Inequality of Opportunities in Child and Maternal Health in the Arab World: What New Can We Learn?

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Motivation

• Achievement of equal opportunities was one of the main drivers of the Arab spring.

• Inequality in health opportunities could cause or amplify the inequality in other dimensions of human development which could lead to intergenerational consequences.

• Goal number 10 of the UN SDG calls for ensuring equal opportunity and reducing inequalities of outcomes.

• Extant literature on inequality of opportunities in health in Arab world, as compared to other dimensions of human development, is still emerging, but rapidly growing. Also, the cross-country studies that examined the inequality of opportunities have been focusing only on one point of time.
Importance

• Investigating the trend in the state of the inequality of health opportunity would help in:

➢ Assessing the **impact of** macroeconomic and social **policies**

➢ Providing a better understanding of the **root drivers** of health inequalities in the Arab region

➢ **Guiding policy makers** in designing effective intervention measures that aim at reducing health inequalities
Contribution to Literature

• We extend and complement the few cross-country studies in the literature that examined the Arab region (e.g. Assaad et al., 2012, Kraftt and El-Kogali, 2014), by examining the trends in the opportunity inequalities by utilizing two survey points, and using an up to date data, and by focusing on a wider set of health indicators.
Objective

1) Examining the trend of the inequality of opportunities (IOP) in child and maternal health in twelve Arab countries over the period 2000–2014.

2) Quantifying the contributions of different circumstances to the inequality of opportunity in child and maternal health.
Data

• We use data on **Twelve Arab countries** from **three** main survey **sources**:
  • Multiple Indicator Cluster Survey (MICS)
  • Demographic and Health Survey (DHS)
  • Pan-Arab Project for Family Health Survey (PAPFAM).

• To examine the **trend** in the inequality of opportunities in child and maternal health over time, we utilize **two survey points**, one in the **early 2000s** and another **after 2010**
Empirical Methodology

• The empirical analyses is grounded on the theoretical framework of Roemer’s model

• Dissimilarity index (D-index) is used to measure the extent of the inequality of opportunity.

• Shapley decomposition is used to determine the contribution of each circumstance to the inequality of opportunity.
Circumstances

• Child’s sex
• Household’s economic status as measured by the wealth index
• Mother’s education level
• Father’s education level
• Region of residence
Health outcomes

- **Child’s health outcomes include:**
  - Nutrition status (stunting, wasting, and under weight)
  - Neonatal mortality
  - Infant mortality
  - Full immunization of a child by the age of 2 years.

- **Maternal health outcomes include:**
  - Skilled attendance at birth
  - Receiving regular healthcare during pregnancy
  - Prenatal care
Magnitude of the Inequality of Opportunity in health

Dissimilarity Index (D-index)
Results
IOP decreased over time for (Full immunization, skilled delivery, 4 visits) and increased for other indicators.

Extent of IOP is minor for maternal health indicators but considerable for child indicators.
D-Index for Iraq

IOP decreased over time across all child and maternal health indicators

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Iraq 2000</th>
<th>Iraq 2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stunting</td>
<td>9.4</td>
<td>7.3</td>
</tr>
<tr>
<td>Wasting</td>
<td>13.8</td>
<td></td>
</tr>
<tr>
<td>Underweight</td>
<td>6.6</td>
<td></td>
</tr>
<tr>
<td>Fully immunized</td>
<td>11.5</td>
<td></td>
</tr>
<tr>
<td>Neonatal Mortality</td>
<td>10.4</td>
<td></td>
</tr>
<tr>
<td>Infant Mortality</td>
<td>9.7</td>
<td>6.1</td>
</tr>
<tr>
<td>Prenatal care</td>
<td>12.7</td>
<td>6.7</td>
</tr>
<tr>
<td>4 visits</td>
<td>17.5</td>
<td>10.1</td>
</tr>
<tr>
<td>Skilled delivery</td>
<td>12.2</td>
<td>2.9</td>
</tr>
</tbody>
</table>
D-Index for Egypt

IOP decreased significantly over time for all maternal health indicators and only in child stunting and wasting
D-Index for Palestine

Decrease in IOP over time only for child stunting and 4 visits
IOP increased for all other indicators
D-Index for Comoros

Increase in IOP over time across all health indicators

- Stunting: Comoros 2000: 6.6, Comoros 2012: 11.1
- Wasting: Comoros 2000: 10.3, Comoros 2012: 12.9
- Underweight: Comoros 2000: 8.2, Comoros 2012: 15.9
- Prenatal care: Comoros 2000: 13.6, Comoros 2012: 11.3
- 4 visits: Comoros 2000: 22.0, Comoros 2012: 22.0

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D-Index for Sudan

Decrease in IOP over time for full immunization. IOP increased for all child’s nutrition indicators.

