

Abstract

In Turkey, as in many developing countries, between the early 1960s and mid-'80s the Total Fertility Rate (TFR) declined dramatically and the country thereby experienced a rapid fertility transition. Despite this overall trend, substantial spatial variations in fertility levels, with low fertility in the west and high fertility in the east, have not escaped attention.

Due to the inadequacy and imbalanced diffusion of social and economic initiatives, Turkey's eastern and south-eastern provinces remain underdeveloped. The quality of schooling infrastructure is poor, and women's educational attainment in these regions is very low. Therefore, illiteracy among women has remained very high, and their education is often deemed unnecessary due to traditional-patriarchal socio-cultural norms.

This study, focusing on the relationship of education to fertility, correlates women's educational levels with spatial fertility variations in Turkey. The country's 81 provinces were grouped into four stages of fertility transition according to their fertility rates in 2000. Through doing this, I try to explain the impact of women's education on fertility by region.

Motivation

► A review of many population geography studies shows that rather little attention has been paid to geographic variations in fertility (or generally demographic) within countries. However, these analyses reveal what makes regions distinctive and provide insights on how demographic variations or changes are related to differences in other socio-economic characteristics of micro-geographic areas.

► Although many studies have suggested various reasons for declining fertility in developing countries, the impact of women's education on fertility is widely identified as the strongest factor determining women's reproductive behaviour at both the individual and community levels. Additionally, though the linkages between education and fertility are not the same globally, but rather variable and complex, the education of women has taken on greater and greater importance in the demographic literature over time.

► Within countries, the impact of women's education on fertility also tends to be more consistently inverse in better-developed regions than in less-developed ones.

Data

The study is based on the 2000 National Census (NC), Turkey's Population, Demographic Structure and Development (TPDSD), Demographic Health Surveys (DHSs), Socio-Economic Developmental Range Survey of Provinces and Regions (SDRS), demographic and education statistics (DES) from the Turkish Statistical Institute (<http://www.tuik.gov.tr>), and 2004 Turkey Human Development Report (HDR), broken down as follows:

- National fertility trends ► NC+TPDSD+DHSs+DES
- Provinces' TFRs, women's educational levels and fertility ► NC+DES+DHSs
- Provinces' socio-economic indicators ► SDRS+HDR

National fertility trends

Figure 1: The pace of fertility decline

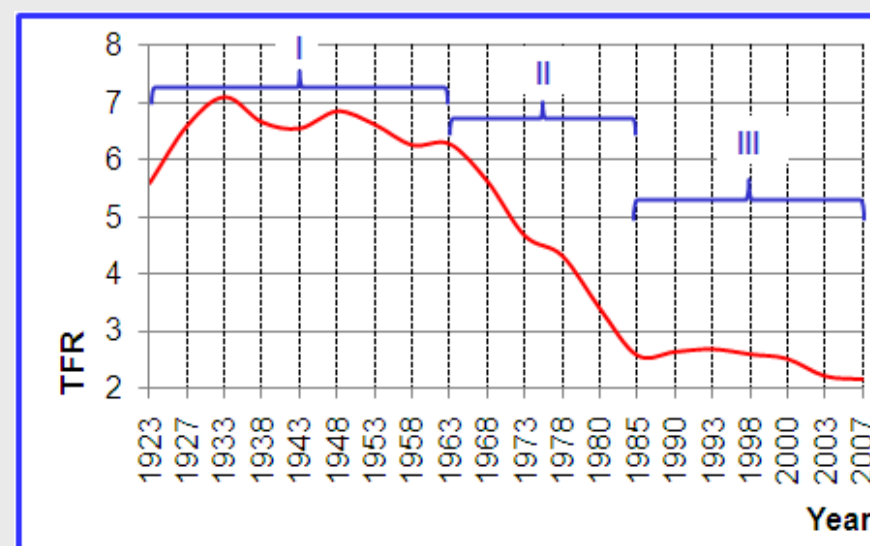
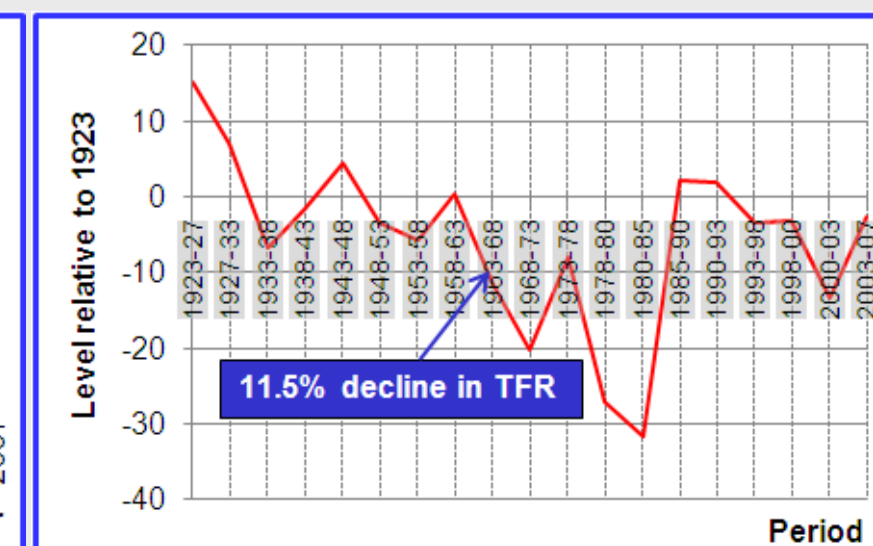


