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## Modeling fertility in modern populations

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### Abstract

The age-specific fertility pattern has a typical shape common in all human populations through years. In order to describe this shape a number of parametric models have been proposed. Recently, the fertility pattern in developed countries exhibits a deviation from the classical one. Recent data sets of United Kingdom, Ireland and US show distortions in terms of a bulge in fertility rates of younger women. Furthermore in countries with distorted fertility, the pattern of first births also exhibits an intense hump in younger ages, stronger than that of the total fertility pattern. This heterogeneity indicated by the recent fertility distributions of European countries and the US might be related to marital status, religion, educational level and differences in social and economic conditions. Additionally in the United States this heterogeneity in fertility patterns might be related to ethnic differences in the timing and the number of births. As expected, the existing models are unable to describe the new shape of the fertility pattern and therefore the use of more appropriate representations is required. In this paper, a new flexible model for describing both the old and the new patterns of fertility is proposed. In order to evaluate the adequacy of the model, we fit it to a variety of empirical fertility schedule.

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