ANALYSIS OF FERTILITY IN METROPOLITAN AREAS OF TURKEY: AN APPLICATION OF STRUCTURAL EQUATIONAL MODELLING[1]

Hande Tunckanat[2]

With the foundation of Turkish Republic in 1923, peace and more secure environment led to a steady decline in death rates in Turkey, except for a brief reversal during the World War II. Fertility, instead of following and balancing mortality decline, increased significantly because of efforts to overcome the heavy human losses consequently to overcome the shortages of labor force in both agriculture and civil society. As a result of falling death rates and rising birth rates, the population of Turkey almost doubled between 1923 and 1955 period (SIS, 1995). Although during the 1950s, fertility began to decline and did not reverse; the rate of decline was not fast enough to catch up immediately with the previous decline in death rates, so the population of Turkey continued to grow (SIS, 1995).

Fertility levels have almost declined continuously from the level of 4.3 births per woman in the early 1970s to 2.2 births per woman, which is slightly over the replacement level, in the 2000-2003 periods. Besides, age specific fertility rates (ASFR) derived from retrospective data of Turkey Demographic and Health Survey (TDHS) 2003 for the 1978 - 2003 periods reveal that most rapid relative decline in fertility occurred in the 15-19 age group. A shift from the age groups 20-24 to 25-29 has been occurred (HUIPS, 2004).

TDHS-2003 displays a sustained decline in fertility with the current level of TFR that is 2.2 births per woman. This reveals that current fertility transition is about to reach its final stage (Yavuz 2006; Ünalan 1997; SIS 1995). However, the sequence of change is not uniform over the country as it is not in the world: a wide range of regional disparity had been displayed. While the West region is displaying the lowest fertility with the 1.9 births per woman, the East region displays the highest TFR level

[1] This paper is a summarized version of M.A. thesis titled "An Application of Structural Equational Modelling on Fertility in Metropolitan Areas of Turkey" submitted to Hacettepe University Institute of Population Studies, Department of Economic and Social Demography in September, 2007

[2] Research Assistant, Hacettepe University Institute of Population Studies

which is 3.7 (HUIPS, 2004). In addition to regional differences fertility level also varies as regards type of place of residence (urban and rural). According to TDHS-2003 TFR in urban and rural areas are indicated as 2.1 and 2.7 births per women respectively.

As regards fertility levels and trends, it has presumed that metropolitan areas have a different structure when compared to urban and rural areas. As stated by Behar (1995), fertility decline had an early start in Turkey in İstanbul and the larger cities, and the fertility transition was well underway before the founding of the Republic (1923). The Ottoman censuses of 1885 and 1907 give cross-sectional total fertility rates (TFRs) of 3.5 and 3.8 births per women respectively for İstanbul. These levels were reached only in the late 1980s for overall Turkey, and are far below the range of TFRs of pre-industrial European populations (Behar 1995). The lowest rates in Europe before the onset of industrialization (around 4.1) were those of Sweden, Norway and Denmark in the 1770s (Coale and Watkins, 1986). Because it is assumed that stated differences in fertility levels and trends by Behar (1995) still exist in metropolitan areas, women living in metropolitan areas are selected for analysis rather than those living in urban or rural areas.

Therefore; firstly, age-specific fertility rates (ASFR) and total fertility rates (TFR) have been calculated for five metropolitan areas[3], urban and rural areas and Turkey in order to make a whole comparison by using the latest data available, which is Turkey Demographic and Health Survey 2003 (TDHS-2003). Turkey, with the 2.23 TFR level, is considered as transitional country. However, considering the difference between rural-urban as regard to their TFR levels, it is possible to observe various phases of fertility transition. TDHS-2003 reveals the current estimates of TFR levels by residence. The total fertility rate in rural areas of Turkey is 2.65 births per women, which is far from replacement level (2.1), while it is 2.06 in urban areas (HUIPS, 2004). Total fertility rates for metropolitan areas are calculated in this thesis in order to see residential differences as a whole. It was found that TFRs of metropolitan areas prevail the lowest fertility levels in Turkey. TFR in five

[3] Criteria to be selected as an metropolitan area is having a population size one million and over. Metropolitan areas of Turkey are; Adana, Ankara, Bursa, İstanbul and İzmir.

metropolitan areas indicates that if fertility rates were to remain constant at the level prevailing during the three year period before the TDHS-2003, a woman living in five metropolitan areas would bear 1.73 children during her life-time.

Secondly, descriptive analysis has been performed in order to represent basic social and demographic characteristics of ever-married women aged 15-49 living in metropolitan areas and compare them with those living in rural and urban areas of Turkey.