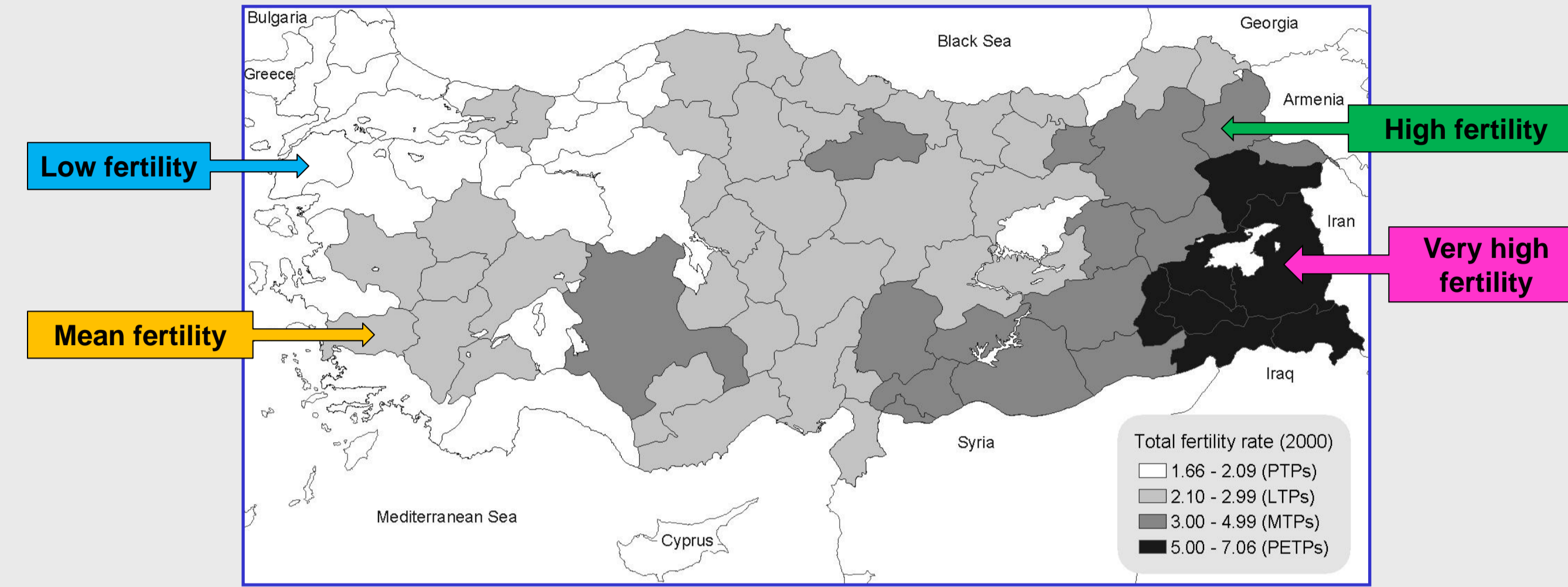
Figure 2: Percentage changes in TFRs



the 1963-1968 period indicates the onset of irreversible fertility transition

Results: Spatial fertility variations

Figure 3: Distribution of post- (PTP), late (LTP), mid- (MTP), and pre- or early (PETP) transitional provinces in Turkey, 2000



