Funding HIV-vaccine trials in developing countries – What’s wrong with IAVI’s recommendation?

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Overview

→ Background

→ International unconditional income transfers

→ International in-kind versus income transfers

→ Conclusions

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Background: The dilemma in vaccine research

- A vaccine is the key to accelerate the achievement of MDG 6.

- Pharmaceutical companies are little involved in HIV-vaccine research, because
  - discovery is an international public good (Kremer, 2006).
  - asymmetries in R&D interests

- AIDS-vaccine trials in developing countries as an alternative (IAVI, 2004)?
Basic message and approach

- Targeting income or in-kind transfers to developing countries in order to accelerate the development of an AIDS vaccine is counterproductive.

- Concept of international public goods; supply-side characteristics as additional perspective.
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International unconditional income transfers (I)

The basic model:

- $n$ agents,
- two commodities $(y_i, G)$,
- private good $y_i$,
- public good “finding an AIDS vaccine“ $G$,
- utility function $U_i(y_i, G)$,
- marginal cost differentials,
- endowed with income $I_i$
International unconditional income transfers (II)

Time structure of actions:

- 1. Stage:
  Which part of income should be transferred to recipients?

- 2. Stage:
  How much will be spent on both commodities?
International unconditional income transfers (III)

- **Proposition 1:** The overall public good provision level cannot fall if a non-contributor makes an income transfer to a contributor.

- **Proof:**

  \[ \Delta G < 0 \]
  \[ \Rightarrow G' < G^* \]
  \[ \Rightarrow y' > y^* \]
  \[ \Rightarrow y' = h_i(G') < y^* = h_i(G^*) \]
  \[ \Rightarrow y' < y^* \]  
  
  (1)
International unconditional income transfers (IV)

- Funding R&D in developing countries is justified by the epidemiology of HIV.

However: small global benefit spillovers; recipients have incentives to spend money for other purposes

⇒ Assistance in kind as an alternative?
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International in-kind versus income transfers (I)

- budget constraint changes due to in-kind option:
  - case 1: agent $i$ receives an in-kind transfer
    \[ y_i + p_i g_i + p_j g_j = I_i + p_j g_i \quad \text{für } g_j \leq G \quad (2) \]
  - case 2: agent $i$ gives an in-kind transfer
    \[ y_i = I_i - \left( p_j g_j + p_i g_i \right) + p_j g_j \quad \text{für } g_j > G \quad (3) \]
International in-kind versus income transfers (II)

- **Proposition 2**: An-kind transfer may be pareto-superior to an income transfer if a recipient is more cost-efficient than a donor.

- **Proof**: Summing up (2) and (3) for $n = 2$:

\[
y_1 + y_2 + p_1 G + (e p_1 - p_2) g_1^2 = e I_1 + I_2 \quad (4)
\]
International in-kind versus income transfers (III)

- Optimal strategy depends on the relative price of providing a health-promoting public good.
- Vaccine research has to be monopolized in industrialized countries.
- Asymmetries in R&D interests ⇒ incentive compatible mechanisms ⇒ pull strategies
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Conclusions

- Funding HIV-vaccine trials in developing countries will not be effective because of aid dispersion.

- In-kind transfers are preferable only if recipients have a cost advantage.

- Asymmetric interests in R&D can be addressed by vaccine purchase commitments.

- **However:** Analyses possess some methodological limitations.
Thanks a lot for your attention!
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