

(Final Paper)

Influences of Education, Migration and Socio-economic Status on Total Fertility Rate: A Comparative Analysis of the Counties of Izmir City and Turkey

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INTRODUCTION

From early 20th century until today when world human population is about to be 7 billions, unprecentended demographic transformation has been experienced, which is the consequence of change in economic structure, achievement of educational opportunities by almost all social strata and great evolution experienced in technology and social life (Yüceşahin, 2009). In spite of international differences, life expectancy caused by rates of worldwide mortality and fertility has played a determinant role in the transformation. Just as patterns of transition in developed nations as well as total fertility rates (TFR) and transition patterns in developing countries have been of great difference so can transition phases be distinct in any given nation. Data of small regions whose rates of transition are varriable proves important in this process. Considering that most of the studies are on national basis, sub-regional database remains insufficient (Yüceşahin, 2009). This study concerned has been meant to explore any factors which have presently or potentially influenced the above-said difference given that total fertility rates of Izmir province has tended to have gradually been shifting from that of Turkey in a decreasing pattern.

METHOD

First, population of Izmir province was studied considering those of Turkey and the World as a general view. In 1927 the World population, Turkey and Izmir had 2 billions, 13 and 0,5 millions while they amounted to 7 billions, 74 and 4 millions in population by 2011 respectively, when populations of the World, Turkey and Izmir has increased by 3.5, 5.47 and 7.45 times.

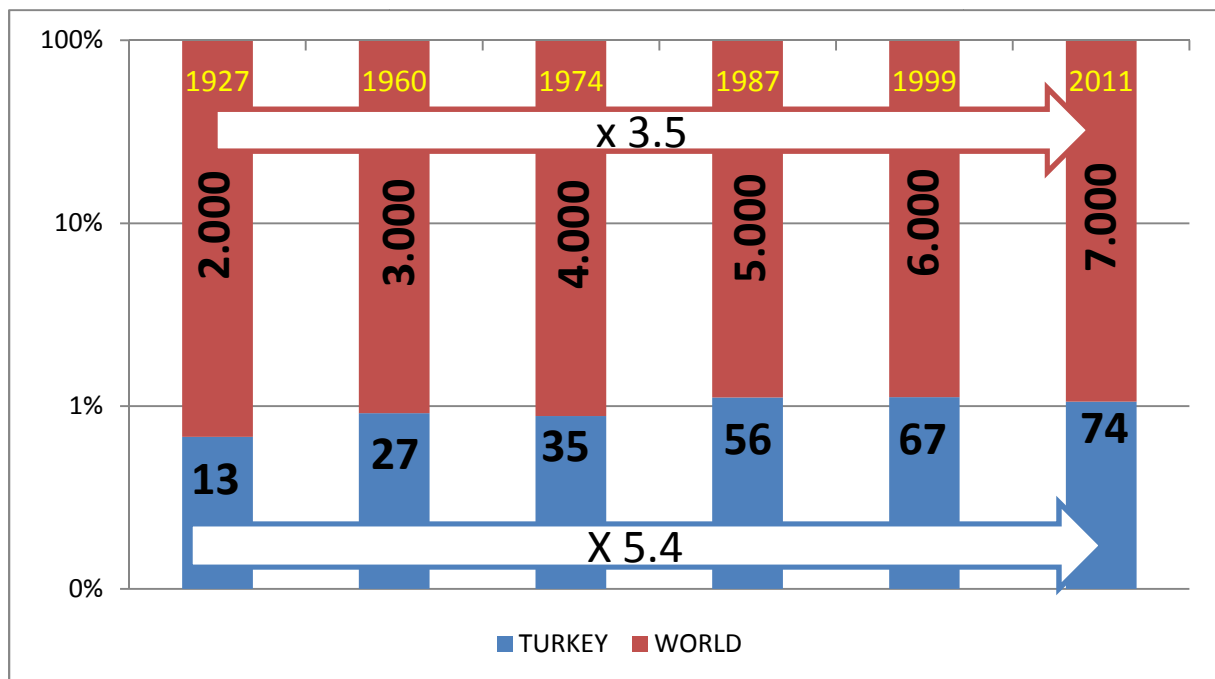
The period of time in which population was expected to be two times following 1927 was 33 and 47 years for Turkey and the World respectively.