Western provinces have moved to low fertility in a rather standard way.

Eastern and south-eastern provinces have shown characteristics of the pre- or early stages of fertility transition.

Results: Characteristics of fertility regions

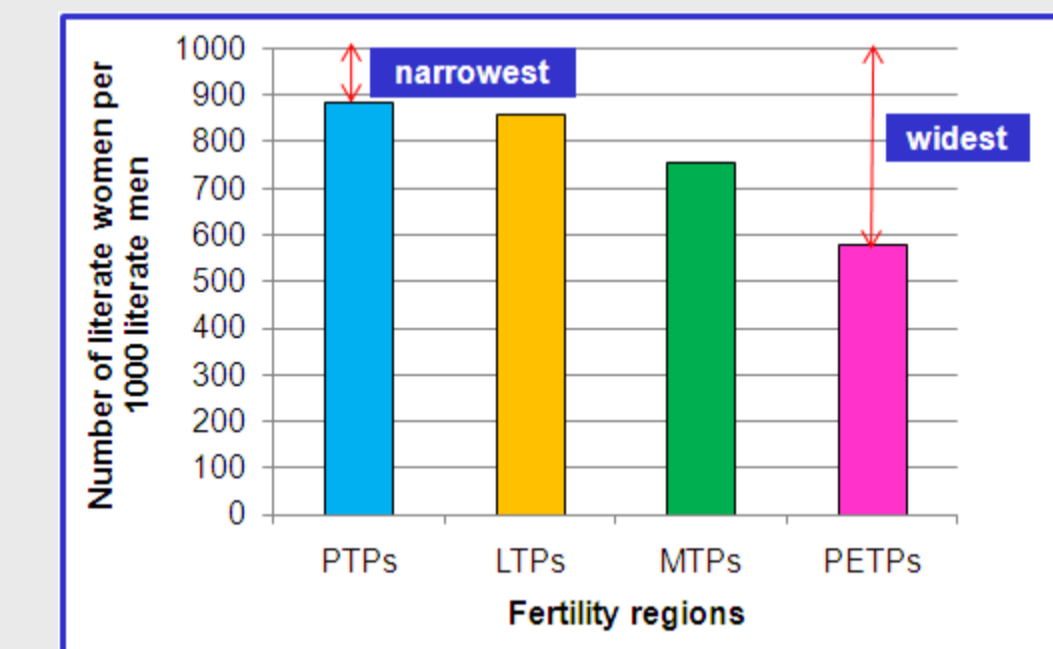
Table 1: Some socio-economic indicators of fertility regions

