The Cost of HUNGER in AFRICA

Social and Economic Impacts of Child Undernutrition

Addis Ababa, Ethiopia
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MN FORUM

The Social and Economic Impact of Child Undernutrition in Ethiopia
Introduction

- Ethiopia has one of the world’s fastest growing economies, exceeding Global, Africa and Eastern Africa averages growth rates.

- However this economic progress has occurred despite some of the highest rates of child under nutrition in the world.
Nutrition Situation in Ethiopia

Percent of children under age five who are:

- Stunted (too short for age)
  - 2000 EDHS: 58
  - 2005 EDHS: 51
  - 2011 EDHS: 44

- Wasted (too thin for height)
  - 2000 EDHS: 12
  - 2005 EDHS: 12
  - 2011 EDHS: 10

- Underweight (too thin for age)
  - 2000 EDHS: 41
  - 2005 EDHS: 33
  - 2011 EDHS: 29

Based on the new WHO Child Growth Standards
Positive progress in Nutrition in Ethiopia

- This encouraging reduction is achieved through improvement in food and nutrition security, improvement on policy landscape for nutrition and scaling up of nutrition programs to reach more children and women.

- However, malnutrition is still a public health problem and remains a concern to the country’s rapid economic development.
What is the implication of this higher child under nutrition to Ethiopia?

Different studies have proven that having a high rate of child under nutrition has a seriously impact on a given country both socially and economically.
Consequence of Undernutrition (Adapted model)

Undernutrition

Higher mortality risk

Higher morbidity risks: Acute and Chronic illnesses

Higher labor absenteeism

Increased demand to social services

Lower educational performance

Social inclusion problems

Lower Performance in Manual Labor

Lower Productivity

Cognitive and psychomotor underdevelopment

Lower physical capacity

Increased demand for social services

Lower productivity

COST OF HUNGER
• This scientific fact indicates high under nutrition rate in Ethiopia impact an economic loss to the country as well as to an individual.

• However how much Ethiopian economy is affected for having high rate of child under nutrition is not known.

• This was the rational basis to conduct the present study on social and economic impact of child under nutrition in Ethiopia.
General objective

• To estimate the social and economic impact of child under nutrition in Ethiopia.

Specific objectives:

• To estimate the cost of child under nutrition on health, education and productivity

• To estimate the potential saving of reducing child under nutrition
Significance of the study

- The study result can be used as an advocacy tool to sensitize the government and nutrition partners to work hard on eradicating child undernutrition in Ethiopia.
Methodology

• National Team Establishment
  • EHNRI, MOH, MOE, CSA, MOFED, WFP, WB, & WHO - Ethiopia country office

• Data Collection
  • Secondary data on demographic, economics, educational, social, nutritional and epidemiological were collected from both national and international data set.
  • Some primary data were also collected from St-paul hospital millennium medical college.

• The COH methodology Adaptation
  • The methodology was adapted from Latin America cost of hunger study and customized in to the African/Ethiopian context.
Cost Analysis Model

\[ TC^U = f (HC^U, EC^U, PC^U) \]

**Health Cost:**
\[ HC^U = f (HSC^U, IHC^U) \]
- Attention on associated pathologies
- Access and time

**Education Cost:**
\[ EC^U = f (ESC^U, IEC^U) \]
- Extra operation due to repetition
- Access, time and materials

**Productivity Cost:**
\[ PC^U = f (ELC^U, MLC^U, MMC^U) \]
- Differential productivity manual and non-manual
- Potential productivity lost due mortality

Undernutrition \[ \rightarrow \] Higher Risk
• The cost analysis focuses on under nutrition during the initial stage of the life cycle and its consequences throughout life.

• The impact of under nutrition on health was analysed for the population group aged from birth to 59 month.

• The impact on education were analysed for the age group 6-18 years.

• The impact on productivity were analysed for the age group 15 to 64 years old.
The concept of **relative or differential risk** run by individuals who suffer from under nutrition during the first stage of life compared to a healthy child, were used to estimate the impact of under nutrition on health, education and productivity of an individual/ society.

- **Relative risk ratio** (factors) was used based on scientific findings on the relationship between under nutrition and productivity.

- The base year of analysis was **2009**
Dimensions to the Cost of Hunger

Incidental Retrospective:
Current Economic Cost

Looking Back to Estimate the Current Cost

Prospective:
Present Value of Cost that will be incurred

Looking Forward to Estimate the Present Value

- Years: 0-5, 2009, X, X+4, X+18, X+64
- Cost Groups: Education, National Productivity
- Concepts: Incidental Retrospective, Prospective

- Incidental Retrospective:
  - Current Economic Cost
  - Estimate the Current Cost

- Prospective:
  - Present Value of Cost that will be incurred
  - Estimate the Present Value

- Dimensions to the Cost of Hunger
Result
Effects and Costs of Child Undernutrition in 2009 in Ethiopia Retrospective
### SUMMARY OF COSTS OF CHILD UNDERNUTRITION, 2009