Table 1. Population of the World, Turkey and Izmir

Years	The World	Turkey	Izmir
1800's	1.000.000.000		
1927	2.000.000.000	13.648.270	531.579
1960	3.000.000.000	27.754.820	1.063.490
1974	4.000.000.000	35.605.176	1.427.173
1987	5.000.000.000	56.473.035	2.694.770
1999	6.000.000.000	67.853.315	3.370.866
2011	7.000.000.000	74.724.269	3.965.232

Sources: Census of Population 2000, Results of Address Based Population Registration System 2011

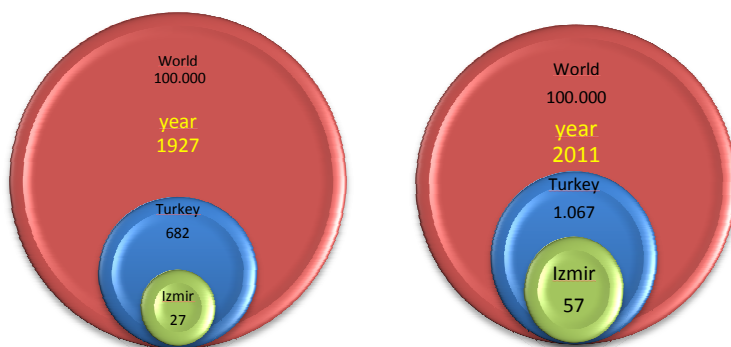
Figure 1. Populations of World and Turkey (x 1.000.000 people)*



*Logarithmic scale was used to show comparative populations in the graphic.

Briefly, of 100,000 people in the World, 682 and 27 and 1067 and 57 were in Turkey and Izmir in 1927 and 2011 respectively.

Figure 2. Comparative populations of Turkey and Izmir (per 100,000 people across the globe)



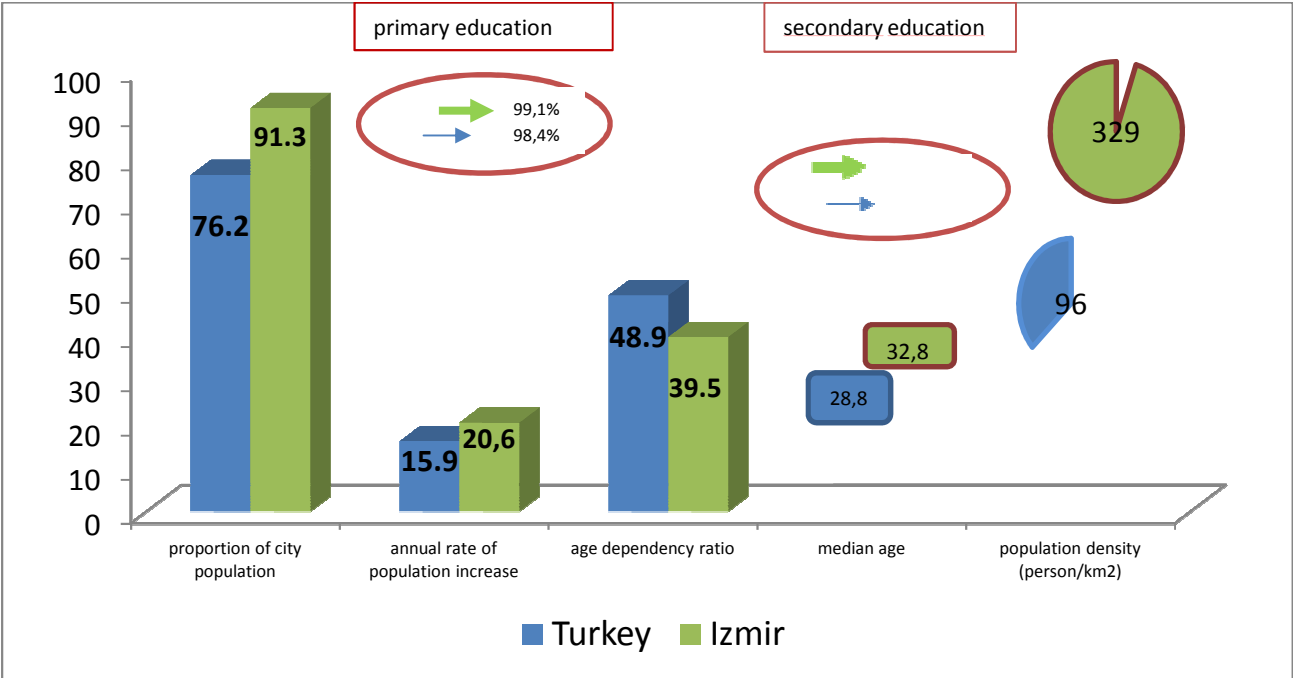
Comparison of demographic data on Turkey and Izmir considered rates of urbanisation, annual population increase and median age, schooling, age dependency ratio and population density, with different data of Izmir from that of Turkey.