Indicator	Fertility region			
	PTPs	LTPs	MTPs	PETPs
A. Fertility				
TFR (in 2000)	1.90	2.50	3.80	5.90
Gap between TFRs by census year (relative to PTPs, the lowest-fertility regions)				
1980	-	0.62	1.65	2.18
1985	-	0.52	1.67	2.82
1990	-	0.55	1.87	3.89
2000	-	0.60	1.91	4.05
Mean number of children ever born per woman (in 2000)	3.02	3.76	4.52	5.47
B. Education				
Percentage of illiterate women aged 15-49 (in 2000)	6.5%	10.2%	27.4%	48.5%
Overall female literacy rate (aged 6 and older) (in 2000)	87.8%	80.3%	69.7%	52.9%
Overall female illiteracy rate (aged 6 and older) (in 2000)	12.2%	19.7%	30.3%	47.0%
Gender disparity in literacy (aged 6 and older) (in 2000) ^a	883	856	755	579
Mean number of students per teacher in 8-year compulsory primary education ^b	19.5	18.8	24.3	30.6
Mean number of students per classroom in 8-year compulsory primary education ^b	25.7	24.1	33.3	38.9
Mean number of students per teacher in secondary (high school) education ^c	15.2	15.5	22.6	30.7
Mean number of students per classroom in secondary (high school) education ^c	24.2	24.3	33.3	35.7
C. Relationships between education and fertility				
Differences in the number of children ever born per woman by years of schooling, relative to the level of non-educated, illiterate women (in 2000)				
No education but literate	-0.9	-0.9	-1	-0.8
5 years (primary school education)	-2.3	-2.4	-2.6	-2.4
8 years (junior high school education)	-2.9	-3.1	-3.3	-3.5
11 years (high school education)	-3.2	-3.5	-3.8	-4.2
13 or more years (university education)	-3.3	-3.6	-4.1	-4.5
D. Levels of development				
Gross domestic product per capita (USD) (in 2000)	3363	2376	1507	1105
Human development index (in 2000) ^d	0.779	0.725	0.663	0.602
Socio-economic development index (in 2000) ^e	0.914	-0.079	-0.634	-1.103

^a The level of gender disparity in literacy is the number of literate females per 1,000 literate males.
^b In the 2008-2009 educational year.
^c This index is based on three indicators: life expectancy (as measured by life expectancy at birth); educational attainment (as measured by a combination of adult literacy – two-thirds weight – and combined primary and secondary and tertiary enrolment rates); and standard of living (as measured by real GDP per capita). The HDI table compares the relative levels of Turkey's 81 provinces. The table was prepared using 2000 data (UNDP, 2004: 63).
^d This index is based on the basic component values deducted from basic component analysis and the common resultant of 58 provincial variables, such as demographic, education, employment, health, industry, agriculture, construction, financial, infrastructure, and other welfare indicators, representing the social and economic structure of Turkey's provinces.

Educational problems in the eastern and south-eastern regions (MTPs and PETPs) include overcrowded classes, multiple grades in single classrooms, infrastructure deficiencies, and supply shortages.

