

CAMEROON'S RISING MATERNAL MORTALITY RATES, 1991-2004: A DECOMPOSITION APPROACH

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ABSTRACT

The Millennium Development Goal 5A seeks to reduce the maternal mortality ratio by 75% between 1990 and 2015. However, many countries in sub-Saharan Africa will fail to reach the goal (UN 2010), including the focus of this study, Cameroon. Between 1991 and 2004, maternal mortality rates rose from 550 to 669 deaths per 100,000 live births. Given this, a detailed study examining the risk factors associated with maternal mortality is warranted. This paper does this by first identifying and constructing a typology of risk factors for maternal mortality and then uses a standard logistic regression to examine the impact of socio-economic status of households on trends maternal mortality. It then employs an innovative decomposition method, to examine how much of growth in maternal mortality were driven by changes in rates of maternal mortality by SES group versus changes in the size of each SES group.

INTRODUCTION

The global policy community's commitment to reducing maternal mortality coalesced in the Millennium Development Goal 5A, which seeks to reduce by three quarters, between 1990 and 2015, the maternal mortality ratio. Globally, significant progress has been made. Between 1990 to 2010, there was 47 per cent decline in the annual number of maternal deaths. However, while substantial progress has been achieved globally regions, many countries particularly in sub-Saharan Africa will fail to reach the goal (UN 2010), including the focus of this study, Cameroon.

Between 1991 to 2004, maternal mortality rates rose from 550 to 669 deaths per 100,000 live births, and projections suggest trend will continue to rise. Given this fact, a detailed study examining the risk factors associated with maternal mortality is warranted. This paper does this by:

- 1) Identifying and constructing a typology of risk factors for maternal mortality.

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2) Using a logistic regression to examine the impact of socio-economic status of households on trends in the risk of maternal mortality, and how these risk factors change over time.

3) Using an decomposition method(Eloundou-Enyegue 2010) to examine how much of growth in maternal mortality were driven by changes in rates of maternal mortality by SES group versus changes in the size of each SES group. This approach is particularly warranted here, given the economic flux that occurred during this period.

BACKGROUND

Previous literature suggests a range of factors are associated with a higher risk of maternal mortality:

1) **Health risk factors** related to health behaviors of women during their pregnancy, childbirth, and even after the period of post partum (variables here include antenatal care, medical care delivery, postnatal visits). Currently 74% of women in poor countries receiving only one prenatal visit during their pregnancy, despite a WHO recommendation of 4 visits per pregnancy. In sub-Saharan Africa, less than 45% of women receive four visits. Complications are especially high in SSA where only 40-47% of births are attended by medical personnel.

2) **Nutritional risk factors** that are related to the nutritional status of women (variables here include underweight, overweight, and obese). Indeed, several common causes of maternal deaths are related to malnutrition, particularly to anaemia,

3) **Demographic risk factors** for reproductive behavior in risk (age at delivery, birth spacing, parity). Young adolescent mothers pregnancy face a higher risk maternal mortality, as they experience more complications.

4) **Social and economic risk factors** (SES, rural/urban, education) The poorer and less educated a woman is, the more likely she is to have high fertility and thus increases the risk of exposure to maternal mortality.

Given their importance, all of these factors are examined in the analysis. (The full paper will provide a more thorough literature review)

DATA & METHODS

Data for this analysis comes from the 1991, 1998 and 2004 waves of the Demographic Health Surveys from Cameroon.

The first step in the analysis will be a standard logistic regression examining the risk factors associated with maternal mortality. This will be followed by a decomposition analysis described below:

Total maternal mortality (Y) at time (t) is a function of groupspecific mortality ratesfor each SES group (r_{jt})multiplied by the size of each SES group (w_{jt}) group.

$$Y_t = \sum r_{jt} * w_{jt} \quad (1)$$

The above expression can then be decomposed as in Eq (2), so we can determine whethergrowth in maternal mortality was driven predominantly by changes in rates of maternal mortality by SES group versus changes in the size of each SES group.

$$\Delta Y = \underbrace{\overline{r}_j * \Delta w_j}_{\text{Term 1}} + \underbrace{\overline{w}_j * \Delta r_j}_{\text{Term 2}} \quad (2)$$

Term 1

Term 2

Where the term 1 represents the change driven by changes in the size of SES groups, while term 2 represents the proportion of change driven by changes in maternal mortality rates of each SES group. Identifying where the change happens is important to better target policy interventions.

PRELIMINARY FINDINGS

Preliminary findings from the logistic regression for 1991, 1998 and 2004 all suggest that even when controlling for all other variables, household socioeconomic status remains the most important factor influencing maternal mortality. Initial decomposition results show that a large part of the growth in maternal mortality rates was driven by increases in the size of the lower SES groups. Even through rates of maternal mortality do improve over time among the lower SES groups, this is not offset by their rapid growth in size. These findings are particularly interesting given economic statistics that suggest overall improvement along many economic indicators (GDP/capita, % in poverty, etc.) during this period. Findings and policy implications will be discussed further in the paper.