Table 2. Demographic characteristics of Turkey and Izmir

	proportion of urban population	annual rate of population increase	age dependency ratio	median age	population density (person/km2)	primary education (%)	secondary education (%)
Turkey	76,2	15,9	48,9	28,8	96	98,4	69,3
Izmir	91,3	20,1	39,5	32,8	329	99,1	78,8

Source: Regional Indicators TR31 Izmir. 2010

Figure 3. Demographic characteristics of Turkey and Izmir



Source: Regional Indicators TR31 Izmir. 2010

Socio-economic data included electricity consumption, industrial electricity consumption in 2009, number of road motor vehicles and car in 2010, exportation and GVA data per person in 2008.

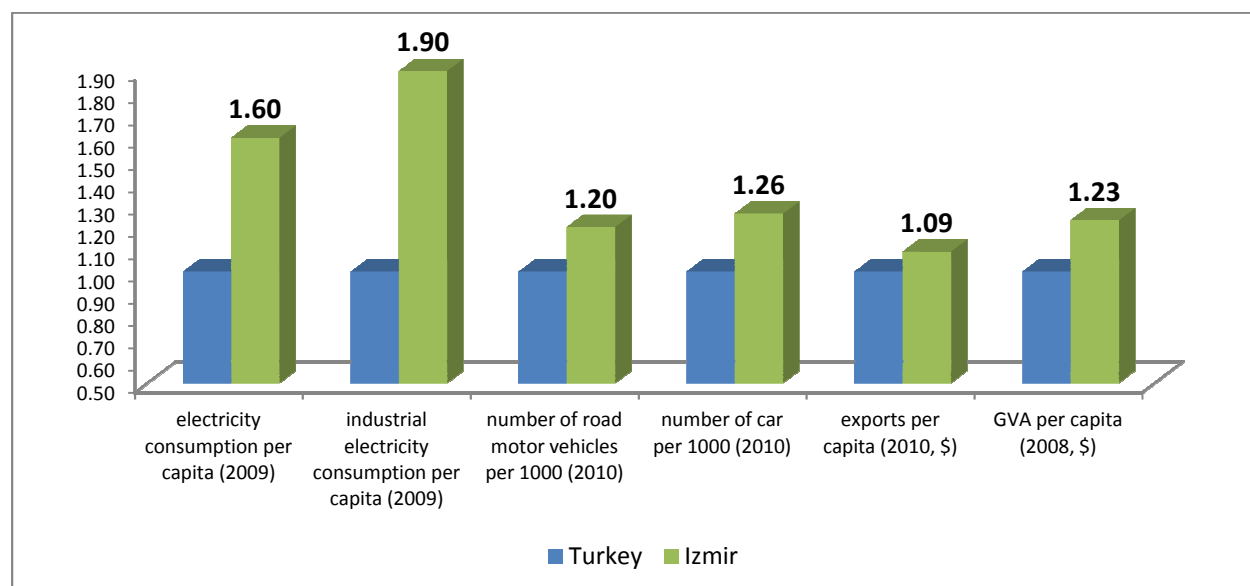
Exponential ratios of Turkey value 1 to those of Izmir were measured.

Table 3. Social and economic characteristics of Turkey and Izmir

	electricity consumption per capita (2009)	industrial electricity consumption per capita (2009)	number of road motor vehicles per 1000 (2010)	number of car per 1000 (2010)	exports per capita (2010, \$)	GVA per capita (2008, \$)
Turkey	1,00	1,00	1,00	1,00	1,00	1,00
Izmir	1,60	1,90	1,20	1,26	1,09	1,23

Source: Regional Indicators TR31 Izmir. 2010

Figure 4. Social and economic characteristics of Turkey and Izmir



Source: Regional Indicators TR31 Izmir. 2010

Comparison of data of education, migration and socio-economic factors in Izmir province was made, with their effects on total fertility rates being studied. To calculate total fertility rate, delivery data in 2009 was used from Hospital Information System of Izmir Provincial Health Directorate. TurkStat database was employed for education and migration statistics. Data on comparison of provincial counties used for level and index of economic development were borrowed from the 2004 study of the State Planning Organization. Finally, data of characteristics of deliveries in 2000-2010 years was scanned from Izmir Provincial Health Directorate.