Sudan 2000
Sudan 2014

- Stunting
- Wasting
- Underweight
- Fully immunized
- Neonatal Mortality
- Infant Mortality
- Prenatal care
- 4 visits
- Skilled delivery

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 Decrease in IOP over time for all maternal and child health indicators except immunization. Extent of IOP was large for child mortality indicators.
Decrease in IOP over time for all maternal health indicators. IOP increased for all child’s nutrition indicators.
D-Index for Yemen

<table>
<thead>
<tr>
<th>Indicator</th>
<th>2003</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stunting</td>
<td>12.4</td>
<td>14.3</td>
</tr>
<tr>
<td>Wasting</td>
<td>14.3</td>
<td>12.4</td>
</tr>
<tr>
<td>Underweight</td>
<td>15.1</td>
<td>15.1</td>
</tr>
<tr>
<td>Fully immunized</td>
<td>12.5</td>
<td>18.0</td>
</tr>
<tr>
<td>Neonatal Mortality</td>
<td>17.3</td>
<td>17.3</td>
</tr>
<tr>
<td>Infant Mortality</td>
<td>14.5</td>
<td>13.7</td>
</tr>
<tr>
<td>Prenatal care</td>
<td>37.6</td>
<td>30.8</td>
</tr>
<tr>
<td>Skilled delivery</td>
<td>23.1</td>
<td>12.4</td>
</tr>
</tbody>
</table>

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Considerable IOP in most of the child’s health indicators and for the 4 visits.
Magnitude of IOP in child mortality is substantial.
Drivers of the inequality of opportunity in health

Shapley Decomposition Results
Libya (2007)

Main drivers:
Region of residence (wasting, underweight, child mortality, skilled delivery)
Mother’s education (stunting, prenatal care, 4 visits)

Libya (2014)

Main drivers:
Father’s education (wasting, underweight, neonatal mortality)
Wealth (all other indicators)
Morocco (2003)

Main drivers:
- Wealth (child health)
- Region of residence (maternal health)

Morocco (2011)

Main drivers:
- Father’s education (wasting)
- Wealth (all other indicators)
Egypt (2000)

Main drivers:
Child’s sex (neonatal mortality)
Wealth (all other indicators)

Egypt (2014)

Main drivers:
mother’s education (underweight, prenatal care, 4 visits, child mortality)
Wealth (wasting, skilled delivery)
Child's sex (stunting)
Jordan (2002)

Main drivers:
Father’s education (child mortality, underweight, wasting)
Mother’s education (prenatal care, stunting)
Region of residence (immunization)
Wealth (skilled delivery, 4 visits)

Jordan (2012)

Main drivers:
Father’s education (infant mortality)
Mother’s education (underweight)
Wealth (all other indicators)
### Comoros (2000)

**Main drivers:**
- Wealth (wasting)
- Region of residence (stunting)
- Household head education (all other indicators)

### Comoros (2012)

**Main drivers:**
- Mother’s education (wasting, underweight, prenatal care, skilled delivery)
- Father’s education (child mortality, 4 visits)
- Wealth (stunting, immunization)
Palestine (2006)

Main drivers:
Wealth (child mortality, underweight)
Gaza (stunting, wasting, skilled delivery)
Region of residence (immunization, wasting)
Father’s education (4 visits)

Palestine (2014)

Main drivers:
Father’s education (child mortality, stunting)
Mother’s education (4 visits)
Wealth (wasting, immunization, prenatal care)
Iraq (2000)

Main: household head education (maternal health)
drivers Kurdstan (wasting & underweight
Wealth (stunting, immunization)

Iraq (2011)

Main drivers: Kurdstan (child nutrition)
Sex (mortality)
Wealth (maternal health)
Sudan (2000)

Main drivers:
- household head education (stunting)
- Wealth (underweight, immunization)
- Region on residence (wasting)

Sudan (2014)

Main drivers:
- Mother education (maternal health)
- Wealth (Child health)
**Tunisia (2011)**

**Main drivers:** Father’s education (child mortality, 4 visits health)  
Wealth (prenatal care, skilled delivery)  
Child’s sex (wasting, underweight)
Main drivers: Child’s sex (child mortality)
Wealth (all other indicators)
**Algeria (2012)**

**Main drivers:** Wealth (stunting, underweight, full immunization, prenatal care)  
Mother’s education (child mortality, 4 visits)  
Region of residence (skilled delivery)
Thank You