Figure 4: Gender disparities in literacy by fertility region

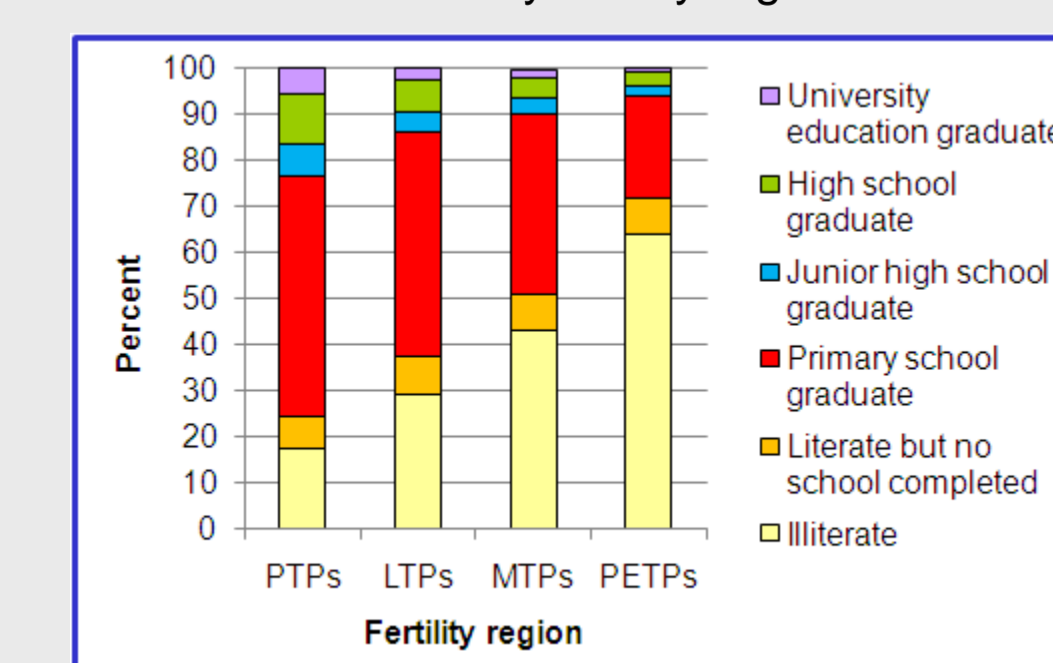


The gender gap in literacy in mid- and pre-transitional provinces is fairly wide, while the data on literacy levels in Table 1 and Figure 4 suggest no obvious gender-based differentials in PTPs and LTPs.

Women's Education Levels

- **No education (ILL):** women who have never been to school and have received no formal education (illiterate women)
- **Literate but no education (LNE):** women who have attended reading and writing courses but received no formal education
- **Primary education (the first level of primary education) (PEG):** primary education graduates (5 years of schooling)
- **Junior high school education (the second level of primary education) (JHSG):** graduates of the second level of primary education (8 years of schooling)
- **Secondary education (HSG):** high school graduates (11 years of schooling)
- **Tertiary education (UEG):** university graduates (13 or more years of schooling)

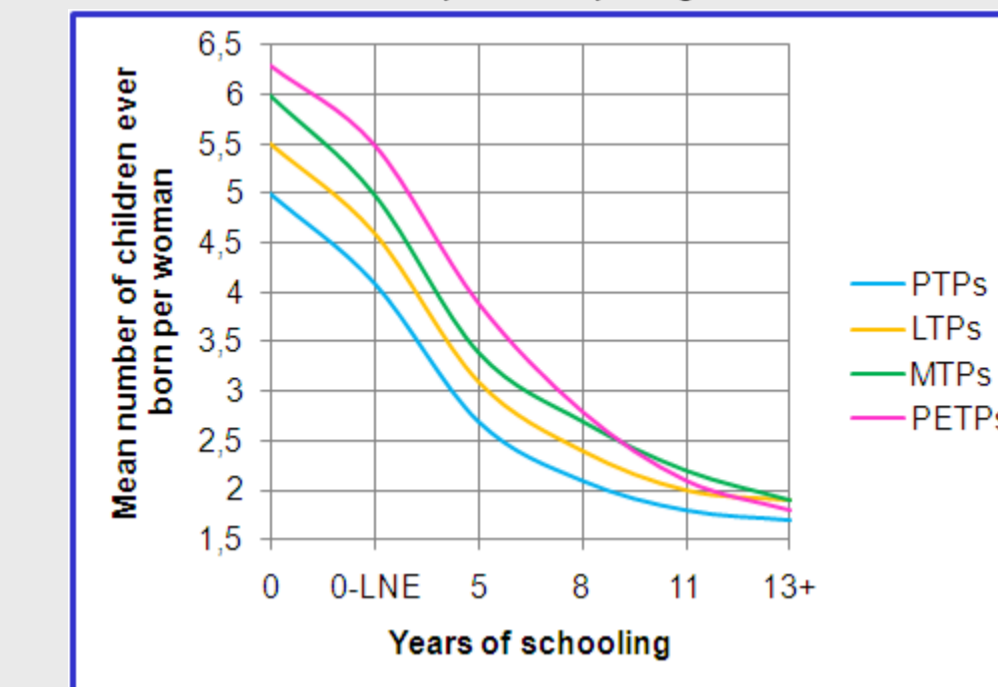
Figure 5: Educational levels of women who have borne children by fertility region



When the educational levels of women who have borne children is taken into account, the educational restrictions on women in MTPs and PETPs grow clearer.

Results continued: The role of women's education

Figure 6: The inverse relationship between women's education and the number of children ever born (NCEB) per woman, by fertility region



Though the education-fertility relationships are inverse in all fertility regions, the extent of the effects of each educational level on fertility varies by region.