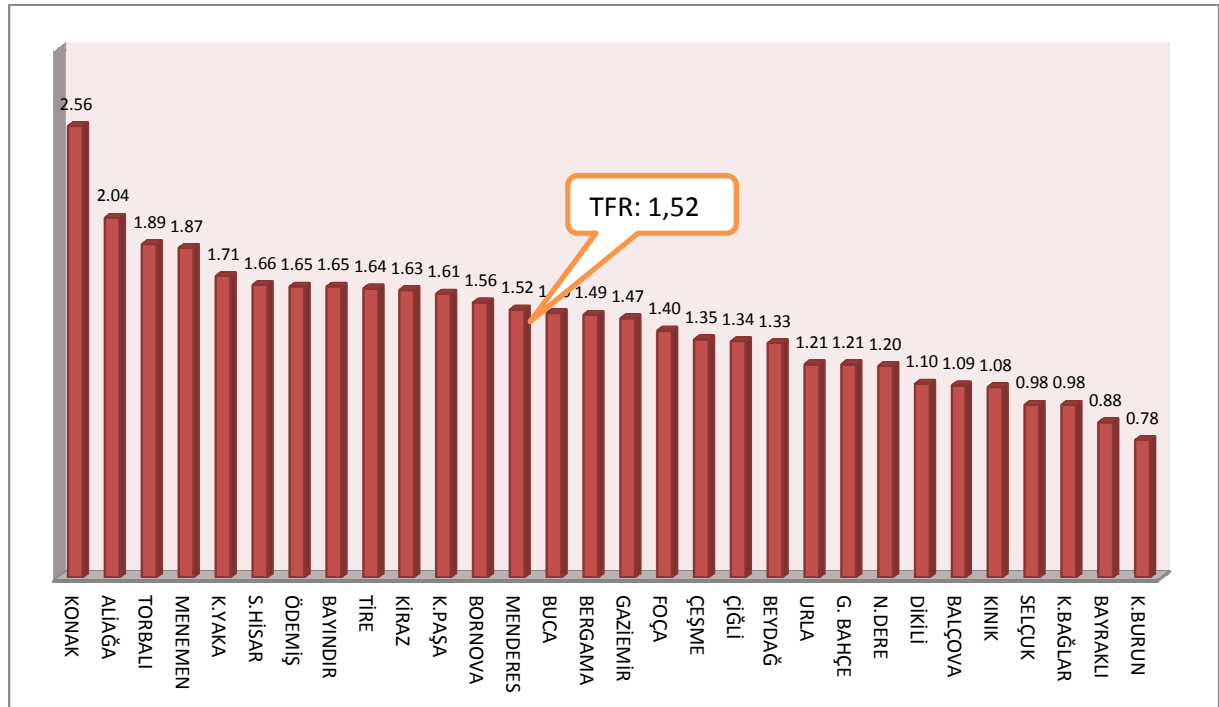
The study used data of total fertility rate for 2009. Provincial population of Izmir was found to be 3.868.308 by Turkstat, according to which 15-49 female age group is 1.072.225 with a percentage of 27,71. The province of Izmir is administratively divided into 30 counties (TurkStat). A total of 51.355 births have been examined which come from Hospital Information Systems to measure TFR, 49.541 (96,46 %) of which have been included in records of provincial residences (Provincial Health Directorate).

Table 4. Data of delivery in Izmir province, 2009

age groups	number of childbearing women	number of females 2009	age specific fertility rate
15-19	2.741	141.112	19,42
20-24	12.501	155.981	80,14
25-29	16.727	173.112	96,63
30-34	11.670	166.540	70,07
35-39	4.913	157.622	31,17
40-44	875	139.779	6,26
45-49	75	138.079	0,54

