
DETERMINANT FACTORS FOR FERTILITY. CASE OF ALBANIA

SINAJ Valentina

Faculty of Economy, Tirana University, Albania

TUSHAJ Arjan

Abstract:

Fertility Rates in Albania have suffered a great change over the past 20 years. Starting from this fact the main objective of this study is to investigate the relation between fertility rate and its determinant factors. In this study as a determinant factor are obtained: lifespan of women, their location and their involvement in work force. The study aims to determine empirically which of these factors is more significant in the impact of fertility rate. Interpretation of data and performance over the years of this indicator are explained based on the theory of demographic transition. The data are in time for the period from 1990 to 2008. Results of model show that a strong negative correlation exists between fertility rate and lifespan of women.

Keywords: *fertility rate, status of women, level of development, demographic transition.*

1. Introduction

A very important fact in many studies is the level of population growth. Population growth is determined by four factors, births(B), deaths(D), immigrants(I), and emigrants(E).

Using a formula expressed as :

$$\Delta P \cong B - D + I - E$$

A very important fact that affect in population growth is the number of births.

The rate of population growth at any instant is given by the equation

$$\frac{dN}{dt} = rN$$

where

r is the rate of natural increase in

t — some stated interval of time, and

N is the number of individuals in the population at a given instant.

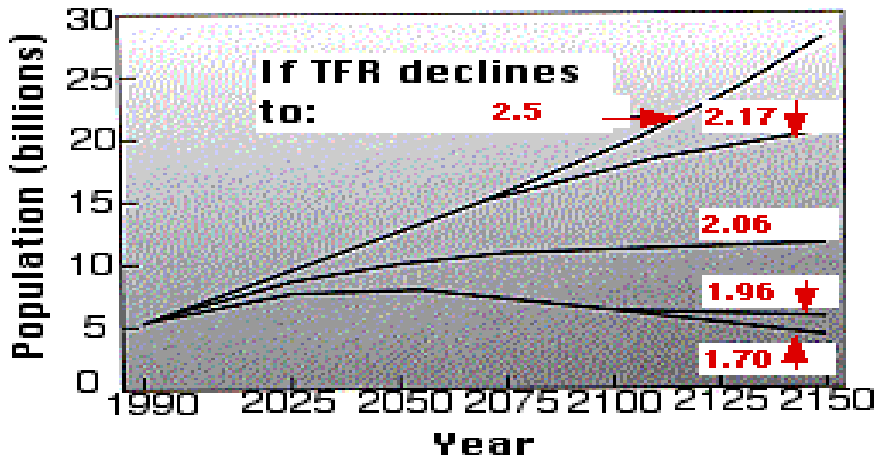
The total fertility rate is the average number of children that each woman will have during her lifetime. The TFR is an average because, of course, some women will have more, some fewer, and some no children at all.

Theoretically, when the TFR = 2, each pair of parents just replaces itself.

Actually it takes a TFR of 2.1 or 2.2 to replace each generation — this number is called the replacement rate — because some children will die before they grow up to have their own two children. In countries with low life expectancies, the replacement rate is even higher (2.2–3).

The following chart gives the number of the population behaves depending on the values that the fertility rate (TFR). So if the rate of TFR falls below the replacement level of 2 is seen that the number of population will come in the fall.

Figure 1.1 The population growth



The question is how calculate TFR?