- Generally, the gap in the NCEB between the most educated and illiterate women ranges from 3.3 children per woman in PTPs to 4.5 children in PETPs.
- Literacy (LNE) alone has a small effect on the decline in the number of children ever born per woman, especially in PETPs.
- Primary education sharply limits births, since in all regions the NCEB per woman with primary schooling is 2.4 times less than the number of children per illiterate woman. While primary education has less effect on the decline in NCEB in MTPs and PETPs than in PTPs and LTPs, this important level of education has the most impact on fertility relative to the previous educational level in all regions.
- Junior high school education is probably more important for PETPs than in other regions due to infrastructure and resource deficiencies in primary education.
- While the NCEB per woman with high school education in PTPs is less than 2, it is 2 in LTPs, and slightly above 2 in MTPs and PETPs.
- University education, as on the global level, has a role in the lowest fertility levels in all fertility regions, as the NCEB per woman is less than 2.

Figure 7: Differentials in the number of children ever born per woman, by women's educational level and fertility region

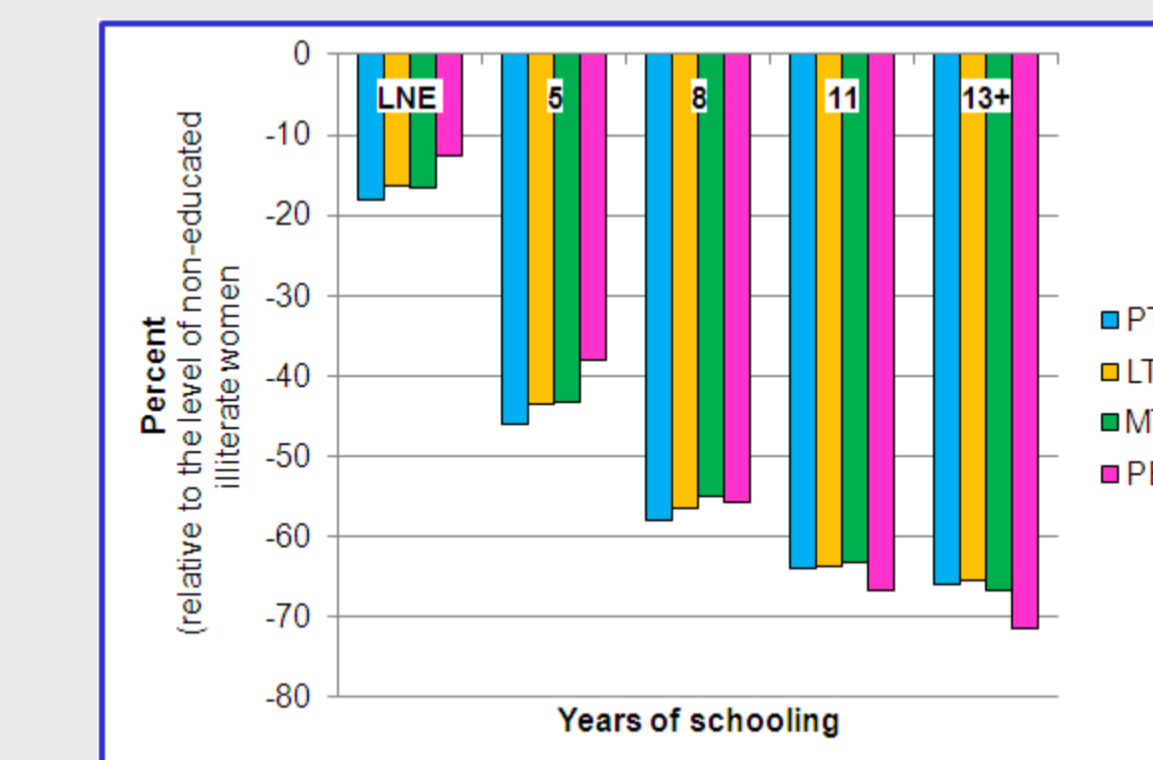
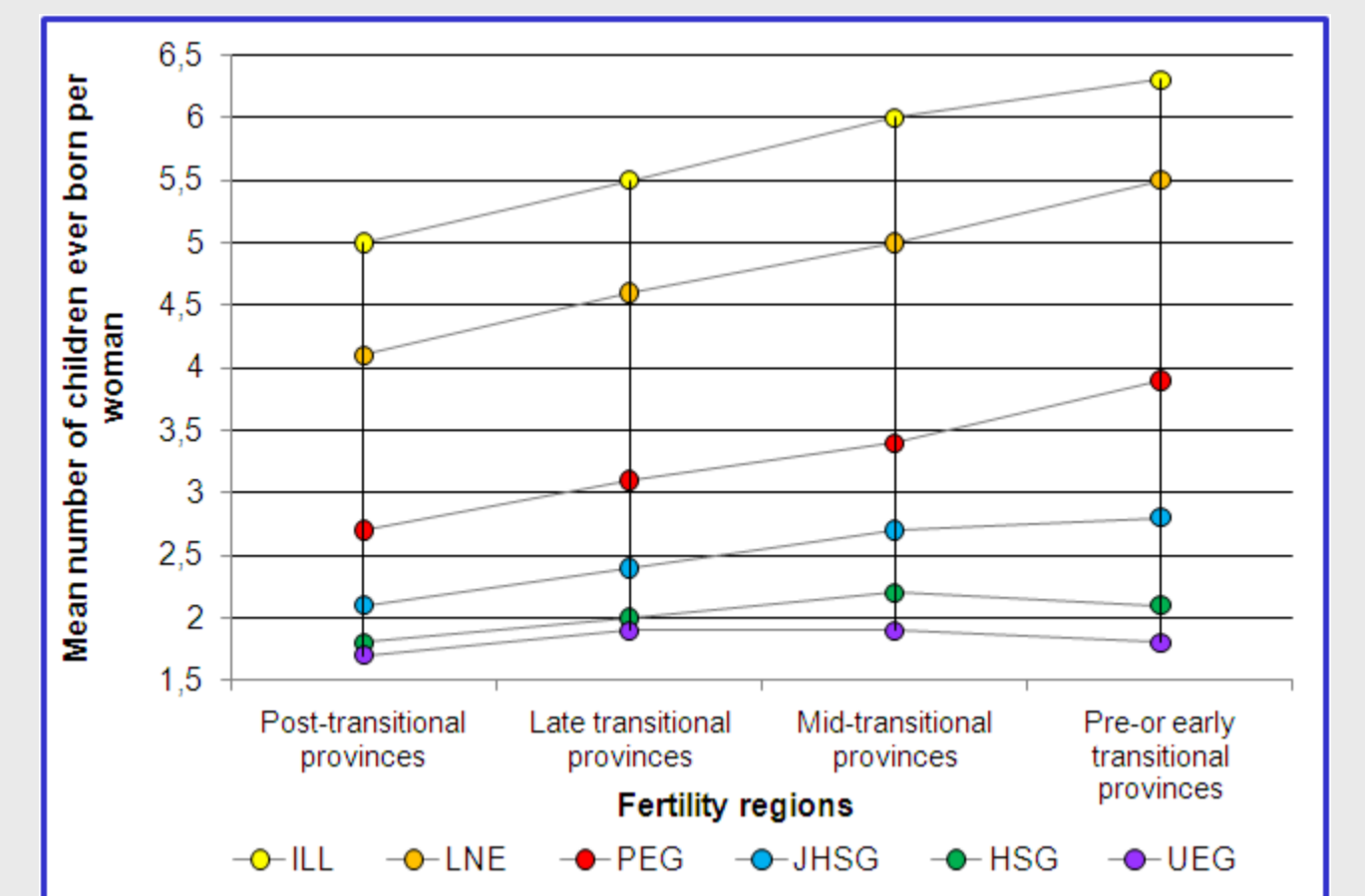


Figure 8: Percentage changes in the number of children ever born per woman, by years of schooling and fertility region

