

**Principal components analysis of determinants of
fertility levels and differentials in Tanzania**

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High fertility level is one of the problems that lead to rapid population growth and thus, affects provision of social services, maternal and child health, as well as the environment and natural resources. The variation of fertility levels in many parts of the world is due to variation of socio-economic and demographic variables. This study aimed at assessing the determinants of fertility levels and differentials in Tanzania by applying principal components analysis techniques. The study used Tanzania Demographic and Health Survey 2010 data set. Cross tabulation was used to assess the variation of number of children ever born by socio-economic and demographic variables. Principal components analysis techniques was used to obtain few components that account for large percent of variance and to estimate factor loadings of the determinants of fertility levels and differentials in Tanzania. The number of children ever born was found to vary across the socio-economic and demographic variables. Three factors were attained by the use of principal components analysis techniques. The first factor was woman's education and awareness, which accounted for 37.1 percent of the total variance. The second factor was woman's demographic characteristics, which counts for 22.6 percent of the total variance. The third factor was woman's economic status, which counts for 15.7 percent of the total variance. The study recommends that government should improve woman's education and family planning services. It is also recommended that further studies should be done in clustering regions of Tanzania based on the fertility levels and rates.