Total Fertility Rate using a formula expressed as :

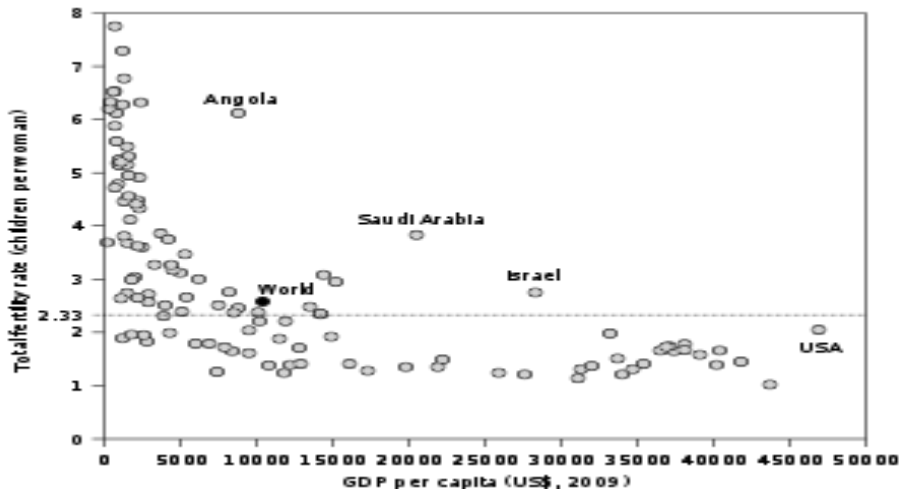
$$\text{TFR} = [\text{Sum of (age-specific fertility rates (per 1,000) for each age group)} * k] * 1,000$$

Where k = the number of years in each age group (i.e. k = 5 for 5-year age groups, 15-19, etc.)

Where the fertility rate = $1000 \times (\text{Mean annual number of live births to women in age group}) / \text{Total number of women in age group, area, and period}$.

Graph of Total Fertility Rates vs. GDP per capita of the corresponding country, 2009. Only countries with over 5 Million population were plotted to reduce outliers.

Figure 1.2 Total Fertility Rates and GDP.



Source: CIA World Fact Book

A ranking which is conducted by the CIA in the first place by greater TFR coefficient for the years 2005-2010 is Nigeria with 7.19. In the last place is Hong Kong with TFR 0.94 and Macau with TFR 0.91. In the following table are values of TFR for some of the Balkan countries.

Table 1.1 TFR for Balkan countries.

Country	TFR 2000-2005	TFR 2005-2010
Albania	2.25	2.06
Macedonia	1.56	1.43
Croatia	1.35	1.35
Greece	1.28	1.33

From this table seems that Albania compared with other country in region has a higher coefficient value 2.06, but however this value is in term of replacement and followed the trend it will drop below replacement level.

2. Study of literature

Economic analysis of fertility has started something earlier than Malthus, but most modern analysis began with the establishment of family planning in the context of consumer choice. The family is seen as a consumer of children. Demand for children is dependent on prices, the price of complementary goods such as education and child care, income, personal preferences, and technologies associated with them (such as the prevalence of contraception).

This analysis is started from Becker (1960), and is improved from Mincer (1963). Analysis predicts that by holding all other variables constant income should positively influence the birth rate, and the price of children would negatively affect birth rate. The latter is unassailable and is the main subject of research in this field.

Factors that negatively affect the birth rate have been considered by Becker (1976) which broadens the conceptualization of a framework such that the family uses the inputs of goods, services, and time to produce different goods, including children. Goods can be relatively time-intensive or goods, so a wage increase may reduce the demand for children, increasing the opportunity cost of children.

However, the ability to replace goods and services on time, such as day care, may contribute to the decline in demand for children. Easterlin (2000) has further developed this analysis, including the notion of aspirations formed in childhood, reconciling the predicted effects of income.

3. Motivation for research

Taking into account the conclusions drawn from empirical consideration Becker model. Kain and Weininger (1963), Mincer (1963), Montgomery and Trussel (1986) have shown that if family income held constant, the price of raising children raised, fertility declined, and also generally, if anything else is held constant, the income increase the demand for children. The question is to what extent government policies can benefit from these effects of fertility rates.

Why will require a government to boost fertility?

Much of the existing literature about the struggle of policies to reduce fertility by introducing family planning, increased availability of contraceptives, etc., in third world countries with high birth. These policies mainly affect the technology and personal preferences according to Becker model.