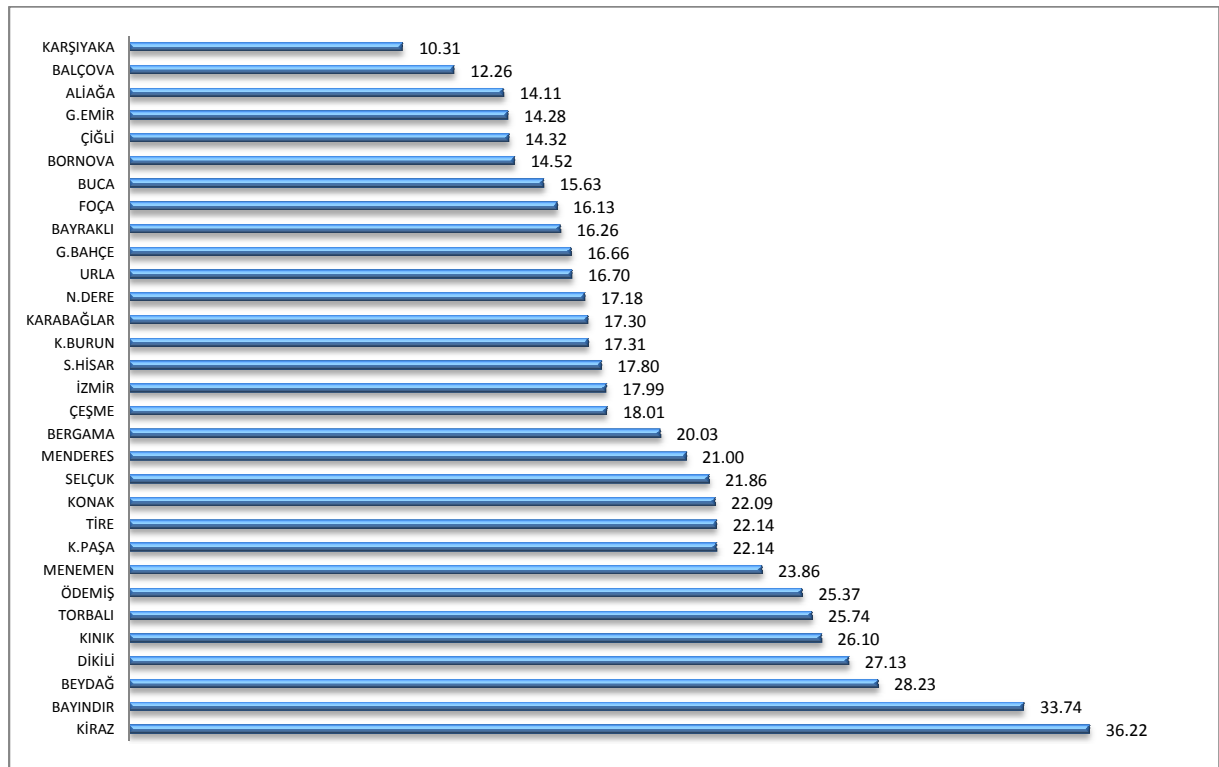
Source: Provincial Health Directorate, TurkStat

Figure 5. Total fertility rate of counties in Izmir, 2009



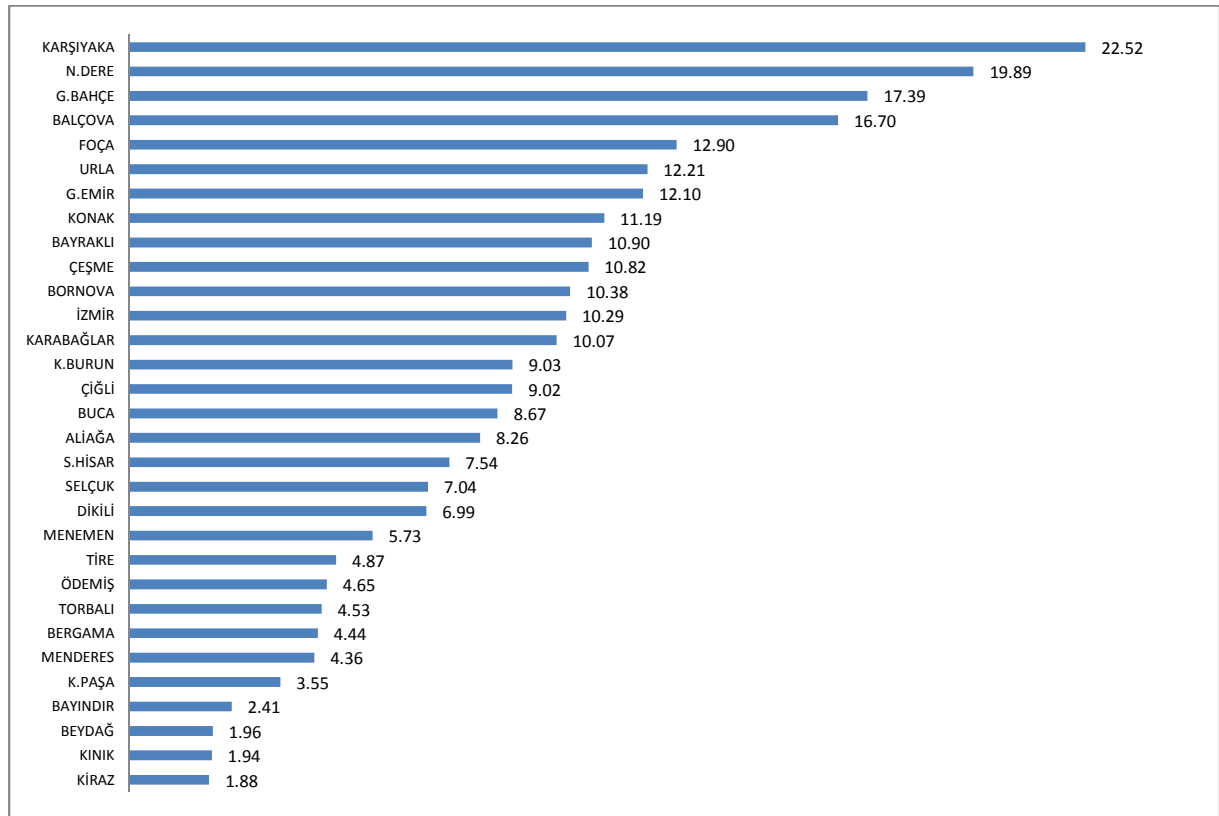
15-49 age group of women has been categorized into 4 sub-groups such as illiterate, primary, secondary and tertiary education categories in terms of education (TurkStat).

