



# **Financing the fight against AIDS –**

## **New challenges with existing mechanisms**

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**“Health financing in developing countries”  
Clermont-Ferrand, 1st – 2nd December 2005**



# **Financement de la lutte contre le VIH/ Sida – Nouveaux défis avec des mécanismes existants**

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**“Financement de la santé dans les pays en développement”  
Clermont-Ferrand, 1<sup>er</sup> – 2 Décembre 2005**

# The global HIV/AIDS epidemic



Source: AIDS epidemic update: Dec 2005, UNAIDS



## **Basic message:**

Use of already available financial arrangements according to the underlying technology of public supply aggregation.



## Le message principal :

L'utilisation des arrangements financiers déjà existant d'après la technologie soumise de l'agrégation de l'offre publique.

# Overview

- **Financial opportunities by neglecting the variety of aggregation technology**
- The concept of aggregation technology
- Applying the concept of aggregation technology to HIV/AIDS
- Conclusions

## Financial opportunities by neglecting the variety of aggregation technology (I)

- Traditional: *Summation technology is implicitly given*
- Control of the disease's spread results in a Prisoner's Dilemma

# Financial opportunities by neglecting the variety of aggregation technology (II)

## Assumptions:

- o 2 countries and 2 strategies
- o Contributor and noncontributor alike receive the same individual benefit  $b$
- o Contributor has to pay individual costs  $c$
- o  $0 < b < c < 2b$

## Financial opportunities by neglecting the variety of aggregation technology (III)

### Prisoner's Dilemma:

Country A's strategy		Country B's strategy	
		do not contribute	contribute
do not contribute	<i>I</i>  0, 0 *	<i>II</i>  b, b-c	
contribute	<i>III</i>  b-c, b	<i>IV</i>  2b-c, 2b-c	

Financial opportunities by neglecting the variety of aggregation  
technology (IV)

How can countries escape from this dilemma?

- Support needs to come from multilateral organisations e.g. World Bank
- Suboptimality can be overcome

**However, it is not recommendable to generalise this conclusion!**

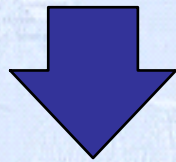
# Overview

- Financial opportunities by neglecting the variety of aggregation technology
- **The concept of aggregation technology**
- Applying the concept of aggregation technology to HIV/AIDS
- Conclusions

## The concept of aggregation technology

- Alternative aggregation technologies:

***Weakest-link  
technology***



only the ***smallest***  
effort

***Best-shot  
technology***



only the ***greatest***  
effort

determines the overall provision level

# Overview

- Financial opportunities by neglecting the variety of aggregation technology
- The concept of aggregation technology
- **Applying the concept of aggregation technology to HIV/AIDS**
- Conclusions

# Applying the concept of aggregation technology to HIV/AIDS (I)

- o Key health-promoting public goods

**Prophylactic health  
measures**



Weakest-link health-  
promoting public good

**Finding an AIDS  
vaccine**



Best-shot health-  
promoting public good

(II)

## Prophylactic health measures to limit disease's domain

- o An ***Assurance Game*** can be applied.
- o **Both** countries have to provide prophylactic health measures to receive a benefit  $b$ .

# Applying the concept of aggregation technology to HIV/AIDS

## (III)

<p>Country B's strategy</p> <p>Country A's strategy</p>	do not provide prophylactic measures	provide prophylactic measures
do not provide prophylactic measures	<p><i>I</i></p> <p>0, 0 *</p>	<p><i>II</i></p> <p>0, -c</p>
provide prophylactic measures	<p><i>III</i></p> <p>-c, 0</p>	<p><i>IV</i></p> <p>2b-c, 2b-c *</p>

(IV)

**Which implications have countries' behaviour on financing opportunities?**

Homogeneous countries → suboptimality is less of concern

Otherwise → financial support is needed

**Funding by an international organisation is not needed!**

## Applying the concept of aggregation technology to HIV/AIDS (V)

- Partnerships between industrialised and developing countries.
- Developing countries' own infrastructure need to be build up. Thus, partnerships should be complemented by traditional assistance.

# Overview

- Financial opportunities by neglecting the variety of aggregation technology
- The concept of aggregation technology
- Applying the concept of aggregation technology to HIV/AIDS
- **Conclusions**

# Conclusions

- Funding by an international organisation is not a general policy implication!
- An adequate response to financial needs in developing countries depends on the underlying aggregation technology.
- However: A two-country game possesses some methodological limitations.

# Les conclusions

- Le financement par une organisation internationale n'est pas une implication générale de la politique.
- Une réponse convenable aux besoins financiers dans les pays en développement dépend de la technologie soumise de l'agrégation.
- Mais: Un jeu avec deux pays possède quelques limitations méthodologiques.

A blue-toned topographic map of the world, showing continents and oceans. The map is centered on the Atlantic Ocean. Overlaid on the map is the text "Merci beaucoup pour votre attention !" in a bold, red, sans-serif font. Below this, the text "Thanks a lot for your attention!" is also overlaid in the same font style.

**Merci beaucoup pour votre  
attention !**

**Thanks a lot for your  
attention!**

A blue-toned topographic map of the world, showing major landmasses and geographical features. The map is centered on the Atlantic Ocean, with North America on the left and South America at the bottom left. The text "Additional Slides" is overlaid in the center in a bold, dark blue, italicized font. The map includes labels for major countries and regions such as Canada, United States, Brazil, Russia, China, India, and Africa. The text "Additional Slides" is positioned in the center of the map, overlapping the Atlantic Ocean and parts of North and South America.

***Additional Slides***

# Applying the concept of aggregation technology to HIV/AIDS (I)

## Finding an AIDS vaccine

- o A ***Best-shot Coordination game*** underlies.
- o In contrast to the weakest-link case, the **first unit** of the public good for health gives a benefit  $b$  to each country.
- o  $b > c > 0$

## Applying the concept of aggregation technology to HIV/AIDS (II)

Country B's strategy	do not search for a vaccine	search for a vaccine
Country A's strategy		
do not search for a vaccine	<i>I</i>  0, 0	<i>II</i>  b, b-c *
search for a vaccine	<i>III</i>  b-c, b *	<i>IV</i>  b-c, b-c

## Applying the concept of aggregation technology to HIV/AIDS (III)

Problems arise, when the industrialised country is less interested in the best-shot public good.



Assistance of international organisations is needed e.g. IAVI!

However: A direct financial support may be not generally successful

## Applying the concept of aggregation technology to HIV/AIDS (IV)

- Building up developing country's own infrastructure for R&D:
  - High incidence of new HIV-infections
  - different sub-types of HIV
- National financing strategies must be integrated into international financing strategies!