Recently, however fertility declines in many places of the world's first and second has led to efforts to increase fertility. Seitz and Kempkes (2007) show that the demographic changes resulting from declining fertility and prolonging life in Germany would result in significant fluctuations in costs between federal and state governments. Anderson (2007) shows how the demographic changes resulting from declining birth rates in Scandinavia threatens the sustainability of the welfare state and Scandinavian.

In general, reduction of fertility reduces job growth, and thus economic growth. According to the Solow model, however, this will only increase the relative amount of capital available to workers and thus will increase the income per capital. Longman (2004) provides evidence of the industrial revolution in the U.S. as children and shows that this simple Solow model does not fit.

Due to the effects of technological growth by increasing the concentration of population, increasing the job in many industrialized countries actually increases the rate of growth of income per capital. Finally, many countries have political motives based on the ethnic composition of their populations.

Efforts to find the effectiveness of the intervention of the state structures through intrusive policy has two main choices. Seeing indirect policies that should theoretically affect fertility, such as AFDC and various social programs, while another way looks at policies aimed specifically at increasing fertility.

Boyer (1989) studied the effects of poor fertility law in England, showing a positive impact of poor law on fertility in England. Studies and the latest data often focus on specific tax and transfer provisions for families with children, which exist in 28 of 30 countries of OECD. (OECD, 2002). These policies are not generally motivated by nationalism concerns, but rather in different brands of capital. Peters (1990), Whittington (1993), have found evidence that fertility is responsible for excluding dependent on the U.S. tax code.

Study of AFDC, and similar programs aimed at just women and families with low income had a more mixed result. Hyatt and Milne (1991) found a small impact, but positive fertility of Canadian government programs that will no doubt change the costs of having a child. Heitlinger (1976) studied the Nationalists policies in Czechoslovakia in the period after World War II. Czechoslovakia is being industrialized, still primitive compared to western economies had an extreme shortage of labor force participation of women especially that approached 100%.

Differently Western countries, the communist bloc countries were not able to have a lack of job from migration. Thus, starting in 1962, the Czech government established a wide network of its policies, including the extension of paid maternity leave, premature retirement for multiple births, and the rental value based on the number of children, accompanied of propaganda restrictions on abortion. Heitlinger concluded that strong policies Nationalists boost fertility. However, Falkingham and Gjonça (2001) on the communist Albania, and Barbieri et al (1996) in the Soviet Republic of Uzbekistan, revealed that nationalist policies has had little success in influencing their demographic transition. Reflecting these results, Louzek (2003), who studied politics Nationalists in 9 countries with time series data, concluded that such policies have not been very effective.

4. TFR in Albania

Compared with the rest of the European continent including the Balkans, the fertility transition in Albania, the transition from a high number in a lower number of children has remained 15 years later. The average number of children per woman was consistently higher compared with Europe, until to 2001. In the early post-war period fertility rates had an increase in the maximum value of 6.8 children per woman in 1960, while the birth rate declined steadily in the wake of political and economic transition in 1990. Increased levels of female education and improving the status of women in communism, were one of the main factors that explained the fertility transition in Albania.

During the two last 10 years the birth rate has continued to decrease significantly in Albania, from 3 in 1990 to 2.3 in 2001. Recent estimates from Demographic and Health Survey (DHS), show a downward trend in this indicator, below replacement level reaching 1.6 children per woman.

But what are the factors that have an impact on the level of fertility? Factors affecting this indicator can be divided into four main groups: 1. "Direct economic costs and benefits of a child", 2. costs referred to time, 3. income and welfare, 4. preferences and norms. The modernization process has involved all the factors mentioned above. With modernization, the costs of having a child increased, the benefits are reduced while the preferences have changed and rates. Other factors that have again a significant impact on fertility are information and access to contraceptive while the psychological costs associated with access are most important.