<table>
<thead>
<tr>
<th>Episodes</th>
<th>Cost In USD</th>
<th>Percentage of GDP</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Health Cost</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LBW and Underweight</td>
<td>3,139,682</td>
<td>106.4 million</td>
</tr>
<tr>
<td>Increased Morbidity</td>
<td>1,270,996</td>
<td>48.0 million</td>
</tr>
<tr>
<td><strong>Total for Health</strong></td>
<td>4,410,678</td>
<td>154.4 million</td>
</tr>
<tr>
<td><strong>Education Cost</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Increase Repetition-Primary</td>
<td>152,488</td>
<td>7.9 million</td>
</tr>
<tr>
<td>Increase Repetition-Secondary</td>
<td>-----------</td>
<td>-------</td>
</tr>
<tr>
<td><strong>Total for Education</strong></td>
<td>152,488</td>
<td>7.9 million</td>
</tr>
<tr>
<td><strong>Productivity Cost</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lower Productivity- Non-Manual</td>
<td>1,938,632</td>
<td>53 Million</td>
</tr>
<tr>
<td>Lower Productivity- Manual labor</td>
<td>24,273,274</td>
<td>1.1 billion</td>
</tr>
<tr>
<td>Lower Productivity- Mortality</td>
<td>3,230,218</td>
<td>3.4 billion</td>
</tr>
<tr>
<td><strong>Total for Productivity</strong></td>
<td>29,442,124</td>
<td>4.6 billion</td>
</tr>
<tr>
<td><strong>TOTAL COST FOR ETHIOPIA IN 2009</strong></td>
<td>4.7 billion</td>
<td>16.54%</td>
</tr>
</tbody>
</table>

From 1945-1994, 4.8 billion working hours lost.

67% WAP are stunted.

4.7 billion USD
The total estimated impact of child undernutrition is equivalent to 16.5% of GDP.

<table>
<thead>
<tr>
<th>Country</th>
<th>Losses in Local Currency</th>
<th>Annual Losses in USD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Egypt</td>
<td>EGP 20.3 billion</td>
<td>$3.7 billion</td>
</tr>
<tr>
<td>Ethiopia</td>
<td>ETB 55.5 billion</td>
<td>$4.7 billion</td>
</tr>
<tr>
<td>Swaziland</td>
<td>SZL 783 million</td>
<td>$92 Million</td>
</tr>
<tr>
<td>Uganda</td>
<td>UGX 1.8 trillion</td>
<td>$899 million</td>
</tr>
</tbody>
</table>

The aggregate cost estimation for Health, Education and Productivity are equivalent to between 1.9% to 16.5% of GDP.
Prospective, or potential saving, dimensions analysis social and economic impact of child under nutrition.
### ESTIMATED SAVINGS FOR EACH SCENARIO, 2009

**In millions of USD**

<table>
<thead>
<tr>
<th>Scenario #1</th>
<th>Scenario #2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cutting by half the prevalence of child under nutrition by 2025</td>
<td>Reduce stunting to 10% and underweight children to 5% by 2025</td>
</tr>
</tbody>
</table>

#### Health Cost Saving

<table>
<thead>
<tr>
<th></th>
<th>USD</th>
<th>USD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduced Morbidity</td>
<td>239.4</td>
<td>318.04</td>
</tr>
</tbody>
</table>

#### Education Cost Saving

<table>
<thead>
<tr>
<th></th>
<th>USD</th>
<th>USD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduced Repetition - Primary</td>
<td>15.08</td>
<td>26.7</td>
</tr>
</tbody>
</table>

#### Productivity Increments

<table>
<thead>
<tr>
<th></th>
<th>USD</th>
<th>USD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Higher Productivity - Non-Manual</td>
<td>88.8</td>
<td>134.15</td>
</tr>
<tr>
<td>Higher Productivity - Manual labor</td>
<td>777.9</td>
<td>1,382.9</td>
</tr>
<tr>
<td>Higher Productivity - Mortality</td>
<td>4,888.8</td>
<td>10,682.2</td>
</tr>
</tbody>
</table>

#### TOTAL SAVING

<table>
<thead>
<tr>
<th></th>
<th>USD</th>
<th>USD</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>6.01 billion USD</strong></td>
<td><strong>12.5 billion USD</strong></td>
<td></td>
</tr>
</tbody>
</table>
### Required reduction rate to achieve the scenarios

**Base line 2009 ; Stunting = 46.4 % and Underweight = 31%**

<table>
<thead>
<tr>
<th>SCENARIOS (2009-2025)</th>
<th>Required reduction of stunting per year</th>
<th>Required reduction of Underweight per year</th>
<th>Annual saving</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scenario 1</td>
<td>1.5 % reduction per year</td>
<td>1% reduction per year</td>
<td>$376 million</td>
</tr>
<tr>
<td>Scenario 2</td>
<td>2.3% reduction per year</td>
<td>1.6 % reduction per year</td>
<td>$784 million</td>
</tr>
<tr>
<td>NNP reduce stunting to 30 % (2015)</td>
<td>2.7 % reduction required</td>
<td>--------------------------</td>
<td>$160.17 million</td>
</tr>
</tbody>
</table>
Conclusion

- According to the study, it can be concluded that Ethiopian economy is seriously affected for having high rate of child under nutrition with an estimated 4.7 billion USD economic loss in health, education and productivity in the year 2009.
- The study also demonstrated that the reduction in child under nutrition will impact positively on educational investments, reduce the burden on the health system, and increase labor productivity.
We choose..

To pay the consequences of having under nutrition

To pay for eradicating under nutrition

Source: Francisco Espejo’s presentation on cost of hunger; Picture design by Jhoram Moya
Recommendation

• The cost of hunger study in Ethiopia strongly suggest that special attention must be given to the early stages of life as the foundation of human capital, in order for the country to achieve sustainable human and economic growth.

• Hence, stronger effort must be exercised at national level to reduce child under nutrition through the implementation of the newly revised Ethiopian National Nutrition Program.
Furthermore, child nutrition has to be monitored closely, as it evidences the effectiveness of the government social response.

Overall, Ethiopia needs to continue significant investment in nutrition.
Acknowledgment

- Special recognition has to be provided for
  - African Union Commission for the initiation and leadership of the study,
  - UNECA and UNWFP for financial and technical support, Particularly for Dr Carlos Acosta (ECA) with support of Rachel Quentin and Shewit Assefa
  - ECLAC, particularly Rodrigo Martinez and Amalia Palma
  - For the national implementation team members
Thank You