Productivity of health workers: the case of Tanzania

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What is productivity analysis?

- Measurement of outputs relative to inputs

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\frac{\text{Outputs}}{\text{Inputs}}
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- Outputs: Number of patients
- Inputs: Finances (or health workers, equipment etc.)
Why productivity analysis?

- Identify and learn from most productive units
- Allocate resources efficiently and equitably
  - Ex: Personnel from low to high productive units
    - Higher output?
    - More equal workload
Methods for benchmarking productivity

• Total Factor Productivity analysis (TFP)
  – Compare each facility to the best performing facility

• Data Envelopment Analysis (DEA)
  – Compare to high performing – but ”similar” – facilities
    • Similar size, similar input mix

• Stochastic Frontier Analysis (SFA)
  – Take into account possible measurement errors in your peers’ productivity levels
MAP project, Tanzania (2006-10):
Health worker Motivation, Availability and Performance

- 9 rural districts
- 126 health facilities
  - 99 with data on number of patients over time
Simple productivity analysis

• Input:
  – Number of health workers in the OPD

• Output:
  – Number of patients treated in the OPD

⇒ Productivity:
  – Patients pr health worker
Patients per health worker (per day)
Productivity levels – by health facility

- TFP analysis
- DEA analysis
- SFA analysis
Average productivity (and variation)

Variation: 5 - 95 percentile
Conclusions

• Low average productivity
  – A few facilities do much better than most of the others

• Large variation in productivity
What to do?

• Learn from high performers

• Allocate additional health workers to high productive units

• Fewer health workers at low productive units?
  – Not necessarily. Could imply close-down. Equity?
Recommendations

• Don’t do productivity analysis without **good data!!**

• Include **all outputs**
  – Delivery, vaccinations, OPD, etc.

• Use the **DEA approach**
  – More sensible than TFP analysis
    • Accounts for differences in the size of health facilities
  – Easier and more intuitive than SFA analysis
    • Easily deals with multiple inputs/outputs
    • Software freely available (e.g., DEAP)