

Improving on evolution: Revised Guidelines for Efficiency measurement in health and health care

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Background

- Objectives – *efficiency is stated goal* for health care delivery for governments in many countries
- And by others, such as NGOs, e.g. WHO “*delivery of effective services to full population, equitably, efficiently and protecting individuals from catastrophic costs*”
- Think about achieving SDGs, and UHC
- Given objectives and economic realities – there is a growing *need/responsibility to measure efficiency to achieve internal and external objectives*

Background

- Efficiency measures are widely used in health
- Popular as they imply you can ‘produce’ more health *without investing more*
- Variety of health and health care settings
- Increasingly used in LMIC settings
- Methods are *useful* in different settings
- *Evidence*

The questions

- What do we mean by **efficiency in health/health care**?
- What do we mean by **outcome measurement**, in terms of improving the health of patients and populations?
- Is it possible to move towards a **gold standard** of practice for carrying out efficiency studies?
- What are **the issues** when undertaking such work
- Are they specific to health?

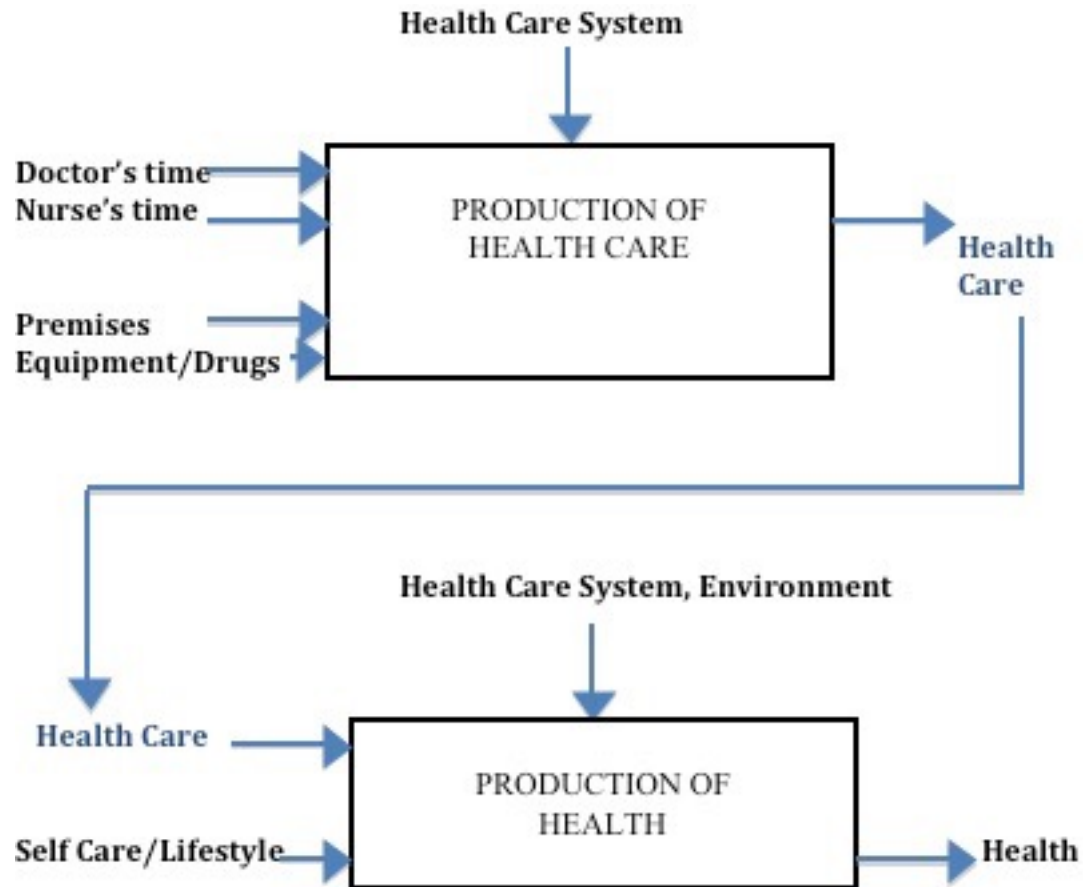
Efficiency

- Published health literature of 800+ journal papers and book chapters
- Includes mainly *frontier methods*
- So, we should know what we mean by efficiency in this area...?

