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DETERMINANTS OF SCHOOL ATTAINMENT OF BOYS AND GIRLS IN TURKEY

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Determinants of School Attainment of Boys and Girls in Turkey[*]

by
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Abstract:

This study investigates the determinants of school attainments of boys and girls in Turkey. Although high levels of enrollments have been achieved at the primary school level for both boys and girls in much of Turkey, substantial regional differences remain. In particular, in the Southeastern region, girls begin to drop out of school around the third grade. Only half of the primary school graduates register at the middle level. Thus, the purpose of this study is to examine the determinants of educational attainments at the primary, middle and high school levels. Attainments of boys and girls are examined separately so as to shed light on the causes for the significantly lower level of attainment for girls. Understanding the constraints causing the large gender gap in Turkish education and the covariates related to lower overall educational levels may be useful to policy makers and planners.

Key Words: School attainments; gender; Turkey

JEL Codes: I21; J16

Determinants of School Attainment of Boys and Girls in Turkey

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I.   Introduction

Recent literature documents the important role of education in economic development emphasizing its contribution to economic growth, individual and social development. This study examines the determinants of the demand for schooling in Turkey. Although high levels of enrollments have been achieved at the primary level for both boys and girls in much of Turkey, substantial regional differences remain. Enrollment rates at the middle school and high school levels are low, and there are significant gender differences at these levels. The estimated labor market private rates of return to women are at least as large as those to men (Tansel, 1994; 1996). Under these conditions the greater schooling attainment of men reflect not only inefficient allocation of household resources but is also inequitable [1]. Thus, the purpose of this study is to examine the determinants of educational attainments at the primary, middle and high school levels for boys and girls separately so as to shed light on the causes of low levels of middle and high school attainments and the gender differences at these levels.

Individual survey data from the 1994 Household Budget Survey are used to estimate ordered probit models of primary, middle and high school attainments. A number of individual, household and local characteristics are related to the probability of schooling attainment. The most consistent factors affecting school attainment were parents' education and household permanent income. The strong effect of parents' education may mean less intergenerational socioeconomic mobility. The effect of the permanent income on the probability of schooling achievement of girls was larger than that of boys. Parental education effects were also larger on girl's schooling than on boy's schooling implying less social mobility for girls than for boys. Father being self employed had the expected negative effect on the probability of schooling at the middle and high school levels suggesting that work at

the family farm or business is an alternative to schooling. Effects of migration possibilities, the industrial composition of the local labor market and the quality of schooling on the probability of school attainment of boys and girls are also examined.

This paper is organized as follows. The structure of education and recent educational advancements in Turkey are discussed in Section II. Section III presents the demand for education model and its empirical specification. Section IV describes the data used in this study and the considerations for the representativeness of the samples used. Estimation results are given in Section V. Concluding remarks appear in Section VI.

II.   Structure of Education and Recent Developments

The formal educational system consists of primary school, middle school, high school and tertiary levels of schooling. Primary schools provide five years of training and the middle schools take three years. Until recently primary school has been the only compulsory education. In August 1997, compulsory education is extended from five to eight years covering middle school.[2] High schools encompass general, vocational and technical high schools where additional three years (four years in case of technical high schools) of training is implemented after middle schools. Tertiary levels of schooling take place at universities of at least four year programs or other institutions of two year programs. Formal education is provided by the government free of charge in the public schools although at all levels private schools exist.[3]

There have been substantial improvements in the gross enrollment rates since the 1960s. Primary school gross enrollment rates increased from an overall 75 percent (58 percent for females) in 1960 to over 100 percent for both males and females in 1993. The secondary school gross enrollment ratio was only 14 percent in 1960. It increased to 50 percent for females and 74 percent for males in 1993. Tertiary gross enrollment ratio increased from three percent in 1960 to 16 percent in 1993 (World Bank, 1984; 1997). [4,5] There were also substantial improvements in the stock of human capital measures since the 1960s. Adult illiteracy rate declined from 83 percent in 1960 to 28 percent for females and 8 percent for males in 1995 (World Bank, 1997). [6] However, in spite of compulsory primary schooling, Turkey has a high rate of youth illiteracy compared to OECD countries. Illiteracy

among 15-19 year olds were 9.4 percent in Turkey in 1990 as compared to 0.7 percent in Portugal and 1.0 percent in Spain (UNESCO, 1991). The average years of schooling of the labor force increased from 1.6 for females and 3.6 for males in 1970 to 4 for females and 6 for males in 1990 (Tansel and Güngör, 1996).

