Modeling Women-Centered Interventions and Family Planning

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Family Planning Impact on Maternal Health
2011 International Conference on Family Planning, Dakar
The RAPID/Women Model

Provide a consistent evidence base that links family planning and women-centered strategies to overall national development

Consolidate the evidence that investing in women and girls, including family planning, pays off in terms of national development

Be a tool for women policy champions to advocate for increased investments in family planning which are accompanied by women-centered interventions
RAPID/Women Model

Elements of Women’s Quality of Life

- Health
- GBV
- Education
- Decision Making
- Income

Human Development Index (HDI)

National Development

- Environmental and natural resource programs
- Microcredit/Income Generation
- Girls’ education programs
- Gender-norms changes
- Political participation and leadership programs
- Other health interventions
The HDI is an index composed of three indices that reflect different aspects of the quality of life as measured nationally.
Contraceptive Prevalence Rate

Family Planning

Education

Gender Norms

<table>
<thead>
<tr>
<th>Ln (CPR)</th>
<th>Coefficient</th>
<th>t statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ln (Female average school attendance (years))</td>
<td>0.48</td>
<td>5.1</td>
</tr>
<tr>
<td>Ln (Wife Beating Justified)</td>
<td>-0.16</td>
<td>-1.76</td>
</tr>
<tr>
<td>Ln (CS Access Score)</td>
<td>1.81</td>
<td>3.85</td>
</tr>
</tbody>
</table>

R² = 0.69  N = 36
### Marriage

- **Ln (Percent of Women Married)**
  - Coefficient: -0.73
  - t statistic: -3.0
  - R-squared: 0.15
  - n: 51
Bongaarts Proximate Determinants Model

<table>
<thead>
<tr>
<th>TFR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marriage Index</td>
</tr>
<tr>
<td>PPI</td>
</tr>
<tr>
<td>Sterility Index</td>
</tr>
<tr>
<td>Contraceptive Use Index</td>
</tr>
<tr>
<td>Abortion Index</td>
</tr>
<tr>
<td>Total Fecundity</td>
</tr>
</tbody>
</table>
### Table: Correlation with High Risk Births

<table>
<thead>
<tr>
<th>Risk Type</th>
<th>Coefficient</th>
<th>R -squared</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Any Risk</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TFR</td>
<td>5.18</td>
<td>0.69</td>
<td>93</td>
</tr>
<tr>
<td>Infant Mortality Rate**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Any Risk</td>
<td>1.55</td>
<td>0.31</td>
<td>93</td>
</tr>
<tr>
<td>Under 5 Mortality Rate**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Any Risk</td>
<td>3.86</td>
<td>0.35</td>
<td>93</td>
</tr>
<tr>
<td>Maternal Mortality Rate**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Any Risk</td>
<td>21.27</td>
<td>0.24</td>
<td>64</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ln (Female Life Expectancy)</th>
<th>Coefficient</th>
<th>t statistic</th>
<th>R-squared</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ln (Under 5 Mortality Rate)</td>
<td>-0.19</td>
<td>11.7</td>
<td>0.71</td>
<td>55</td>
</tr>
</tbody>
</table>
Gross Domestic Product

Investment

Labor Force

Education

<table>
<thead>
<tr>
<th>Ln (GDP)</th>
<th>Coefficient</th>
<th>t statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ln (Investment)</td>
<td>0.65</td>
<td>24.7</td>
</tr>
<tr>
<td>Ln (Labor Force)</td>
<td>0.35</td>
<td>10.8</td>
</tr>
<tr>
<td>Ln (Female average school attendance (years))</td>
<td>0.38</td>
<td>5.37</td>
</tr>
<tr>
<td>$R^2 = 0.97$</td>
<td></td>
<td>N = 89</td>
</tr>
<tr>
<td>Ln (Capital per capita)</td>
<td>Coefficient</td>
<td>t statistic</td>
</tr>
<tr>
<td>----------------------------------------------</td>
<td>-------------</td>
<td>------------</td>
</tr>
<tr>
<td>Ln (GDP per capita)</td>
<td>0.89</td>
<td>13.1</td>
</tr>
<tr>
<td>Ln (Female combined gross enrollment rate)</td>
<td>0.32</td>
<td>1.86</td>
</tr>
<tr>
<td>Ln (Dependency rate)</td>
<td>-0.55</td>
<td>-2.44</td>
</tr>
</tbody>
</table>