Of particular importance to the field researcher also provide communication between men and women referred to contraceptives, see this as one of the factors having a significant impact on birth rate, considering it as one of the psychological costs. In the long queue sociokulturor factors affecting fertility rates are: 1. Nature of marriage (its duration), 2. Education level (in particular that of women), 3. Residence (urban / rural), 4. Involvement of women in the work force, 5. Infant mortality rates, 6. The preferred number of children, 7. Life expectancy of females, 8. Age at first marriage.

Despite the high number of factors that influence fertility, due to some limitations in providing data, it was thought that this indicator is to explain with three factors, which are certainly of high importance referred impact on their birth rate.

The main objective of this study is to investigate the link between fertility rate, average life expectancy of women, the number of women in the labor force and women's residence (urban / rural).

This study will attempt to determine empirically which of these factors is most significant in the impact on birth rate. Also this study will explain what happens with this factor in two 10-year-olds.

5. Theoretical analysis of the model.

Interpretation of data will be based on the theory of demographic transition. According to Friedman (1979) theory of demographic transition has been developed to facilitate the explanation of the characteristics show a process of modernization of society.

The basis of the theory lies: Impact immediate of modernization in traditional societies is to improve education and health. Birth rates remain at high rates, but death rates fell rapidly, resulting in an increase in population, characteristic of an early stage of transition. The theory of demographic transition is a perspective that shows the importance of economic and social development, primarily to reduced mortality and then to reduce fertility rates.

In this study changes in fertility rates analyze the impact of factors of economic and

social development, characterized by the life of women, their involvement in the work force and location.

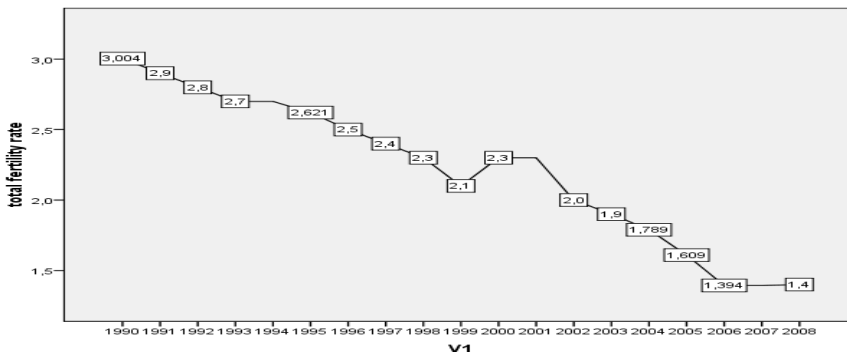
5.1 Trends in fertility time

Although Albania moved to a later stage in contrast to other European countries the first demographic transition (mentioned above), we can say that currently the data referred to the most recent DHS survey (1.6 children / woman), Albania is experiencing a sharp decline in this index, faster than what was thought. However this can not say for all regions of Albania. Referring to the 4 regions, we can say that the number of children is historically higher in the north-east (4 children per woman in 1990), this region has experienced sharp decline in the fertility transition. Number of children in this region continued to decline significantly over the years 2006-2008 to less than two children per woman, however, remains the highest national level. A pronounced decline of this indicator was observed in urban areas. The population of Tirana region experienced the lowest fertility for decades, reaching the 1 child per woman in 2006-2008 by 2 children per woman in 2001.

Also the birth rate fell below replacement level in the coastal region, especially in historical cities of Korce and Gjirokaster, where women traditionally benefit from higher levels of education and infants from a low mortality rate. A noticeable difference of this indicator remains between urban and rural areas, despite national level has declined rapidly.

Regional gradient described above is still visible, with a high birth rate in the north-east, followed by lower rates in central and coastal regions and in the end Tirana. The low birth rate of educated women in the capital illustrates their role as pioneer in the Albanian fertility transition. Given in the chart below the trend of TFR in Albania in years.

Chart 5.1 Trend in time of TFR



In graph it seems clear that the rate of TFR in the past has a downward trend and that recent years has been below the replacement.