The school enrollment ratios may be overestimated, [7] and they conceal significant regional and gender differences. The mean years of schooling, although a stock measure, gives an idea about the extent of the regional and gender differences. The mean years of schooling of the labor force were 5.76 for females and 6.48 for males in 1990 in the Marmara region which is the most developed region of the country. This is to be contrasted with the same figures of 1.81 for females and 4.75 for males in the Southeastern region (Tansel and Güngör, 1996). UNICEF-Turkey (1994) notes that in the rural parts of Southeastern Turkey the proportion of girls drops to 25-30 percent after third grade. The bottleneck in the schooling system seems to be at the entry to the middle school. According to the 1990 Census, about three-fifths of the literate population (57 percent) had only primary schooling and no more (State Institute of Statistics, 1993). This means a high rate of drop out from the educational track after graduation from the mandatory primary schooling. Indeed, only 51 percent of the primary school graduates continued on to middle school in 1981 (TÜSIAD, 1990:47).[8,9] Further, there were only 64 females per hundred males in 1992 at the secondary schooling level (World Bank, 1995:219). For these reasons it is of great importance to study the determinants of primary, middle and high school achievements and the causes of gender differences in these achievements.[10,11]

III.   The Model

The human capital theory regards education as an investment so as to maximize lifetime wealth (Schultz, 1960, 1963, 1974; Mincer, 1958, 1974; and Becker, 1975). Additional schooling generates benefits in terms of enhanced future earnings and entails direct costs and opportunity costs associated with delayed entry into the labor market. The individuals will compare the direct and the opportunity costs of schooling with its future benefits. The investment will continue so long as the marginal rate of return to additional schooling exceeds the prevailing cost of borrowing. In this model the optimal level of

schooling increases with the returns to human capital and decreases with the cost of schooling.

According to the quality-quantity trade off models of household production parents maximize a one period utility as a function of number of children, quality of children, a composite consumption good and the leisure of household members subject to income and time constraints for the household members and the production functions (Becker, 1965; Becker and Lewis, 1973; Becker and Tomes, 1976; 1979; and Becker, 1991). Optimization results in a set of reduced form household demand equations for the number of children, children's education, consumption good, leisure and the derived demand equations for the market goods and the labor force participation. The demand for the schooling of children could be represented as a function of the wages of household members, market prices of inputs, unearned household income and a set of child, household and the local labor market characteristics. Assuming that parents have different preferences for their son's and daughter's education leads to gender specific demand functions for schooling. This differential preference may be a response to the actual or perceived differences in the labor market returns to female and male schooling (Rosenzweig and Schultz, 1982). The prevailing social norms or household resource constraints may also be important in producing gender specific schooling demand functions. If the society or parents do not see daughters as future providers, then parents may not invest in their daughters' education. If the labor market returns to men's schooling are higher than those to women's, then it will be efficient for the household to invest in son's schooling than in daughter's schooling. Education enhances the productivity of individuals in nonmarket activities as well (Haveman and Wolfe, 1984). The external benefits of education such as increased nutrition and health, increased child schooling, reduced child mortality and fertility are not easy to quantify. However, such returns in developing countries are greater for female schooling than for male schooling (Behrman, 1990; King and Hill, 1993; Schultz, 1988; 1993; 1995a; 1995b). Schultz (1995a) reviews the market failures which may be responsible for less than socially efficient investment in the schooling of girls than of boys.

The assumptions of altruistic parents and imperfect capital markets produce causal relationships with causality running from parents' schooling and household income to children's schooling attainment. Parents' education may represent their taste for schooling and

the genetic factors while mother's education may further reflect home investments since mothers are primary child care providers (Leibowitz, 1974). Mother's education may also represent permanent income, opportunity cost of mother's time in the labor market and efficient household production. If schooling is a normal good, the higher the income and wealth the higher will be the schooling attainment, ceteris paribus. Schooling could be a luxury for low income households in which case the income effect would be very large. If schooling is purely an investment good, under imperfect capital markets there will still be a positive association between schooling and income since higher income households are better able to finance the time in school.

Direct costs of schooling are the cash outlays on books, uniforms, transportation and tuition. However, the largest component of the cost of schooling is the opportunity cost of children's time diverted from household production or the labor market participation. In particular in the rural areas working at the family farm or business may be the alternatives to the time spent in school.

Empirical Specification

Ordered probit models (Maddala, 1983) are specified for primary, middle and high school attainments. The latent demand for the desired level of schooling, y^* is defined as an unobserved continuous variable:

$$y^* = \beta'x + u$$

where x is a vector of individual, household and locational explanatory variables and u is the normally, independently distributed disturbance term. β is the vector of coefficients to be estimated. Different levels of schooling for the individuals, y is the observed counterpart of y^*. It is discrete rather than continuous and censored at zero since a number of individuals are observed to have zero years of schooling. Application of ordinary least squares (OLS) is ruled out because an assumption of OLS is that the dependent variable be continuous and unlimited. Further, the benefits of schooling may not be uniform across different levels of schooling. Then, OLS which hypothesizes a linear expected value locus is inappropriate. The individuals are assigned to one of the J categories according to their observed levels of schooling such as 0, 2, 5, 8, 11, 15 or more years of schooling. Zero years of schooling indicate the people who

