An Analysis by Structural Equation Modeling of Contextual Determinants of Contraceptive Use in Rural Ghana

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Background

- Contraceptive use remains low in Africa and specially in rural Africa

- Unexplained variance remains after account of individual variables

- Need of neighborhood variables
  - How to measure them?
  - Which framework to use?
  - Which statistical modeling to use?
Data

• Demographic and Health Survey data from Ghana
  – Same framework is used to assess contextual variables on skilled birth attendance in four countries (Ghana, Kenya, Tanzania and Uganda)

• Final analysis samples are composed of 1814 women (who had birth in the last 5 years and were not pregnant)
Variables (1/2)

• Dependent Variables
  – Modern Contraceptive Use: 1 if woman used modern contraception since the last birth

  – Woman Autonomy
    • Created from four items related to decision-making
      – Own health (1 if sole decision or joint decision, 0 otherwise)
      – Large household purchase
      – Household purchase for daily needs
      – Visits to family or relative
      1 if No decision (No autonomy)
      2 if 1 to 2 decisions (Low autonomy)
      3 if 3 to 4 decisions (Great autonomy)
Variables (2/2)

• Contextual variables
  – Contextual Norms of Autonomy
    • % goes out without telling him
    • % neglect children
    • % argues with him
    • % refuses to have sex with him
    • % burns the food
  
  - % of women of secondary level
  - % of household of quintile 3
  - % of women not working in agriculture
  - % of household having under 5 children greater than rural mean
Methods

• Confirmatory Factor Analysis
  – To measure the Contextual Norms of Autonomy
  – Fit Indices:
    • Standardized Root Mean Square (SRMR<=0.08)
    • Root Mean Square Error of Approximation (RMSEA<=0.06)
    • Comparative Fit Index (CFI >=.95)
    • Tucker-Lewis Index (TLI >=.95)
    • Fiability: Alpha de Cronbach (>=.7)

• Multilevel Structural Equation Modeling
  – Measure direct and indirect effects
### Results (1/4)

#### Distribution of the Contextual variables

<table>
<thead>
<tr>
<th>Contextual Variables</th>
<th>Ghana</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PANEL A</strong></td>
<td></td>
</tr>
<tr>
<td>Proportion &quot;Goes out without telling him&quot;</td>
<td>0.405</td>
</tr>
<tr>
<td>Proportion &quot;Neglect the children&quot;</td>
<td>0.445</td>
</tr>
<tr>
<td>Proportion &quot;Argues with him&quot;</td>
<td>0.360</td>
</tr>
<tr>
<td>Proportion &quot;Refuses to have sex with him&quot;</td>
<td>0.245</td>
</tr>
<tr>
<td>Proportion &quot;Burns the food&quot;</td>
<td>0.193</td>
</tr>
<tr>
<td><strong>PANEL B</strong></td>
<td></td>
</tr>
<tr>
<td>Cluster Education</td>
<td>0.359</td>
</tr>
<tr>
<td>Cluster Quintile</td>
<td>0.358</td>
</tr>
<tr>
<td>Cluster not agriculture</td>
<td>0.512</td>
</tr>
<tr>
<td>Cluster Fertility</td>
<td>0.356</td>
</tr>
<tr>
<td>Cluster No Contraception</td>
<td>0.782</td>
</tr>
<tr>
<td><strong>N</strong></td>
<td>237</td>
</tr>
</tbody>
</table>
## Results (2/4)

- **Measure of Contextual Norms of Autonomy**

<table>
<thead>
<tr>
<th>Contextual Norms of Autonomy</th>
<th>Est.</th>
<th>Std. Est.</th>
<th>R-Square</th>
<th>Alpha Cronbach</th>
</tr>
</thead>
<tbody>
<tr>
<td>A: Goes out without telling him</td>
<td>1.000</td>
<td>0.886</td>
<td>0.784</td>
<td></td>
</tr>
<tr>
<td>B: Neglect children</td>
<td>1.075</td>
<td>0.879</td>
<td>0.772</td>
<td></td>
</tr>
<tr>
<td>C: Argues with him</td>
<td>0.999</td>
<td>0.902</td>
<td>0.814</td>
<td>0.94</td>
</tr>
<tr>
<td>D: Refuses to have sex with him</td>
<td>0.809</td>
<td>0.851</td>
<td>0.725</td>
<td></td>
</tr>
<tr>
<td>E: Burns the food</td>
<td>0.687</td>
<td>0.767</td>
<td>0.589</td>
<td></td>
</tr>
</tbody>
</table>

**Correlation between error term**

- nv744a WITH nv744b: 0.004, 0.341
- nv744d WITH nv744e: 0.004, 0.360
- Variance de NORME: 0.042, 1
Contextual norms of Autonomy

- % goes out without telling him: 0.886
- % neglect children: 0.879
- % argues with him: 0.902
- % refuses to have sex with him: 0.851
- % burns the food: 0.767
Results (3/4)

- Effects of contextual variables on woman autonomy

A 10% increase in Contextual Norms of Autonomy decrease by 30% the likelihood that women be in the group of high autonomy.
Effects of contextual variables on modern contraception

We do not found direct nor indirect effect of contextual Norms of Autonomy in skilled birth attendance in Ghana.

Our result do not found also significance effect of women autonomy on contraceptive use in this country.
Conclusion

- Our result found a great influences of socio-cultural norms on women autonomy but failed to found the same result for contraceptive use
  - Need to define more « contextually » woman autonomy in Africa Context !!!
  - Have real effect in other health behaviour specially on skilled birth attendance in Ghana
  - Sampling problem?
Implication and recommandation

• Negative Effect of Contextual norms of autonomy on woman autonomy
  – Need to empower woman
  – Introduce woman autonomy in education curricula

« This is the message I heard in this conference and this is where our own results go. I do believe that politics will works strongly to achieve this goal »