So we can say that over the past 20 years, there have been many changes in what women do. Women in urban areas have made some significant changes in terms of health, education and involvement in social life. While minor changes were observed in rural areas. Fertility rate has declined constantly, but the changes observed between rural and urban, in the first birth rate remains higher than urban areas, where the birth rate has fallen below the replacement level. Also during these same years there has been an increase in life expectancy of women, as well as rates of inclusion of women in the workforce has steadily grown over the years.

1. Involvement of women in the labor force is negatively associated with the fertility rate for many reasons. Women who work outside the home tend to create small families, working women tend to have fewer children than those who do not work.
2. While referring to the division of urban residence women - rural, we can say that there is a negative relation between fertility rates and women living in urban areas, this relates to the fact that these women have a high degree of emancipation, education, integrated in the life social, and constitute the majority of women in the labor force.
3. A negative relation is between the fertility rate and life expectancy of women, with increased life expectancy of women, fertility rates are coming down. Throughout these 20 years the life expectancy of women has been increasing while the number of children per woman has been dropped. This is connected with the fact that an increase in longevity has to do with the increase in social welfare, increasing the standard of living, women's emancipation and her involvement in social life, which along with the process of modernization, which brought a increase in the costs of having a child, have changed norms and preferences as well as the number of children, which of course has been dropped. The process of modernization in the mainly aimed at improving the health sector and health care as well as in raising the educational level, which lead to increased longevity of females and indirectly have a negative impact on fertility because the money already used for consumption and to meet the desires and needs, always growing, to have a better life, than to have or raise a child.

5.2 The method used

The data are taken from INSTAT, published on his official website. Sample was elected for 19 years, these years are referred to get data for all variables included in the model. Definitions of variables used in the model: the following will give a brief description of the variables included in the model.

Dependent variable: total fertility ratio is defined as the number of children will be born alive to a woman throughout her reproductive life, taking for granted the fertility rates by age group for a given year.

Independent variables:

1. Life expectancy of women
2. Women living in urban areas
3. Women who engage in the work force

Life expectancy of women is a variable that takes value from 1 to 3.

Females living in the city, is expressed as a percentage variable indicates ratio of women living in urban areas. Also, the third variable indicates the percentage of women who are involved in the work force.

Statistical methods: the correlation coefficients would enable the identification of the relation between dependent variable and independent variables. Estimates of the amount of variance of the dependent variable that can be explained by each of the independent variables will be done using multiple regression analysis.

5.3 Empirical Analysis

To analyze the relationship between variables build correlation`s matrix.

Table 5.1. The results of correlation coefficients:

		total fertility rate	longevity of females	urbane	employed women
total fertility rate	Pearson Correlation Sig (2-tailed)	1 0.000	-0.933* 0.000	-0.827* 0.000	-0.547** 0.015.
longevity of females	Pearson Correlation Sig (2-tailed)	-0.933* 0.000	1 0.000	0.441** 0.01	0.410** 0.075
urbane	Pearson Correlation Sig (2-tailed)	-0.827* 0.000	0.441** 0.01	1 0.000	0.600** 0.001
employed women	Pearson Correlation Sig (2-tailed)	-0.547** 0.015.	0.410** 0.075	0.600** 0.001	1

* Correlation is significant at the 0.01 level (2-tailed), ** Correlation is significant at the 0.05 level (2-tailed)

As seen noticed there is a high correlation between dependent variable and independent. There is a negative correlation between the TFR (total fertility rate) dependent variable and longevity of females (life_exp_femra) $r = -0.933$, sig = 0.000, as negative relation exists between him and the urban variable $r = -0.827$, sig = 0.000 also negative about the variable employed women $r = -0.547$, sig = 0.015.

So employed women variable has a less strong relation with the dependent variable compared with two others. Equations in Table 5.2 are estimated depending on the variables TRF mentioned.

