Identifying non–AIDS-related and AIDS-related maternal deaths also required making certain assumptions about the relationship between HIV/AIDS and maternal mortality. Specifically, we had to make assumptions about the risk of AIDS-related death for a pregnant versus non-pregnant woman, as well as the proportion of AIDS deaths occurring during or soon after pregnancy that are truly maternal deaths. Despite the risk that pregnancy poses for HIV-positive women, we assumed that a pregnant woman’s risk of dying from AIDS was less than that of a nonpregnant woman because women in later stages of the disease are not as likely to become pregnant as women in earlier stages of the disease and because, overall, HIV-positive women are not as likely to become pregnant as HIV-negative women. A series of model-fitting exercises, coupled with inferences gained from the available empirical evidence, suggested a relative risk of 0.4. With no empirical evidence available on the proportion of pregnancy-related AIDS deaths that are truly maternal, we assumed a value of 0.5. Given a possible range of 0–1, this choice minimizes the potential error.

Different methodological approaches were used to estimate country-specific trends between 1990 and 2008, depending on the type of data available. Countries fell into three categories: those with no nationally representative data on maternal mortality generated using standard methodologies (14% of countries, accounting for 4% of global births); those that have data available from sources such as surveillance systems, sample surveys and period censuses, but lack a complete civil registration system (49% of countries, accounting for 82% of global births); and those with a complete and reliable civil registration system (37% of countries, accounting for 15% of global births).

For the latter set of countries, whose registration systems met certain criteria for quality, the death registration data were used directly in the analysis to derive trends in the MMR. In contrast, for countries in which complete and reliable death registration systems were lacking, the core of our estimation strategy was a hierarchical or multilevel model. We considered several potential predictor variables, including measures of socioeconomic development, fertility and access to reproductive health services. The final model included the gross domestic product per