Figure 6. Data of education in Izmir province, population of illiterate, 2009



Source:TurkStat 2009

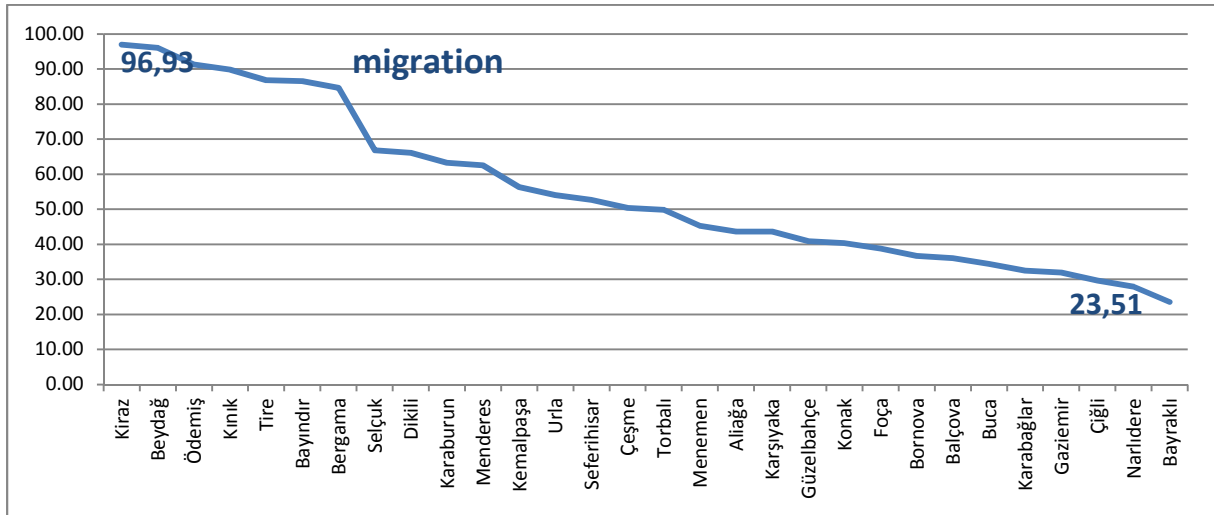
Figure 7. Data of education in Izmir province, population of university graduate, 2009



Source:TurkStat 2009

2009 data of current Izmir provincial residences of those who are natives of their own provinces from which they once immigrated has been studied by TurkStat, which clearly shows striking ratios of the Izmir- born and bred natives to immigrants between counties where natives and migrants inhabit on a heterogenous basis.

