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Outline of presentation

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Introduction

- Kenya → high child mortality → in spite of the government’s commitment to create an enabling environment for the provision of quality health care and reduction of mortality levels.

- 1960-1980 → impressive and sustained under five mortality rates
- 1980-1990 → the rate declined to less than 2% (Table 1).
- Thereafter → rising mortality rates.
Introduction …

• Given the current rates and trends of IMR & U5MR, the country faces a real challenge in the achievement of ERS and MDGs.

• This paper addresses this issue and aims at informing health policy in Kenya in her endeavors to achieve ERS and MDGs.
Motivation and contribution

• Bridge knowledge gap on poverty and child survival in Kenya.

• Linking regional differences in mortality to regional differentials in poverty is important for broad regional targeting criteria, especially in the provision of health care services.

• Poverty and inequality comparisons of child survival by area of residence and region.

• Combining three DHS datasets offer the advantage of a very large sample compared to individual year analysis is essential for studying a rare event like death (Mosley and Chen, 1984).
Motivation and contribution…. 

• Using women’s birth histories to construct mortality rates for many years prior to the survey date.

• Extends microeconomic analysis to include certain time series elements from secondary sources (GNP, health expenditure & facilities) and also estimates trends in mortality rates.
Key tasks of the study

• Multidimensional poverty and inequality comparisons of child survival
  ➢ Due to lack of income measures we use asset index to rank children by their level of well-being

• Determinants of childhood mortality rates.

• Simulation of the impact of relevant policy variables on achievement of ERS and MDG targets.
DATA

• Pooled DHS data ➔ 1993, 1998 & 2003

• DHS are nationally representative data based on women aged 15 to 49 years.

• We use women’s birth histories to create a long time series of data for cohorts of five year old children born between 1978 and 2003

• Secondary macro level data on GNP per capita, health expenditure and regional distribution of health facilities for the year of a child’s birth.
METHODOLOGY (1)

Multidimensional Poverty Comparisons


- Multidimensional stochastic dominance analysis

- Child is poor if
  - From a household whose asset index is below an asset poverty line (union definition) or
  - if her probability of survival falls below a mortality poverty line (union definition)
  - Or shortfalls in both assets and survival (intersection definition)
**Inequality Dominance** - (Araar, 2006 approach)

We use:

- Absolute Gini index (Araar, 2006) to measure inequality in assets

- Absolute Lorenz curve to test for inequality dominance

- Absolute concentration curve to measure progressivity in child survival
Determinants of Childhood (U5) Mortality

• We use child health production function approach (Strauss and Thomas, 1995) and the proximate determinants framework (Mosley and Chen, 1984 and Schultz 1984)

• Independent variables: vectors of
  - Child characteristics
  - Household’s economic endowments and preferences.
  - Community (cluster, district and regional) level characteristics
  - Macro level variables
Results

Poverty and inequality comparisons

• Decompositions of the probability of child survival 😎 only 28% of children in rural areas are poor compared to 19% in urban areas (Table 8).

• The relative contribution of rural areas to child poverty is 89% but urban areas contribute 11%.

• Children from households that did not experience mortality dominate children from households that experienced mortality in poverty (Fig 3).

• Bivariate poverty dominance analysis shows that children with the lowest probability of survival are from households with the lowest level of assets (Fig 4).
Poverty and inequality comparisons....

• Density curves for childhood mortality suggest that at very low levels of assets, poor households are more likely to experience child death than at higher levels of assets (Fig 5).

• No evidence of stochastic dominance in the distribution of childhood mortality.

• Bi-dimensional dominance analysis ➔ urban areas dominate rural areas by the two indicators of wellbeing (Fig 6).

• Results ➔ poverty orderings are robust to the choice of the poverty line and to the measure of wellbeing.
Poverty and inequality comparisons....

• Inequality analysis ➔ Less mortality inequality within children facing mortality than the better off children (Table 10).

• Rural areas dominate urban areas in inequality (Table 11)

• Absolute Lorenz curves suggest that inequality in assets is pronounced (Fig 7).

• Absolute concentration curves indicate that child survival probability is progressive (Fig 8).

• Both inequality and progressivity are relatively higher in urban areas than in rural areas (Fig 9)

• Non-parametric regression ➔ the probability of child survival is positively linked with assets (Fig 10)
Determinants of childhood mortality

Key hazard model results (Tables 13-15)

• Boys, first borns and children of multiple births face a higher risk of mortality than the respective reference groups.

• Maternal education significantly lowers the risk of mortality

• Mothers age variables suggest the importance of reducing teenage births.

• Mortality is elasticity with respect to assets.
Key hazard model results…

- Cluster level use of modern contraception has a large significant impact of reducing the risk of mortality.
- Unexplained macroeconomic variations reduced the risk of mortality at a diminishing rate between 1978 and 2003.
- We uncover no important impact of macro and regional level variables.
- District level health care services (especially professional birthing assistance) lowers the hazards rates of mortality.
**Policy Simulations for ERS & MDGs**

Simulations focus on the impact of changes in
- Household assets
- Maternal education
- Access to health care services on mortality reductions.

Assets: ➔ grew at only 1.5% over the survey decade. Projecting this growth to the ERS and MDG target years ➔ decline in mortality of 2/1000 and 3/1000 for the ERS and MDGs periods respectively.

Maternal education: ➔ if all mothers were to have complete primary education by 2015, childhood mortality would decline by only 4/1000 live births.
<table>
<thead>
<tr>
<th>Policy Change</th>
<th>Predicted U5M reduction</th>
<th>U5M (2003)</th>
<th>MDG Target Reduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increase household assets at present rate by 2015</td>
<td>2/1000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>All mothers complete primary education</td>
<td>4/1000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Increase the proportion of mothers who complete secondary education from 23 to 43%</td>
<td>12/1000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Give all districts with below mean (%) birth assistance by a professional the mean level</td>
<td>4/1000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Give all clusters with below mean (%) use of modern contraception the mean level</td>
<td>7/1000</td>
<td></td>
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<tr>
<td>Increase vaccination rates for all children to 100%</td>
<td>6/1000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>35/1000</td>
<td>115/1000</td>
<td>77/1000</td>
</tr>
</tbody>
</table>
Policy Simulations for ERS & MDGs…

• For post secondary education, we simulate the impact of raising completion rates from the sample average of 23% to the primary school level of 43%. ➔ 12/1000 live births.

• Thus targeting women through secondary and post secondary education would make an enormous contribution towards mortality reduction in the long run.

• Substantial mortality reductions from predicted improvements in health care services
Policy Simulations for ERS & MDGs…

- Policy simulations focus on realistic scenarios rather than the best possible policy scenarios.

- The results do not hold much promise for achievement of ERS and MDG targets, but show that these policy variables can make some contribution.

- Overall impact of all the simulated policies is a reduction in infant mortality rates by 25/1000 live births.
THANK YOU FOR YOUR ATTENTION