Inequality in Health Outcomes

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Gains in human development...
...especially in health and education

Life expectancy (WDI Database)

Mean years of schooling (Barro-Lee Dataset)
How equal has this progress been?

What do we know about inequality in health outcomes?

• Regional or national averages often conceal wide disparities both between and within countries.

• Despite an impressive overall improvement in health indicators, existing research hints to persisting gaps in health outcomes across socio-economic characteristics in many Arab countries.
How do we measure inequality in health outcomes?

Data Sources

- 24 household surveys from three main sources:
  - Demographic and Health Surveys (DHS)
  - Multiple Indicator Cluster Surveys (MICS)
  - Pan Arab Project for Family Health (PAPFAM)
- Covering 12 Arab countries for two points in time (between 2000-2015)

<table>
<thead>
<tr>
<th>Country</th>
<th>Earliest Survey</th>
<th>Latest Survey</th>
</tr>
</thead>
<tbody>
<tr>
<td>Algeria</td>
<td>PAPFAM 2002</td>
<td>MICS 2012</td>
</tr>
<tr>
<td>Comoros</td>
<td>MICS 2000</td>
<td>MICS 2012</td>
</tr>
<tr>
<td>Egypt</td>
<td>DHS 2000</td>
<td>DHS 2014</td>
</tr>
<tr>
<td>Iraq</td>
<td>MICS 2000</td>
<td>MICS 2011</td>
</tr>
<tr>
<td>Jordan</td>
<td>DHS 2002</td>
<td>DHS 2012</td>
</tr>
<tr>
<td>Libya</td>
<td>PAPFAM 2007</td>
<td>PAPFAM 2014</td>
</tr>
<tr>
<td>Mauritania</td>
<td>DHS 2007</td>
<td>MICS 2015</td>
</tr>
<tr>
<td>Morocco</td>
<td>DHS 2003</td>
<td>PAPFAM 2011</td>
</tr>
<tr>
<td>Palestine</td>
<td>PAPFAM 2006</td>
<td>MICS 2014</td>
</tr>
<tr>
<td>Sudan</td>
<td>MICS 2000</td>
<td>MICS 2014</td>
</tr>
<tr>
<td>Tunisia</td>
<td>PAPFAM 2001</td>
<td>MICS 2011</td>
</tr>
<tr>
<td>Yemen</td>
<td>PAPFAM 2003</td>
<td>DHS 2012</td>
</tr>
</tbody>
</table>
Data Sources

• Harmonized to make all surveys comparable across both countries and time
• Technical Annex has detailed description of data sources and harmonization process
Health Indicators

• Stunting & Overweight
  • Stunting: low height-for-age, reflects chronic malnourishment; irreversible after 2 years of age
  • Overweight: high weight-for height

• Skilled Birth Attendance (SBA)
  • Percentage of births attended by skilled health personnel

• Infant Mortality Rate (IMR)
  • Probability of dying before the 1st birthday, reported as deaths per 1,000 live births

• Water & Sanitation (WASH) Indicators
  • Water: household has access to safe drinking water according to MDG definition
  • Sanitation: using indicator from Arab MPI; household has improved sanitation facilities which is not shared with other households
Child health indicators: Stunting and Overweight

**Stunting (2000-2015)**

- Jordan
- Palestine
- Tunisia
- Algeria
- Morocco
- Iraq
- Egypt
- Mauritania
- Comoros
- Libya
- Sudan
- Yemen

**Overweight (2000-2015)**

- Mauritania
- Yemen
- Sudan
- Jordan
- Palestine
- Comoros
- Morocco
- Iraq
- Algeria
- Tunisia
- Egypt
- Libya

Stunting Baseline Survey  Stunting Endline Survey

Overweight Baseline Survey
Water and Sanitation Indicators

Sanitation Indicator

- Palestine
- Tunisia
- Egypt
- Algeria
- RA*, 8 countries
- Morocco
- Libya
- Yemen
- Mauritania

Water Indicator

- Country
- Egypt
- Tunisia
- Jordan
- Iraq
- Libya
- Algeria
- Morocco
- Mauritania
- Palestine
- Yemen

Graphs showing Endline and Baseline data for each country.
Overall results

• Progress in most indicators on a national level
  • Only stunting and overweight show a mixed result, not all countries managed to decrease the number of malnutritioned children

• Expected variation between national averages of the groups of the Least Developed Countries (LDCs) and Middle-Income countries (MICs)

• But what about disparities within the countries that are concealed by the national average?
Inequality between whom?