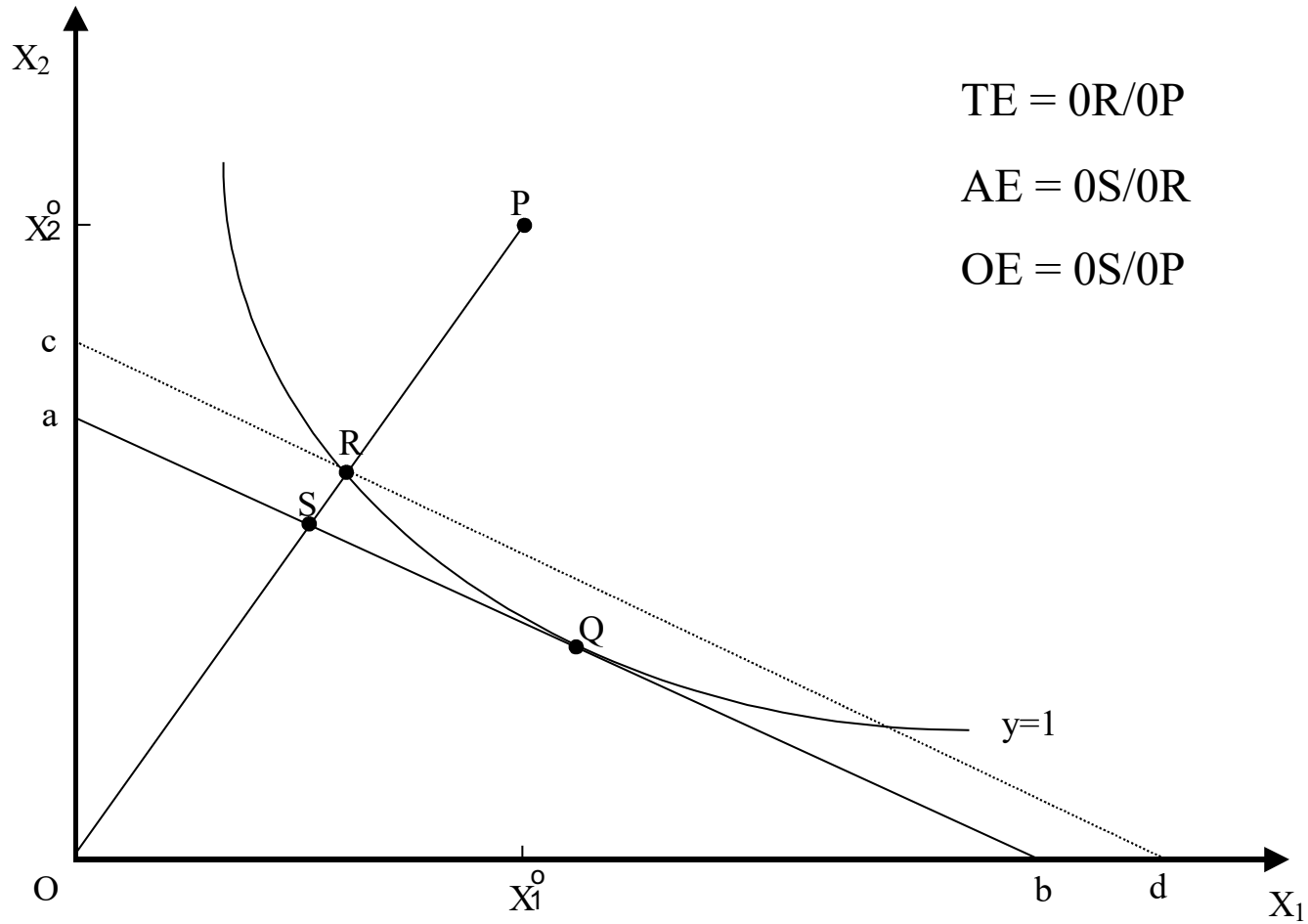
Efficiency

- Farrell (1957) – good starting point
 - Farrell M.J. The Measurement Of Productive Efficiency.
 - *Journal Royal Statistical Society*
(A) 1957; 120(3): 253-281.

