

UNIVERSITY OF THE PHILIPPINES SCHOOL OF STATISTICS

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# **Cross-country Analysis of Maternal Mortality Ratio**

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## *Abstract*

**Introduction:** The WHO, the UNFPA, and the World Bank made a joint statement in 1999 that called for the reduction of maternal mortality ratio by three quarters by 2015, one of the Millennium Development Goals. **Objectives:** This paper proposes a regression model to determine if national-level health system indicators corresponding to the interventions identified by the United Nations and member agencies are significantly associated with maternal mortality ratio. **Method:** Country-level data on maternal mortality ratio and national-level indicators were accessed and downloaded from the UNICEF statistics webpage. Ordinary Least Squares (OLS), Poisson, and negative binomial regression models were used to fit MMR as a function of total fertility rate (TFR), antenatal care coverage (ANC), contraceptive prevalence rate (CPR), percent skilled birth attendance (SBA), percent institution based deliveries (IBD), gross national income (GNI), total adult literacy rate (ALR), and geographic clustering variables (GEO). **Results:** Using a negative binomial regression model, only the variable percentage of institution –based deliveries (IBD), per capita gross national income (GNI), and geographic cluster (GEO) are found to have statistically significant association with the average maternal mortality ratio. **Conclusion:** The evidence from this analysis, based on the latest UNICEF data, suggests that, other than the effects of IBD and GNI, there may be yet unidentified factors related to geographic-cultural clustering that drive differences in Maternal Mortality Ratio across countries.

**Keywords:** maternal mortality ration, Poisson regression, negative binomial regression, institutional based delivery