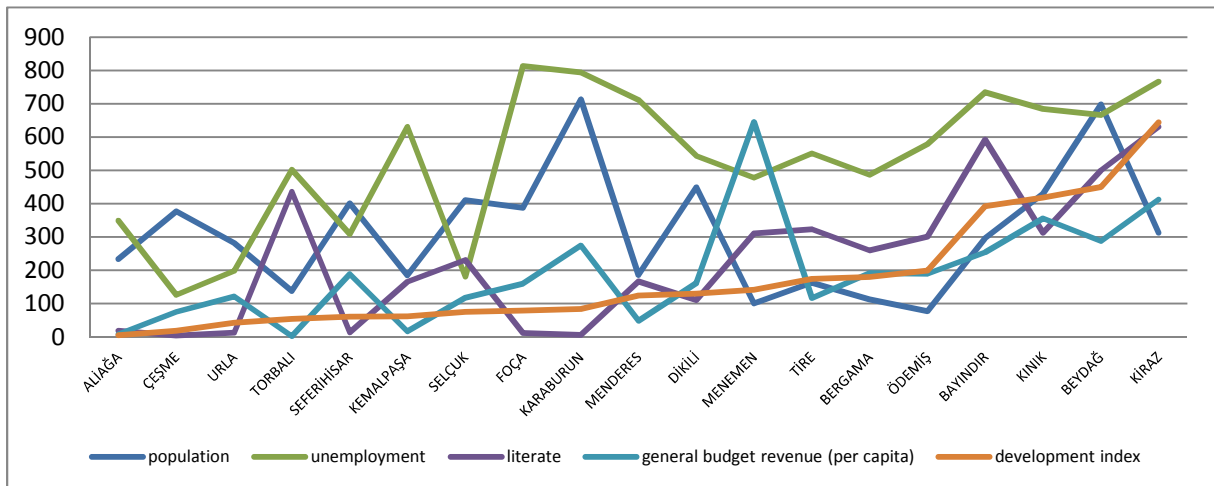
Figure 8. Data of migration in Izmir province, 2009



Source:TurkStat 2009

Concerning influence of socio-economic factors, one has used “Study on Ranking of Counties in Socio-Economic Development (2004). Counties of Izmir have been analysed in view of rate of urbanisation, employment in agricultural, industrial and service sectors, unemployment, literacy, rates of infant death, income per capita and rates of revenues from taxation. The study conducted by Principal Component Analysis has found ranking of counties according to development index (State Planning Organisation, 2004).

Figure 9. Data of Socio-economic status in Izmir province, 2004



Finally, one has employed data of Provincial Health Directorate collected from the related fields between 2000 and 2010 regarding characteristics and changes of fertility over years. In methodology, a comparative analysis has been made using data of Izmir counties. It is of great interest that TFR has been influenced by micro parameters unique to the region in which it is observed regardless of any occasional sensitivity to basic variables.

Table 5. Age specific fertility rates in Izmir province, 2000-2010

years	15-19	20-24	25-29	30-34	35-39	40-44	45-49
2001	34,72	97,39	94,15	55,89	24,80	5,32	0,95
2002	30,79	86,38	86,77	52,02	22,19	5,07	0,68
2003	28,59	86,04	87,76	54,87	21,70	5,17	0,69
2004	29,38	86,68	90,26	58,96	21,95	5,33	0,64
2005	29,17	87,63	95,18	61,48	24,05	5,41	0,68
2006	28,85	87,34	99,33	62,72	25,58	5,86	0,75
2007	28,96	97,92	107,41	68,21	27,72	5,78	0,67
2008	27,68	95,62	107,19	71,27	28,35	5,56	0,56
2009	24,15	84,61	98,14	66,78	29,29	5,29	0,46
2010	22,26	79,77	97,43	67,18	29,63	6,15	0,54

Source: <http://tuik.gov.tr>

RESULTS

Since total fertility rate in Turkey increased to the maximum level of 7.1, it has tended to decrease albeit slowly. Finally, 2008 TDHS reported it to be 2.16, which is 50 % lower than 4.33 recorded in 1978. In the last three decade, most frequent fertility age group has shifted from 20-24 to 25-29 age group. Postponement of birth goes to show that not only fertility rate but also its pattern have changed. In addition to this transformation, regional characteristics are of great difference. The highest fertility rate is observed to be 3.29 in eastern region whereas western region has a fertility rate of 1.73. Located in western region of Turkey, province of Izmir includes 3.9 million people which is, 5.35 % of Turkey's general population of 73.7 million. The study has examined TFR of Izmir which is significantly different from the present national average and such parameters as education, immigration and socio-economic factors which are all believed to influence TFR as well as fertility database of the last decade. Unlike other regions in fertility, Izmir has shown distinctive regional variations in itself, which requires a careful analysis of the factors that tend to have a great impact on TFR. Moreover, considering its slowing fertility rate, the evident difference

of Izmir from other cities and regions is thought to be likely to have a leading role or a typical example for the regions which are currently and potentially comparable to Izmir.