Production of Health



Efficiency



Efficiency

- Farrell (1957) – good starting point
- Techniques – frontier measurement
- Data envelopment analysis
- Stochastic frontier analysis
- Longitudinal data variants (over time analysis)
 - Malmquist

Efficiency

- What does the word *efficiency* really mean?
- Pareto optimality?
- Does it really mean *better*?
- Reinhardt – use the term efficiency sparingly “*in a manner that cannot possibly be misunderstood*”

Efficiency

- Rice goes further – Pareto optimality in a policy

sense is not useful

- He asks - What policy change would ever make

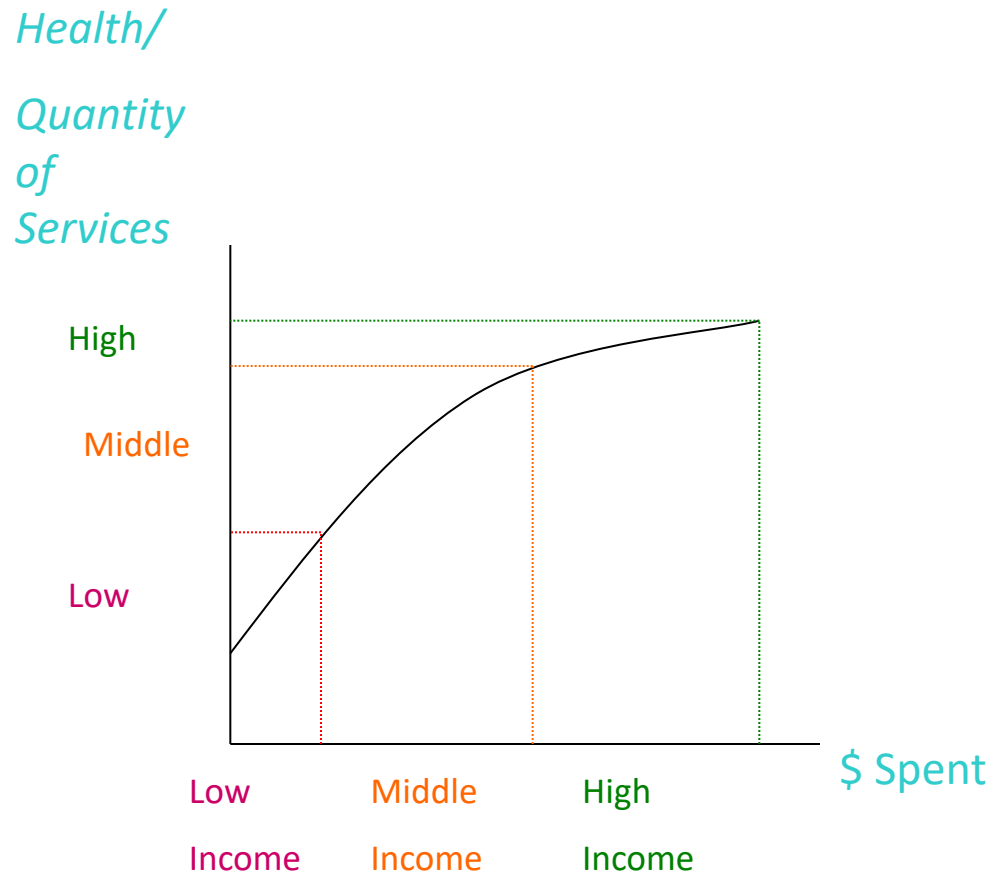
someone better off without making *someone else*

worse off ?

Efficiency and outcomes

- How should we measure *outputs in health and health care?*
- *Final or intermediate*
- Don't forget *quality*, or this may be picked up as inefficiency
- Does it make a difference in practice?

Country level analysis



- High Income – quantity/quality trade offs
- Middle income – quantity important (some access concerns)/quality important
- Low income – quantity critical, eg access issues

Country level analysis

- If resources are scarce – *compelling argument to ensure money is spent efficiently – or effectively?*
- But – where does efficiency sit in *relation to other health system objectives?*
- Or relative to other *measures of performance/effectiveness?*
- *Information on efficiency is powerful*

Usefulness

- Efficiency is *part of framework for measuring health system performance*, - including e.g. *geographic access*
- In *context of specific area of application* some important work has been undertaken
- **How can studies be consistently useful?**

Issues that *guidelines* help with

- Data
- Objectives
- Overall performance measurement
- One way forward
- *But, time for an update...*

Use and usefulness criteria

- Is there a way of undertaking research in this area which would make the *supply of studies more effective*?
- In other words are there *specific criteria*, or guidelines, which would make efficiency measurement more user friendly?
- Establish some initial *non-exhaustive* criteria, in both macro and micro terms

Use and usefulness criteria – *Suppliers* – *Macro issues*

- Applied research needs to be placed in a policy context
 - get end users involved early on, helps ‘ownership’
 - feedback results at various stages, and to different levels of users
- Hospital managers may have concerns about health authorities using efficiency measures as ‘big sticks’
 - interested in detailed information, health authority interested in big picture and comparisons
 - what value are you adding to the way efficiency is measured already?
- Health workers interested
 - Does inefficiency mean less work/employment?
- Have you given your end users the information you set out to?
 - surveying them
 - disseminate your results
 - limitations of efficiency measures, *a* useful policy tool, not *the* useful policy tool

Use and usefulness criteria – *Suppliers* – *Micro Issues*

- Are you asking **the right questions**?
- What is your **underlying economic theory** of production (or cost)?
- Is your **model specified correctly**? Have you undertaken extensive sensitivity analysis?
- Are your **data comprehensive enough** to answer the questions?
- Have you any **data on quality**?
- Is your **sample** inclusive, are you comparing like with like? Sample size
- Which **techniques** will you use? **Panel data**?

