

GIS and Human Fertility

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Introduction

Multiple factors influence human fertility behavior. Ecological studies have described geographical variation in fertility within and between nations (Guilmoto and Rajan, 2001), and explored the role of both contextual factors and spatial factors such as access to services (Entwisle et al, 1996). Understanding why locational factors affects fertility behavior and contraceptive prevalence is not always easy. With the increased availability of geographically reference data and the availability of GIS technology, now it has become possible to integrate fertility and contraceptive use data into geographically referenced data to enrich the analysis of fertility behavior. The Demographic Health Survey (DHS) is one of the excellent sources that provide both the geographical referenced data and rich data on fertility and contraception from many developing countries. Any one interested in using DHS data can have access to data on line (<http://www.measuredhs.com>) on request

Application

The use of GIS in fertility studies is diverse. Some of the applications of GIS techniques in fertility and family planning studies are presented.

Guilmoto and Rajan (2001) use GIS technology to interpolate the geographical coordinates of district headquarters in India to surface map and analyze the spatial pattern of fertility across districts. They also use GIS interfaced quantitative measure to look at the spatial dependency in fertility patterns in India.

Entwisle et al. (1997) combine spatial data from maps and global positioning readings and utilize the 'Network' module in ARC GIS to measure the access to family planning using measures like travel time and road composition in Thailand.

Axinn et al (1997), in their Chitwan Valley Family Study in Nepal, use GPS device to locate neighborhoods and link it together to the multiple sources of contextual data and history data. The locations are entered into GIS to create distance measure such as distance to health post from a neighborhood.

Weeks J. R. (2001) provides a general framework for the application of spatial analysis to demographic research including fertility studies. He also discusses the data requirements for such studies and as an example summarizes application of GIS in fertility change study in Egypt (Weeks et al 2000).

The articles by Waldorf and Franklin (2002), Loftin and ward (1983), Pandit and Sen (1993), and Tolnay (1995), consider the spatial dimension in fertility studies in developed countries. These studies do not use GIS technology directly, however provide useful information why geographical factors matter in fertility studies.

Citations

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Related GIS Resource Documents

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