Thirdly, fertility considered as a phenomenon revealed as a result of a, decision process instead of a concept which stands-alone in the space and affected directly by various factors (negatively or positively). It is the woman's perception (how she perceives fertility behavior) that plays a role on her attitudes and in turn affect her fertility behavior. This structure tested with cross-sectional data drawn from the 2003 Turkish Demographic and Health Survey (TDHS-2003). The latent variables (perception and attitude) have named by exploratory principle component analysis applied to the available set of items in an inductive approach by using the software AMOS 6.0.

And finally, multi-group analysis has been performed by using ever-married women aged 15-49 living in metropolitan areas and those in rural areas in order to determine the indirect effect of the social environment on women's fertility-related decision process.

Estimated total fertility rate (TFR) has shown that, metropolitan areas of Turkey have the lowest TFRs which are far below the replacement level (2.1) and display significant difference in contrast to rural and overall urban areas. Turkey, with the 2.23 TFR level, is considered as transitional country. However, considering the difference between rural-urban as regard to their TFR levels, it is possible to observe various phases of fertility transition. TDHS-2003 reveals the current estimates of TFR levels by residence. The total fertility rate in rural areas of Turkey is 2.65 births per women, which is far from replacement level (2.1), while it is 2.06 in urban areas

(HUIPS, 2004). Total fertility rates for metropolitan areas are calculated in order to see residential differences as a whole. It was found that TFRs of metropolitan areas prevail the lowest fertility levels in Turkey. TFR in five metropolitan areas indicates that if fertility rates were to remain constant at the level prevailing during the three year period before the TDHS-2003, a woman living in five metropolitan areas would bear 1.73 children during her life-time.

Results of descriptive analysis are revealed that there are differences between ever-married women living in metropolitan and in rural areas in terms of their fertility levels, daily-life styles, and attitudes towards family planning issues, their knowledge about sexually transmitted infections and their attitudes towards gender-related issues.

Results of SEM analysis used for testing the default model show that unobserved variable that is conceptualized as "perceptions of women" has a very large effect on "attitudes" which is also an unobserved variable. Moreover, perception has moderate negative effect on fertility. In addition to these, perception has a large positive effect size on latent variable constructed as "daily-life" styles of women while it has large and negative effect on latents which are conceptualized as "attitudes towards women's status" and toward "family-planning methods and issues". It is also revealed that, "attitude" that is predicted by using "daily-life styles", "attitudes towards women's status and family planning methods" has a moderate and negative effect on fertility.

Another finding of this study is about the effect of education on fertility. Information on schooling is routinely collected in all demographic surveys as well as Turkey Demographic and Health Survey 2003 that has been used. That is why effect of education is controlled during analysis. However, an interesting result is revealed: The direct effect of education on fertility is founded as insignificant by the analysis. The reason of this result is explored and concluded that education has a significant indirect effect on fertility instead of direct effect.

Consequently, it can be said that since female education enables women to process a wide range of information, and stimulates cognitive changes that shape woman's

interaction with surrounding world, it positively affects her knowledge about sexual health issues as well as her daily-life style, her perspectives about gender equality or inequality and therefore her behaviors about childbearing. Martin and Jaurez (1994) have stated "schooling's role in attitude formation and attitude change goes far beyond the enhancement of conceptual reasoning or other information-processing abilities. Women's exposure to new ideas and behavioral models, for example, may lead to a crucial transformation in aspirations and, eventually, to questioning traditional beliefs and authority structures. These subtle changes are linked not only to the content of the schooling curriculum but also to the organization of instruction and the social process of learning."

However, it should be mentioned that these findings are for five metropolitan areas of Turkey. Although default model fits the rural data, results of multi-group analysis showed that hypothesized effect of attitude on behavior is insignificant for ever-married women aged 15-49 in rural areas of Turkey. This finding can be interpreted as; the modeled decision process for performing fertility behavior is valid for women both in metropolitan and rural areas. However, form of perceptions and attitudes must be built up by considering social, economical and geographical dynamics of the population of interest which requires a researcher who is familiar with that population.

Consequently, this study does not aim to provide a model that fully explains decision process of women and the effects of all exogenous and endogenous factors on fertility. Its aim is to present an alternative perspective that focuses on social and social-psychological processes. Results of this study may provide a suggestion that refers to multi-disciplinary approaches in social sciences, exertion of social interaction and interpersonal relations, and role of in depth view in fertility studies which may end with a more clear understanding of fertility decline mechanisms.