Incentives for education: evidence from Benin

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Set-up of incentive schemes

- Three groups: (1) individual incentives to achieve a target performance; (2) team-based incentives to achieve the same target performance; (3) team-based tournament.
- How to set the incentive schemes so that they are similar?
  - easy to do for the first two, not so easy for the tournament
  - in tournament, proba(winning$|a_i, b_j$) depends on how well other teams do.
  - choose prize s.t. *ex ante* level of gain in tournament $=$ gains in the other two treatments
  - Is *ex ante* gain in tournament $=$ *ex post* gains?
  - avge effect of the tournament maybe larger than the effect of target-based incentives because the incentives provided were just bigger...

Model

- Ass. driving results: own effort and help from others are strategic complements
- In team-based incentives to achieve a target performance:
    - free-riding equilibrium in the model: low-θ provide effort while high-θ sit and look
    - another plausible free-riding behaviour (but not present in the model): low-θ free-ride on effort provided by high-θ
- Are model implications robust to ass. that team members get *equal* share of the prize?
    - nothing in team-based incentives schemes as implemented imposes that.

External validity

- Document how the 100 study schools were selected among 739 that satisfy all other criteria.
- Document whether participating students are similar to other non-participating students from the same school-grade.
- Be more careful when generalizing results:
  - these depend on having students randomly allocated to study groups (how to scale-up?)
  - b/w groups competition effects may lower impacts of the tournament (GE effect)
  - standard determines who is actually incentivized (can expect different results with different targets or different populations)

Internal validity

- What defines take-up? How is it monitored?
    - low or no impact may just be due to low take-up
    - are they intent-to-treat estimates?
- Check if students are actually randomly allocated to groups
    - test if background characteristics of i is correlated to paired j
- Explain how "drop-outs" (those who fail written exam) are accounted for...

Econometrics and Empirics

- ▶ Two remarks on econometric model:
    - ▶ Random assignment does *not* make selection bias equal to zero but balances the bias b/w the treatment and the control group
    - ▶ ATT is *not* underestimated b/c it sits outside CI at median: Δ_i are just heterogenous.

- ▶ Specify a model that includes of all treatments:
    - ▶ pooling in order to test if effects are similar across treatments

- ▶ QTE identify differences in outcomes *for* low (high) percentiles of the untreated outcome distribution,
    - ▶ do not necessarily identify the impact for any particular individual (low or high-θ)
    - ▶ unless ranks of individuals are unaffected by the treatment
    - ▶ rank preservation cannot be tested, but is required for QTE to be intepreted as impact for low (high) performers
    - ▶ alternative: interact treatment dummy w/percentiles of baseline outcome distribution

Explaining results

- For team-based incentives (target & tournament), linking empirics with theoretical findings:
  - treatment effects for high-θ paired w/ low-θ? treatment effect for high-θ paired w/ high-θ?
  - treatment effects for low-θ paired w/ high-θ? treatment effects for low-θ paired w/ low-θ?
- Assess if impacts vary w/ pre-existing attributes of groups that may affect cooperation:
  - w/ random assignment of students to groups, some will be more homogenous than others

Explaining results

- Team-based incentives: beware of interpretation based on QTE
  - if student is high(low)-θ, then more likely to be teamed up w/ people who on avge have lower (higher) θ
  - those at the middle of distribution are just as likely to be teamed up w/ high or low-θ students, so for them, team-target not different from indiv target.

Comparing Individual vs Team-based incentive to achieve a target

Panel B: Normalized Written BEPC 09 Score

Individual Target	0.43***	0.67***	0.17	705
	(0.11)	(0.09)	(0.12)	
Team Target	0.17	0.66***	0.28***	728
	(0.12)	(0.17)	(0.10)	

Panel C: Normalized BEPC 09 Score: Higher Order Skills

Individual Target	0.38***	0.28***	0.19	705
	(0.11)	(0.09)	(0.16)	
Team Target	0.09	0.28**	0.28*	728
	(0.12)	(0.12)	(0.15)	