



The Effect of Economic Variables on Life Expectancy of Males and Females

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Introduction

For a number of years the level of development of countries is measured by using economic variables. Nowadays, life expectancy is considered to be an important indicator which highlights a country's economic, social and environmental sophistication. In developed countries, every new born baby is expected to live more than 70 years while in developing countries new born babies are expected to live less than 50 years. This study examines some predetermined variables expected to affect the life expectancy in Turkey. The socio-economics variables used in this study are the life expectancy of women (LEF), the life expectancy of men (LEM), the ratio of health expenditure to GDP (HE), the ratio of elderly population to young population (AGE), the number of beds per thousand people (BED), the number of doctors per thousand patients (PHY). The dataset for the period of 1975-2009 are used to investigate the effects of underlying factors on life expectancy of men and women in Turkey.

Methods

Firstly, each predetermined explanatory factor is regressed against the life expectancy of men and women. As a result of the regressions, a significant and a strong correlation between the factors and life expectancy is determined. In order to implement the econometric tests, each time series is required to be stable. Therefore, the logarithmic differences of the dataset are computed. This process results all time series used in the study stable in the first-level, $I(1)$. This shows that there exists a significant long-run relationship between the variables. Moreover, the cointegration test and vector error correction model are applied to see the strength and direction of this relationship. The error correction model can only be applied if the presence of cointegrated vectors is more than one. For determining the number of cointegrated vectors, λ_{max} and λ_{trace} figures are produced and analyzed. According to the results of cointegration test, at least three of vectors in both models are cointegrated implying that a long-term relationship between the variables in the models tested exists. Eventhough the Johansen-Juselius

cointegration test examines the long-run relationship between vectors, it does not give clear information about the direction and strength of the relation. Finally, vector error correction model is applied to determine the direction and the strength.

Results

The results support that each of the underlying factor has a significant effect on the life expectancy of men and women. As seen in the table below, there exists a long-run relationship between the life expectancy of men and women and all other variables in the same direction. Accordingly, the number of beds, the number of doctors and the ratio of health expenditures to GDP are critical on life expectancy in Turkey.

Vector Error Correction Model (Women)					
LEF	AGE	BED	PHY	HE	C
1.0000	-0.027136	0.011291	-0.004218	0.001938	0.008422
Vector Error Correction Model (Men)					
LEM	AGE	BED	PHY	HE	C
1.0000	-0.046736	0.015086	-0.002949	0.001705	0.008964