

Method of Multiple Linear Regression Analysis in the Studies of the Most Important Social, Economic and Demographical Indicators and their Influence upon Total Fertility Rate (applied research based on the UNDP Human Development Report, 2006, including 177 countries)

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Abstract

This study includes the application of multivariate statistical analysis methods represented by multiple linear regression. Multiple regression method is widely used for constructing predictive models, reproducing the main features of the behavior of the response variable under study, providing real insight into the process or problem, and therefore giving necessary guidelines for further experimentation and controlling the system .

The information background of the study was provided by the statistical data given in the UNDP Human Development Report, 2006, describing human development in 177 of the world's countries. The indicated method was applied through 15 variables (GDP per capita, adult literacy rate, life expectancy at birth etc.) in order to achieve the following targets :

- 1- select most influential variables and create a multiple linear regression model of the total fertility rate (TFR).
- 2- Set and solve the problem using SPSS software package.
- 3- Analyze and interpret the results of the solution from the point of view of validation of initial hypotheses.

Important results of the study.

I. From the point of view of the study's purposes, the countries under study should be divided into 4 groups: (1) industrially developed countries including most of EU and the Northern America, $HDI = .801 - 1.0$; (2) countries with $HDI = 0.601 - 0.8$; (3) countries with $HDI = 0.401 - 0.6$; (4) countries with $HDI = 0.201 - 0.4$.

II. "Rate of the population under 15 years of age" is a significant variable with positive influence upon TFR in all 4 groups of countries.

III. "Education level of population" is a significant variable in groups (2) and (3) and insignificant in groups (1) and (4), with negative affect upon TFR.