

Projection of population by level of educational attainment, age, and sex for Turkey, 2000-2050

M. Murat Yüceşahin¹, Samir KC²

Extended Abstract

Context

In light of human capital theory, participation in education is an investment in human capital made with the expectation of returns later in life (Becker, 1964; Smits and Hoşgör, 2006). At the macro-social level, more education tends to imply improved productivity and income, and economic development implies a better life quality of life. At the micro-social level, more education tends to imply a healthier and better-nourished population and greater autonomy for women (Jejeebhoy, 1995; Martin and Juarez, 1995; Lutz and Goujon, 2001; Basu, 2002; Goujon and Lutz, 2004; Joshi and David, 2006; Samir *et al.*, 2010). Moreover, the education of women is important for a wide range of demographic behaviour, as it affects fertility, mortality, and migration (Jejeebhoy, 1995; Samir *et al.*, 2010).

The patterns in the relationship between education and demographic behaviour are diverse, varying by region of the world, as well as by the level of socio-economic development and cultural conditions (Jejeebhoy, 1995; Bongaarts, 2003). Thus, these patterns and relationships raise certain questions, in some contexts (Turkish), about whether or to what extent modest increases in education, especially among females, lead to differences in demographic behaviour.

Turkey is a geographically diverse country, and an important component of that diversity is demographic. The biggest disparities are related to the socio-economic development and regional disparities between the country's east and west. Regions of the country vary markedly in the age structure of the population and even more conspicuously in such characteristics as fertility and infant and child mortality (Yüceşahin and Özgür, 2008; Kocaman, 2008).

Beginning with the proclamation of the Turkish Republic in 1923, Turkey experienced substantial changes in its demographic structure. In the late 1920s, Turkey's population was around 13 million while it currently exceeds 70 million. The fertility rate was around 6 children per woman before the early 1960s, whereas, according to Turkish Statistical Institute's (TSI) estimation, current TFR is quite close to replacement level (2.17 children per woman in 2009). In addition, life expectancy at birth considerably increased from 43.6 years to 71.8 years for both sexes between 1950 and 2010 (UNPD, 2011).

¹Corresponding author: Department of Geography, Faculty of Letters, Ankara University, 06100, Sıhhiye, Ankara, Turkey, e-mail: mmyucesahin@yahoo.com

²World Population Program, International Institute for Applied Systems Analysis (IIASA), Schlossplatz 1A-2361 Laxenburg, Austria, e-mail: kc@iiasa.ac.at

Turkey has a young population structure because of the high fertility and growth rates of the recent past. However, prevailing demographic forces of the population have been changing in new direction. While the growth rates of young age groups have been declining, older age groups have been rapidly increasing. Currently, 7.2% of the population is in 65 and above ages. According to TSI, it is expected that within 15 years elderly population will constitute 10% of the total population in the country.

The Turkish educational system is basically made up of two sections: formal and non-formal education. Formal education can be defined as the regular education of individuals of a certain age group as given in schools at the same level programs having definite aims. The formal educational institution consists of four levels: pre-school education, primary education (lasting 8 years total), secondary (high school) education (adding to 11 years total, including the previous levels) and higher (post-secondary / tertiary or university) education (for a grand total of 13 or more years). Formal education is free in public schools, and starting with the 1997-1998 educational year, compulsory education in Turkey was expanded from 5 years to 8. As for Turkey's non-formal education, it aims to assist formal institutions and offer life-long learning opportunities for children as well as adults (Gökçe, 2004; Rankin and Aytaç, 2006; Duman, 2010). Notably, many reading and writing courses for girls and women have been used by the government and non-governmental organisations alike to help narrow the gender literacy gap in undeveloped eastern regions via the non-formal education system.

Although recent general fertility trends, regional inequalities, and gender disparities in education in Turkey have been well documented in research through analyses of censuses and demographic sample surveys (e.g. Turkish Demographic and Health Surveys), educational demographic variability – in fertility, infant/child mortality, and migration – has been comparatively neglected. It is worthwhile to undertake a broad portrait of regional variation in population characteristics in the Turkish context. This study has two broad objectives: to describe the extent and geographic structure of demographic variability by education and try to account for this variability on the basis of regional social and economic development, and then to apply these differentials in the multi-state population projection for Turkey.

Approach

Spatial differences in demography (fertility, infant/child mortality, and migration) by education can be discussed and explained in terms of both demographic. In such a framework of analysis, it may be possible to demonstrate that there are significant and intriguing geographical differences in demography, and to evaluate the extent to which these differentials can be accounted for on the basis of different spatial levels.

Population estimates make up one of the most widely used products of demographic analyses, and these estimates for states, counties, provinces, and other places are important for planning what types of services to offer and the future structure of populations (Hoque, 2008; Jarosz, 2008). A multi-state projection by education produced based on certain selected representative provinces of fertility regions and as well as one for all of Turkey.

The purpose of the projection is to obtain a dataset with the population distributed five-year age groups (starting at the age group 0-4 and ending with the age group 100+), by sex, and by six levels of educational attainment over a period 50 years in five-year intervals, from 2000 to 2050. Our baseline year

providing the empirical starting point is 2000. Distribution by level of education is projected along cohort lines. The projection is based on the demographic method of multi-state projection. Data were collected for the year 2000 for the country which include the total population by sex, five-year age group and six educational attainment categories based on the Turkish educational system.

Procedure

A baseline population distribution by five-year age group, sex, and level of educational attainment is derived for the year 2000 Census. For each five-year time step, cohorts move to the next highest five year age group. Mortality rates are applied, specific to each age, sex, and education group, and to each period. Age and sex-specific educational transition rates are applied. Age, sex, and education specific net migrants are added to or removed from the population. Fertility rates are applied, specific to each age, sex, and education group, and to each period, to determine the size of the new 0-4 age group. The new population distribution by age, sex, and level of educational attainment is noted, and the each steps are repeated for the next five-year time step.

Data

As a baseline for the projection, population distributions by age, sex, and level of educational attainment for the country are needed. Data are taken from the statistical sources as follows:

- ▶ Base Turkey's and its provincial data:

National censuses:

- ▶ 1935 Census (State Institute of Statistics 'SIS', 1937)
- ▶ 1960 Census (SIS, 1964)
- ▶ 1985 Census (SIS, 1988 and 1989)
- ▶ 1990 Census (SIS, 1993 and 1995) (Integrated Public Use Microdata Series-IPUMS)
- ▶ 2000 Census (SIS, 2002 and 2003) (IPUMS)

Turkey Demographic and Health Surveys:

- ▶ TDHS 1998, 2003, and 2008 (HUIPS, 1999, 2004, and 2009)

Migration Data:

- ▶ 1990 and 2000 Migration Statistics (from 1990 and 2000 Censuses) (SIS, 1997 and Turkish Statistical Institute 'TSI,' 2005)
- ▶ Provinces' socio-economic development indicators are taken from censuses and from Turkey Human Development Reports (UNDP, 2001 and 2004).

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