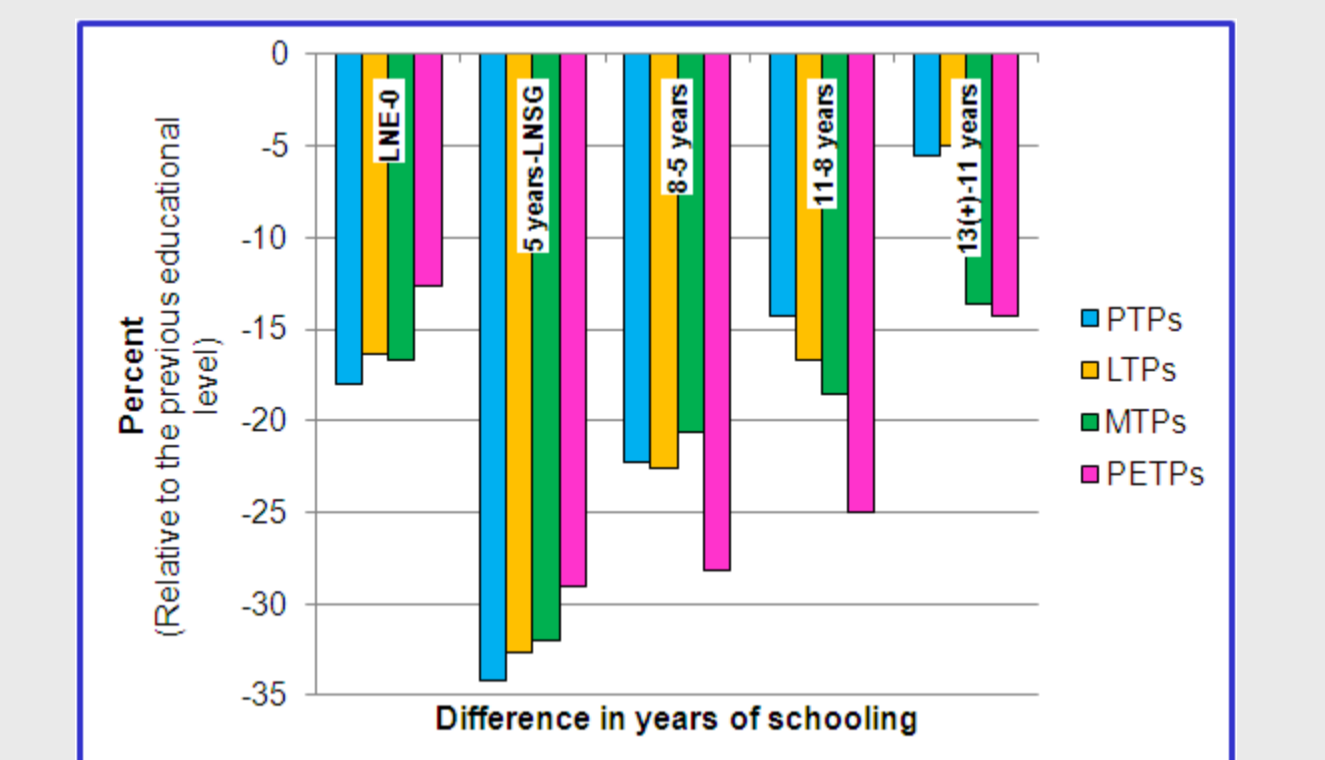


Figure 9: Percentage changes in the number of children ever born per woman, by each educational level and fertility region

Concluding remarks

- The findings of this study support the thesis advanced in the relevant literature that the autonomy of women in highly gender-stratified settings, as in Turkey's pre-transitional provinces, may be enhanced only after relatively high levels of education have been attained.
- This study showed that the longer and more intensive the exposure to education, the greater are the changes or declines in fertility levels, and that threshold levels of education in the country vary by fertility region.
- Regional differences in women's educational attainment level play a clear role in Turkey's spatial fertility variations.
- Low levels of education (or illiteracy) among women may be a critical factor in the persistence of pre-transitional patterns in Turkey's south-eastern provinces.
- The ability to merely read and write has less effect on women's fertility declines than their attaining higher levels of education.
- Primary education is crucial for all regions in terms of salient declines in fertility.
- Secondary and tertiary educations have a non-negligible role on Turkey bringing its fertility close to replacement level.