 + G4) : \mathbb{E}(y(s, e_c^*) | s > s_c^*) \text{ vs. } \mathbb{E}(y(s, e_f^*) | s > s_f^*)$$

2nd stage:

$$G2 \text{ vs. } G1 \quad \mathbb{E}(y(s, e_{c+f}^*) | s > s_c^*) \text{ vs. } \mathbb{E}(y(s, e_c^*) | s > s_c^*)$$

$$G4 \text{ vs. } G3 \quad \mathbb{E}(y(s, e_f^*) | s > s_f^*) \text{ vs. } \mathbb{E}(y(s, e_{c+f}^*) | s > s_f^*)$$

$$G3 \text{ vs. } G2 \quad \mathbb{E}(y(s, e_{c+f}^*) | s > s_f^*) \text{ vs. } \mathbb{E}(y(s, e_{c+f}^*) | s > s_c^*)$$

This paper

- ▶ Use G2 – G3 to estimate the selection effect
- ▶ Implicitly, it is the ‘big-S small-e’ decomposition:
 - ▶ Selection $\mathbb{E}(y(s, e_i^*) | s > s_i^*) - \mathbb{E}(y(s, e_i^*) | s > s^*)$, i.e. evaluated at high e_i^*
 - ▶ Baseline effort is then $s_f^* \Rightarrow$ Use G3-G4 to evaluate the effort effect

$$\underbrace{\mathbb{E}(y(s, e_{c+f}^*) | s > s_{c+f}^*) - \mathbb{E}(y(s, e_{c+f}^*) | s > s_f^*)}_{\text{G2-G3}} + \underbrace{\mathbb{E}(y(s, e_{c+f}^*) | s > s_f^*) - \mathbb{E}(y(s, e_c^*) | s > s_f^*)}_{\text{G3-G4}}$$

- ▶ Identifying assumption (H2): s_{c+f}^* in LHS $\simeq s_c^*$ from G2

Next, we cannot uncover another selection effect. Meanwhile, under (H1)–(H2)

$$\mathbb{E}(y(s, e_{c+f}^*) | s > s_c^*) - \mathbb{E}(y(s, e_c^*) | s > s_c^*)$$

from G2 – G1 is the effort effect from the ‘small-s big-E’ decomposition

III. Results

1st stage results

- ▶ Recruiting stage:

- ▶ c does not trigger higher acceptance rates
- ▶ no selection on the observables (suggesting $s_f^* \simeq s_c^*$?)

- ▶ 1st stage results:

$$(G3 + G4) > (G1 + G2) : \Rightarrow s_f^* > s_c^* \text{ and/or } e_f^* > e_c^*$$

2nd stage results

- ▶ From G2 – G3 :

$$s_c^* > s_f^*$$

Given the 1st stage, it suggests $e_f^* \gg e_c^*$

- ▶ From resp. G2 – G1 and G3 – G4, it seems that

$$e_{c+f}^* > e_c^* \text{ and } e_{c+f}^* \simeq e_f^*$$

Some caveats

- ▶ The second stage results suggest some form of self-selection. However, the direction of the effect seems to contradict the first stage
- ▶ The effort effects are significant in some instances, but they are never significant for the same outcome variable
- ▶ The outcome variable ‘speed’: need a stronger resolution on whether increasing survey speed is a positive outcome
- ▶ For the outcome variable ‘attitude’, the effect $G2 - G1$ is smaller than $G3 - G4$, although $G2 - G1$ should provide an upper bound to the effects of effort
- ▶ What should we think of the magnitude of each of these effects?

IV. Comments

Contribution

- ▶ Literature on work incentives:
 - ▶ The paper is not measuring the effects of each incentive separately
 - ▶ What makes a career incentive differ from a financial incentive?
- ▶ Literature on disentangling selection and effort effects:
 - ▶ Empirical evidence established in a much broader context
 - ▶ Little acknowledgment of the results from the education literature
- ▶ Literature on labor market outcomes and non-cognitive skills

External validity

- ▶ Rural area in Malawi; 8% of the population has secondary education; Specific subfield (Census enumerators)
- ▶ The effectiveness of work incentives depends on the outside option of agents: cf ‘unemployment as a worker discipline device’
 - ▶ In Malawi, the outside option is a 60% unemployment probability
 - ▶ (strikingly, only 40% of individuals accepted this ‘competitive’ job offer)
- ▶ The difference between career and financial incentives will also depend on the broader context: budget constraint, information, labor market mobility, etc.

Conclusion

Concluding remarks

- ▶ Interesting overarching themes: efficiency wage, career concerns, work incentives
- ▶ The empirical exercise is to evaluate one incentive against the other incentive
- ▶ It is difficult to think about work incentives in isolation: their effectiveness may depend on the broader context (institutions, labor market performance, etc.)