Investment and disinvestment of health technologies: the need for two cost-effectiveness thresholds

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HTAi 2011
Summary

• A cost-effectiveness **threshold** has been adopted by health care decision makers in numerous jurisdictions.

• This paper demonstrates that, under very weak assumptions, decision makers ought to adopt **separate** thresholds for **investment** and **disinvestment** decisions.
The CE plane

$\Delta C$

$\Delta E$
The CE plane

\[ \Delta C \]

\[ \Delta E \]

Slope = \( k \)

Traditional cost-effectiveness threshold

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The CE plane

\[ \Delta C \]

\[ \Delta E \]

Traditional cost-effectiveness threshold

Slope = k

INVESTMENT

DISINVESTMENT

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The CE plane

\[ \Delta C \]

\[ \Delta E \]

Traditional cost-effectiveness threshold

Slope = k

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The CE plane

Threshold for investment decisions
Slope = \(k^+\)

Threshold for disinvestment decisions
Slope = \(k^-\)
The production function

Health output

Budget

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The production function

Traditional health production function
The production function

Traditional health production function *(inverted)*
The production function

Traditional health production function (inverted)

Budget

Health output

Slope = k

H*
The production function

- Budget
- Health output
The production function
The production function

Budget

No information

Perfect information

Health output
The production function

Budget

Health output

No information

Some information

Perfect information
The production function

Budget

No information
Some information
Perfect information

Health output

Improved information
The production function

- No information
- Some information
- Perfect information

Improved information → Improved productivity
The production function
The production function

Budget

Health output

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The production function

Budget vs Health output graph

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The production function

Budget

Health output
The production function

- Budget
- Health output

Previous health production function
The production function

Budget

Previous health production function

Current health production function

Health output

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The production function

Previous health production function

Current health production function

Budget

H*

H* Health output

B*
The production function

Previous health production function

Current health production function

Budget

Health output

\[ B^* \]

\[ H^* \]
The production function

Previous health production function (no fixity)

Current health production function (no fixity)
The production function

Previous health production function (no fixity)

Current health production function (no fixity)
The production function

Previous health production function (no fixity)

Current health production function (no fixity)

Budget

H*

Health output
The production function

Budget vs Health output

Previous health production function (no fixity)

Current health production function (with fixity)

Current health production function (no fixity)
The production function

Previous health production function (no fixity)

Current health production function (with fixity)

Current health production function (no fixity)
The production function

- Budget
- Health output

B* and H* points on the graph.
The production function

Budget

Health output

B*

H*
The CE plane

$\Delta C$

$\Delta E$
The CE plane
The CE plane

Threshold for investment decisions

Threshold for disinvestment decisions
The CE plane

Threshold for investment decisions
Slope = k+

Threshold for disinvestment decisions
Slope = k-

Slope = k
Assumptions

• For separate thresholds the following assumptions must hold:
  • There is at least some *short term fixity* in the set of adopted technologies
  • The *productivity* of the health system or the *information* available to the decision maker must change over time

• True for all real-world health systems
Possible implications

• Interpretation of ICERs
  • Should we adopt different thresholds?

• Net benefit calculation
  • Implications for MC simulation?

• Value of information analysis

• Value based pricing
  • Should we value QALYs differently for investments and disinvestments?
Thank you!

For a PDF copy of this presentation and a complete list of references please visit theta.utoronto.ca/?3099 or scan the barcode with your phone or tablet.