TFR of 2009 has been calculated as 1.52 for Izmir province, in spite of which there are considerable differences between the counties in the province to show Konak to rank the first with 2.56 and Karaburun the last with 0.78. Although 1.52 for Izmir is much lower than Turkey's average of 2.16 (2008 TDHS), great differences are in question on provincial basis.

Whereas median age of women who has given birth is 27.5 provincially, it is 26.16 and 29.73 in Kınık and Balçova respectively. Ratio of females giving birth under 30 is 73.67 in Bayındır while 49.45 in Balçova. Findings of education have been assessed both quantitatively and qualitatively to go to show that education is the very heart of the demography in the 21st century (Lutz, 2010). Ratio of illiterate women in fertile age group is 17.99 in province, with Kiraz being the most illiterate (36.22) and Karşıyaka the least illiterate (10.31). The same contrast also applies for graduation from university with a maximum of 22.52 and a minimum of 1.88 in Karşıyaka and Kiraz respectively. Number of illiterate persons per university graduate is 0.46 and 19.29 in Karşıyaka and Kiraz respectively. Considering the literate in themselves, ratio of female university graduates to those with primary and secondary schooling is 3.0 in Karşıyaka whereas 37.1 in Kınık with a provincial average of 7.0. The higher and the better education, the lower TFR is.

Analysis of recorded residences of provincial inhabitants has indicated that ratio of the native residents to those of different provinces in origin is 23.51% and 96.93% in counties of Bayraklı and Kiraz respectively with significant deviations from 43.96%, the provincial percentage of Izmir.

The closer the regions, the higher TFR is whereas the more migrants, the lower TFR is whether they are native or migrant-dominant.

In terms of socio-economic data, the five counties with the most frequent births from females under 30, higher TFR than that of Izmir provincial average and the lowest level of education are the four of the lowest five in rank by development index only with one of them ranking in the middle as it is located in an industrial area. Examination of Izmir population in view of fertility between 2000 and 2010 found that ratio of 0 age group to total population did not any parallelism to total growth of population but instead population did increase with the share of 0 age group decreasing. Percentage of 15-49 age group women was not in parallel with number of birth even in the regions where it increased

with the result that a dropping trend occurred in fertility whose characteristics shifted as well as gradual postponement of births to further dates.

DISCUSSION

Turkey seems to have closed the gap between developed nations and itself as a country which launched demographic transformation late. As with Izmir, there are even provincial regions or counties where population has fallen below its replacement level, not to mention close the above mentioned gap. Role and quality of education in reducing regional differences tends to decrease TFR as well. Considering the relationship between level of schooling and total fertility rate, two issues are of great importance; the first is that the higher literacy, the lower TFR is (illiteracy: 20,87%, 12,84%, 8,14% and 3,75%; TFR: 2.52, 2.00, 1.75 and 1.52; years 1980, 1990, 2000 and 2010 respectively). The second is effect of schooling composition that is, difference between levels of schooling ranging from primary, secondary to college or university. The higher university graduates, the lower TFR is dramatically observed considering general literacy.

Rates of migration to Izmir counties show that although fertility rate seems to have increased due to migration rate, even those that have hardly suffered from migration have a relative increase of fertility. Just because of poor level of literacy.

The socio-economic ranking of 6 scales from highest to lowest by SPO showed one county to be the first (most developed), 12 the second, 6 the third and one the fourth, excluding metropolitan counties. Those in 3rd and 4th scales of development are of relatively high fertility but have a low education profile.

What is poor level of education in counties is closely associated with higher fertility despite better socio-economy.

CONCLUSION

Education is of basic influence as compared to the two others, migration and socio-economy. Contrary to the general belief, education is also determinant in the counties with high fertility in spite of better socio-economy and less migration.

Combined interactions are supposed to be observed in stead of considering anyone factor alone in view of elements to be likely to influence the main process.

In addition to effects of migration, education and socio-economic on fertility, we need new indicators to be caused by interactions between the above mentioned factors.

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