Table 5.2 Models of TFR

Ecu ation	Intercept	Life exp women	Urban area	employe d women	dummy	R ²
1	21.776	- 0.228 (-7.624)	- 0.044 (-2.823)	- 0.009 (-0.432)		0.935
2	21.505	- 0.226 (-7.820)	- 0.048 (-3.939)			0.934
3	18.18	- 0.186 (-5.79)	- 0.040 (-3.503)		- 0.228 (-2.159)	0.950

In equation 1 results in a negative relation between the average number of children per woman of her life and residence in the city. If life expectancy increases by one unit of women and urban variable remains constant, then the average number of children per woman would be reduced by 0.226 units. If you have an increase of one unit in urban variable and other variable remains constant, then the total number of children per woman would be reduced by 0.048 units. Intercept in this model has positive sign unlike the other variables included in the model, this is the fact that there are other factors that have a significant positive impact on the dependent variable as such. "Infant mortality rates." In this equation the only variable is the variable unimportant Women job who is eliminated in the second equation.

The second equation identifies negative TFR reconnect with our variables. The second model has a high explanation and is important to the level of importance of 1%. If we refer to Chart 5.1 TFR trend can be seen that there is a change in 2003, for this reason decide to see if the model is stable or not during the study. In multiple regression included is a dummy variable is reflected in equation 3. Seeing that in 2003 we have a specific reduction coefficient below the replacement fertility is a reasonable first to divide time periods into two sub periods and seen the effect on the level of explanation the dependent variable. Dummy variables are know as qualitative variables take two values 0 and 1 and in this case is marked:

- 0 for the period 1990 to 2002
- 1 for the period 2003 to 2008

Including the dummy variable model, certainly has grown explanation the dependent variable.

6. Conclusions

We can say that there is still much to do in order to further improve the status of women. In addition to advantages in health, education and working conditions, life for many women still remains difficult.

According to the results of this study suggested more long-lived to be women and how best to integrate them into urban life so fewer children will bring to life.

It is worth to mention the importance of integrating women into the labor force, that regardless of our model emerged as an independent variable insignificant (due to data), plays a key role in this indication. Also, education of women still has a significant role in reducing the average number of children per woman.

The average number of children per women is an indication that, as shown in the beginning of the study depends on many factors. These factors are included in the model are all factors that have a link or negative correlation with the TFR.

But in this index are also factors that influence a positive effect on (expressed in intercept), for example. "infant mortality rates. " The high infant mortality rates are the higher is the average number of children per women, and this very fact, that to achieve the desired level of children a women would have to make more children if these rates will be high.

Finally the model can say, increasing as life expectancy of women and their integration in urban areas will decrease the average number of children for women.

7. References

- Klijizing, F., Taylor H. (1982), *Spastial order in the demographic transition: The Costa Rican case*.
- Kmenta, J. (1986), *Elements of econometrics*, 2d ed Macmillan.
- Knodel, J.A. (1977), *Age Patterns of fertility and the Fertility Transition: Evidence from Europe and Asia*, Population studies.
- Andersen, T. (2007), *The Scandinavian Model - Prospects and Challenges*, CESifo GmbH, CESifo Working Paper Series: CESifo Working Paper No. 1903.
- Barbieri, M., and et al. (1996), *Nuptiality, Fertility, Use of Contraception, and Family Policies in Uzbekistan*, Population Studies 50.1: 69-88.
- Becker, G. (1960), *An Economic Analysis of Fertility*, Demographic and Economic Change in Developed Countries, 209-31.
- Becker, G., Lewis, H. G. (1973), *On the Interaction between the Quantity and Quality of Children*, Journal of Political Economy 81.2, 279-88.
- Becker, G., Tomes, N. (1976), *Child Endowments and the Quantity and Quality of Children*, Journal of Political Economy 84.4, 143-62.
- <http://www.instat.gov.al> Official site of INSTAT.