

Understanding Rapid Infant Mortality Decline in Turkey: A structural Equation Modeling Approach:

Introduction:

Turkey has been regarded as demographically unclassifiable because its persistently high infant mortality (IMR) is (was) out of line with its socio-economic indicators and its low fertility (Behar, Courbage and Gürsoy, 1999). Moreover, the infant mortality rate in Turkey has been labeled as a “Turkish puzzle” (Gürsoy-Tezcan ,1992) until recently by referring this inconsistency between high infant mortality and other development indicators as well as the unexplained reasons behind it. However, infant mortality in Turkey has shown an unexpected rapid decline in the last two decades.

The Fourth Millennium Development Goal (MDG4) is by 2015 to reduce infant and child mortality by two-thirds from the 1990 level. To date, all regions of the world and the world in aggregate fall well-below this goal, and well-below where one might expect them to have achieved if the goal is to be met by 2015. Turkey, however, is one country among only a few that have likely already surpassed the MDG4 goal and have reduced their under-five mortality (U5MR) by more than two-thirds. Results from the Turkey Demographic and Health Survey 2008 also revealed that Turkey has already reached the target: There has been a decrease of 68 percent (from 53 to 17 per 1000) in infant mortality rate between 1993-2008 period and 61 percent decrease in U5MR at the same period (from 61 to 24 per 1000). This stage reached in infant and child mortality in Turkey implies that the resolution of the Turkish puzzle has commenced.

These declines were likely systemically-induced with the comprehensive improvements in the public health and health services systems in Turkey. Sustained focus on health strategy and planning, and implementation of widespread, effective public health campaigns namely focused around family planning, vaccination, child survival, and neonatal resuscitation have contributed significantly to the decline in the IMR and subsequently in the U5MR .Previous researches have underlined the importance of a rapid increase in antenatal care attendance, proportion of women delivering in health institutions and in the proportion of women whose deliveries were attended by health providers. However, there are limited studies that focus on recent infant mortality decline in Turkey. Therefore, aim of this ongoing

study is to question the mechanisms behind this rapid decline in Turkey by utilizing Turkey Demographic and Health Survey Data set 2008.

Data and Methods:

Data used in this study is obtained from the Turkey Demographic and Health Survey, 2008 (TDHS-2008), which is the most recent demographic survey data available. The TDHS-2008 is a nationally representative survey based on a weighted, multistage, stratified cluster sample. Household questionnaires were filled in each visited household where interviews were successful. The household questionnaire included questions on household members and household characteristics. In households where ever-married women were present, individual questionnaires were filled. The individual questionnaire is made up of questions on background characteristics, marriage, fertility, contraception, mother and child health, migration and women's status. Fertility data is obtained through a birth history section, where each live birth is recorded, including the age at death for children who have died.

Aiming to focus on recent decline in infant deaths, this study will employ the birth history data of the last ten years. The dependent variable used in this study is based on birth history data of women. For descriptive analysis, the dependent variable is defined as the proportion dead under 1 years of age among all children ever born per women. The proportions are presented as percentages for the sake of clarity.

The independent variables available are classified according to the Mosley and Chen framework. The individual level socio-economic determinants are the educational level of woman, the educational level of her partner, working status of woman, working status of her partner, type of health insurance of woman and the type of health insurance of her partner. Household level socio-economic determinants are wealth index, type of place of residence (as urban or rural) and region. Maternal factors are the age of woman and the type of contraceptive method used by woman. Among environmental factors, there are smoking status inside the house, source of drinking water and the type of toilet facility. Finally, socio-cultural factors have been decided as consanguinity among spouses, woman's level of acceptance for traditional gender roles, woman's mother tongue and her partner's mother tongue.

A major limitation of the study is that variables related to mother and child health cannot be included. These questions are asked for birth in the five years preceding survey date. Since infant death is a rare event, the number of infant deaths get very small for a time period as such, and confidence intervals of estimates tend to get rather wide.

In this paper mainly descriptive analysis are performed. However, in the forthcoming steps of the study, Structural Equation Modelling (SEM) will be used to explore the reasons behind the decline in infant mortality. SEM enables the examination of causal and indirect relations and to work with variables that do not directly exist in the data set (latent variables). In SEM, relationships that are described by the parameters indicate the magnitude of the effect (direct or indirect) that independent variables have on dependent variables.

In its broadest sense, SEM models represent translations of a series of cause-effect relationship (causal relations) between variables into a composite hypothesis concerning patterns of statistical dependencies (Shipley, 2000). The relationships are described by parameters. These parameters indicate the magnitude of the effect (direct or indirect) that independent variables have on dependent variables. By enabling the translation of hypothesized relationships into testable mathematical models, SEM offers a comprehensive method for the quantification and testing of theoretical model (Hersberg et al. 2003).

Findings:

Descriptive analysis has shown that both the education of mother and that of her partner are important regarding infant mortality. The proportion of infant deaths among children ever born has found to be 1.9 percent for mother who have no education or have not completed first level primary education. The corresponding proportion is 0.7 percent for mothers with high school education or higher. Mothers who are currently working with social security have the lowest proportion of dead children under one year of age, and the same applies for mothers' partners. However, the differences between the categories of the working status variable are not significant. The proportion of children dead changes according to the

health insurance status of mother and her partner. Holding a green card¹ means higher proportions of infant deaths, compared to holding a SSK² type of insurance.

The wealth index has five levels; the proportions of children dead decrease with increasing wealth. The proportion of children dead is 3.5 times higher for the poorest households compared to richest households (2.0 and 0.6 percent respectively). Urban-rural difference is apparent, but not statistically significant. Regionwise, the Eastern region has the highest proportion of dead, and West has the lowest.

Age group of mother has not shown regular changes regarding proportion of dead infants. The proportion of children dead under a year of age is 2.2 percent for mothers who are not using any contraception and 0.8 percent for mothers who are using traditional methods of contraception.

Women who are living in households where people smoke inside the house have lost higher proportions of their children, compared to households with no smoking. Smaller proportions of children are dead for women who live in households where bottled water is used for drinking. Using piped water or piped spring water means higher proportions of death for children. Open pit toilets show higher proportions of death compared to flush toilets, however, the estimates are not significantly different.

Women in consanguineous relationships have higher proportions of dead children compared to women who are not married to a relative. Women who have higher levels of acceptance for traditional gender roles have also lost higher proportions of their children as opposed to those who have lower levels of acceptance. Turkish speaking women have lower proportions of infants dead compared to Kurdish speaking women (0.9 percent and 2.0 percent respectively), who are second largest ethnic group in Turkey after the Turkish. Partner's mother tongue has shown a similar pattern.

¹ Green cards are provided by the state to families who are financially incompetent, so that they have free access to health services.

² SSK is provided for personnel with salaries who are employed in the private sector.

References:

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