**R-squared**: 0.93

**n**: 50
The HDI is an index composed of three indices that reflect different aspects of the quality of life as measured nationally.
RAPID/Women Model

Model Structure

Excel Model

Spectrum/DEMPROJ

Inputs
- Female Ed LE
- Female Yrs completed
- Wife Beating
- Justified
- FP Effort
- PPI
- Sterility

Endogenous Outputs
- % Married
- CPR
- TFR
- Births @ Risk
- IMR
- U5MR
- MMR
- Life Expectancy

Calculated Outputs
- Infant and Child Deaths
- Maternal Deaths
- Investment
- GDP/pop
- HDI

Total Population
- Births
- Population <1
- Population <5
- Dependency Rate
Simulations

Scenarios

Base (do-nothing) scenario

Family Planning only

Women-centered

Combined FP and women-centered
## Scenarios

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Value in</th>
<th>Expected Yrs</th>
<th>Mean Yrs Completed</th>
<th>Gender Norms</th>
<th>Access Indx</th>
<th>PPI</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Female</td>
<td>Male</td>
<td>Female</td>
<td>Male</td>
<td>Wife Beating Justified</td>
</tr>
<tr>
<td>2010</td>
<td></td>
<td>8</td>
<td>9</td>
<td>0.99</td>
<td>1.76</td>
<td>75.2</td>
</tr>
<tr>
<td>FP Only</td>
<td>2050</td>
<td>8</td>
<td>9</td>
<td>0.99</td>
<td>1.76</td>
<td>75.2</td>
</tr>
<tr>
<td>Women Centered</td>
<td>2050</td>
<td>10</td>
<td>10</td>
<td>4</td>
<td>4</td>
<td>40</td>
</tr>
<tr>
<td>Combined</td>
<td>2050</td>
<td>10</td>
<td>10</td>
<td>4</td>
<td>4</td>
<td>40</td>
</tr>
</tbody>
</table>
Family Planning

[Graph showing the trend of CPR (Combined and FP) from 2010 to 2050]

- **CPR**
  - **Combined**: 2010: 10, 2050: 53
  - **FP**: 2010: 5, 2050: 25
Fertility

The graph shows the trend of fertility rates from 2010 to 2050. The fertility rate is measured on the y-axis, ranging from 0.0 to 7.0. Two lines are depicted:

- The red line represents the combined fertility rate, which starts at approximately 6.0 in 2010 and is projected to decrease to 2.4 by 2050.
- The blue line represents the FP (fertility practice) rate, which starts at approximately 6.0 in 2010 and is projected to decrease to 4.6 by 2050.

The graph indicates a steady decline in fertility rates over the years.
Female Life Expectancy

- FP
- Combined
Human Development Index

- HDI

Graph showing the HDI from 2010 to 2050 with two lines:
  - Purple line labeled FP starting at 0.33 in 2010.
  - Red line labeled Combined starting at 0.30 in 2010.

The HDI is projected to increase to 0.50 by 2050 for the Combined line.
Under Five Mortality

Cumulative Deaths Avoided

- Combined
- GE+GN
- FP

Years: 2015 to 2050

- 2015: 0.1
- 2020: 0.2
- 2025: 0.5
- 2030: 1.0
- 2035: 1.5
- 2040: 2.0
- 2045: 2.5
- 2050: 5.0

Millions
Conclusions

Improvements in girls’ education, and gender norms can amplify the impacts of family planning.

Women-centered strategies should include girls education, improvements in gender norms and family planning.