• Disaggregation of data by:
  • Area (Rural and urban, camp in Palestine)
  • Education of the head of household (No education and 12 years or more of education of the head of household)
  • Wealth Quintile (constructed using the Wealth Index, poorest and richest quintile)

Groups holding several characteristics:
Inequality between whom?

- Disaggregation of data by:
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Groups holding several characteristics:

**Most privileged**
- Urban
- HoHH has 12 years or more of education
- Richest wealth quintile
- HH has less than 5 members

**Most deprived**
- Rural
- HoHH has no education
- Poorest wealth quintile
- HH has more than 7 members
Ratio Analysis

• We analyze the changes in the ratio over time of the following characteristics:
  • Rural/urban
  • No education/Educated head of household
  • Poorest/richest
  • Most deprived/most privileged

• If indicator is presented as achievement, the ratio flips

• For some countries, wealth index cannot be constructed
## Ratio Analysis: Example

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Country</th>
<th>Year</th>
<th>Survey</th>
<th>Total</th>
<th>Urban</th>
<th>Rural</th>
<th>Rural/Urban</th>
<th>Change in Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>STUNTING</td>
<td>COM</td>
<td>2000MICS</td>
<td></td>
<td>46.52%</td>
<td>36.96%</td>
<td>49.32%</td>
<td>1.33</td>
<td></td>
</tr>
<tr>
<td></td>
<td>COM</td>
<td>2012DHS</td>
<td></td>
<td>30.19%</td>
<td>25.65%</td>
<td>31.89%</td>
<td>1.24</td>
<td>-0.09</td>
</tr>
</tbody>
</table>

• If change in ratio is negative ➔ decrease in inequality
• If change in ratio is positive ➔ increase in inequality
Summary: Stunting

Ratio Rural to Urban

Ratio Poorest to Richest

Ratio Non-educated to educated HoHH

Ratio Most Deprived to most privileged
Summary: Overweight

Ratio Rural to Urban

Ratio Poorest to Richest

Ratio Non-educated to educated HoHH

Ratio Most Deprived to most privileged
Summary: Infant Mortality Rate

1. Ratio Rural to Urban

- DZA
- EGY
- JOR
- TUN

2. Ratio Poorest to Richest

- JOR
- LBY
- PSE

3. Ratio Non-educated to educated HoHH

- DZA
- EGY
- JOR
- LBY
- PSE
- TUN

4. Ratio Most Deprived to most privileged

- DZA
- EGY
- LBY
- SDN

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Summary: Skilled Birth Attendance (SBA)

- Ratio Urban to Rural
- Ratio Richest to Poorest
- Ratio Educated to non-educated HoHH
- Ratio Most privileged to most deprived
Summary: WASH

Ratio Urban to Rural

Ratio Richest to Poorest

Ratio Educated to non-educated HoHH

Ratio Most privileged to most deprived

Water  Sanitation
Concentration Curve Analysis

The concentration curve (CC) ranks the health outcome by socioeconomic status, in our case by the wealth index. The horizontal axis of the CC begins with the poorest individual and progresses through the wealth distribution to the richest individual. This relative ranking of wealth is then plotted against the cumulative proportion of health outcome on the vertical axis. The further away the CC from the line of equality, the more unequal.
Concentration Index: Stunting

The concentration index (CI) summarizes the magnitude of inequality and is defined as twice the area between the concentration curve and 45-degree-line. The graph below shows the changes in CI (modified by Wagstaff (2005)) and average annual changes in the rate of stunting.
Concentration Curve: Skilled birth attendance

Generalized concentration index (CI) summarizes the magnitude of inequality and is defined as twice the area between the concentration curve and 45-degree-line. The graph below shows the changes in CI (generalized CI) and average annual changes in the rate of stunting.
Conclusion

• There is only one health outcome for which inequalities have decreased across all countries and characteristics: Skilled birth attendance (SBA)

• Inequalities across child mortality also persist in most countries, but not for all characteristics.

• Child nutrition indicators show persisting or even increasing inequalities across socio-economic characteristics in many countries.

• Water and sanitation indicators show persisting inequalities mainly between rural and urban areas.
Thank you for your attention!
Questions for discussion

• How do we define inequality?
• What are suitable characteristics of the most privileged/most deprived groups?