Use and usefulness criteria - *Demanders*

- A **check-list** for assessing if an efficiency analysis should be made use of
- Suppliers of efficiency studies may also wish to take note of these points
- The **two assessment questions** are pertinent here:
 - is the methodology appropriate and are the results valid; and if the answer to this is yes:
 - do the results apply in my setting?
- It is **unlikely every study can fulfil every criteria**, but criteria are useful as screening devices to identify strengths and weaknesses of studies

A 10 point checklist for assessing efficiency measurement studies

1. Is the question well defined, and answerable?

- inputs and outputs clear?
- is there a particular viewpoint stated (whose objectives?), decision making context?

2. Is a comprehensive description of the sample given?

- relevant comparator units excluded?
- sample strictly comparable, outliers?

3. Are the quality and quantity output data clear and comprehensive?

- who collected data, why?
- case mix adjusted?
- are quality data useful?

4. Are all the relevant inputs and outputs included?

- range wide enough?
- do they cover all relevant viewpoints (e.g. policy makers, managers, workforce)
- physical quantities of inputs as well as costs

A 10 point checklist for assessing efficiency measurement studies

5. Are inputs and outputs measured accurately in appropriate units?

- resources used accounted for?
- omitted data? Justification?
- special circumstances, e.g. joint use of staff? Handled appropriately?

6. Were inputs and outputs (or objectives) valued (or weighted) correctly?

- sources of all values identified? E.g. market prices for inputs, case mix weights?
- value of outputs appropriate? Weights placed upon relationship between quantities (and qualities) of outputs?

7. Were analyses over time undertaken?

- values adjusted to present value?
- specific techniques justified, e.g. RE/FE models used, scale

A 10 point checklist for assessing efficiency measurement studies

8. Do techniques add incremental value?

- for example is DEA used? Or SFA?
- are techniques justified, e.g. what incremental value do they add?

9. Was allowance made for uncertainty?

- statistical analyses?
- sensitivity analyses - which dimensions are tested?
- results sensitive to the statistical/sensitivity analysis?

10. Did the presentation/discussion of results include all issues of concern to users?

- conclusions based on an overall measure, or individual comparisons?
- results compared with others? Generalisability?
- other important factors, e.g. ethical, or access, or equity?
- implementation, e.g. feasibility of adopting efficiency changes, given operational constraints, can freed resources be redeployed to more efficient programmes?

Discussion – *Gold Standard?*

- *Malmquist* and *SFA* very innovative
- Underlying *theory* of production
- *Multiple appropriate* techniques
- Trends over *time*

Discussion – Back to Basics?

- Data - inputs and outputs
- Sample – size matters
- Quality and quantity

Discussion – *A way forward?*

- Efficiency measurement has real value
- At several levels
- Overall performance measurement
- *A way forward*

Some Updated Conclusions

- A **number of criteria** are suggested for judging whether research published in this area is potentially **useful in a policy context**
- These **criteria should be used as a means to interpret results, not a check list for dismissing the usefulness of individual studies on a generic basis:**
 - what is of no use to one user may be very useful to another, working from a different viewpoint in a different health system
- These criteria can help make the information of policy use
- Time for reflection on updating...

Practical Recommendations

- Analysis of efficiency to be a *regular, routine, activity*.
- Sustainable, *updated data* needed to undertake such analysis regularly
- This enables monitoring of progress, *benchmarking*, and the effect of policy changes
- Feedback mechanisms to work with managers and underperformers

Guidance update - underway

- Original guidelines referenced 1000 times
- Have things moved on in **quality of studies**, and **usefulness of results**?
- How can the guidance be made more **useful/useable**?

Coming soon:

Hollingsworth, B. **Measuring Health and Health Care Efficiency: Revised Guidelines for Measurement.**
Handbook of Productivity, Efficiency, and Effectiveness in Health Care, Cambridge University Press, 2023.

Further Contact and for a copy of the new guidelines:

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