are illiterate. Two years of schooling is assumed for people who are literate but not a graduate of any school assuming that literacy is acquired in school. The graduates of primary schools have five years of schooling. The graduates of the middle and high schools have eight and eleven years of schooling, respectively. Finally, those with a tertiary level degree or higher are assumed to have 15 or more years of schooling. The ordinal variable y is defined to take a value of j if y^* falls in the jth category:

$$y = j \ \ \text{if} \ \ \alpha_{j-1} < y^* < \alpha_j \ \ \ j = 1, ..., J$$

where α's are unknown threshold parameters that must be estimated along with β assuming α_{-1} = $-\infty$, $\alpha_0 = 0$ and $\alpha_J = \infty$. The probability of obtaining an observation with y = j is equal to:

$$\text{Prob} \ (y = j) = F \ (\alpha_j - \beta'x) - F(\alpha_{j-1} - \beta'x)$$

where F is the cumulative standard normal distribution function. The estimation is carried out by maximum likelihood methods which provide consistent and efficient parameter estimates. The effect of the independent variable on the probability of the jth level of schooling is given by:

$$\partial \ \text{Prob} \ (y = j) \ / \ \partial x = \beta[f \ (\alpha_{j-1} - \beta'x) - f \ (\alpha_j - \beta'x)] \tag{1}$$

where f is the standard normal density function.

   In this study children age 14-19 corresponding to primary school graduates are fit with three categories of schooling, 0, 1, and 2 corresponding to 0, 2 and 5 or more years of schooling. Children age 16-19, corresponding to middle school graduates are fit with four categories of schooling, 0, 1, 2 and 3 corresponding to 0, 2, 5 and 8 or more years of schooling. Finally, children age 19-20, corresponding to high school graduates are fit with five categories of schooling, 0, 1, 2, 3 and 4 corresponding to 0, 2, 5, 8 and 11 or more years of schooling. The reasons for these samples and choice of educational categories are discussed in the section on the sample randomness.

   The following variables are used as the determinants of schooling. Children's age and a squared term in age are included to observe the cohort effects and to capture the nonlinear effect of age on schooling. Years of schooling achieved by the father and the mother represent parents' education. Whether the father is self employed or not and whether the mother is self employed or not are two dummy variables which are expected to capture the effects of the alternative opportunities for children's time. The effects of the unobserved

schooling of parents who were not present in the household are captured by the two dummy variables which indicated whether they are present in the household or not.

Total household expenditure per adult over 15 is used as a proxy for household permanent income. There were several reasons for this choice. First, total household expenditure is easier to measure than total household income, and it is measured with less errors of measurement. Second, total expenditure is a better proxy for household permanent income than total income itself since income may be subject to transitory fluctuations whereas savings allow smoothing of expenditures over time. Finally, per adult total expenditure figures are computed in order to avoid contamination of the income variable by the fertility - schooling choices that the parents make jointly. Positive association between household income and the schooling of children is confirmed in a number of studies. [12]

A dummy variable indicates whether the household is located in an urban area which is defined as locations with populations over twenty thousand. Rural location was the reference category. Within an urban location the streets were classified as developed, undeveloped or a squatter settlement according to the personal observations of the interviewer. Two dummy variables which indicated undeveloped streets and squatter settlements are included to control for location of residence. Developed streets were the reference category. Population density is used as an indicator of the availability of schools and expected to positively influence the schooling attainment. [13] In thinly populated areas students probably have to commute long distances to schools. The longer distances to schools reflect a higher price for schooling since the opportunity cost of a child's time in traveling to school will be higher. Distance of a province from the province which could be considered a regional metro center and the distances of provinces from Istanbul are both expected to capture the effects of migration possibilities on schooling attainment. [14,15] I expect that easier migration opportunities will increase schooling attainment since migration enables individuals to obtain higher returns on their educational investments. Further, closeness to the metro centers may change traditional attitudes about schooling and increase demand for it.

The industrial composition of employment changes over time during the development process. It is observed in many countries that the proportion of the employment in agriculture declined over time with a corresponding increase in the proportion of the employment in

industry and the service sectors. Such developments may affect the relative wage
opportunities for men and women and may be accompanied by an increase in the returns to
educated labor since industrial activities place a premium on formal education (Schultz, 1975;
Schultz and Zeng, 1995). This will induce households to better educate their children in the
industrializing communities than in the agricultural ones. However, the service sector
activities especially in wholesale and retail trade may employ unskilled labor. Thus, the move
away from agriculture to the service activities (although it may increase wage employment
opportunities outside of the family farming activities) may not affect the wage returns to
schooling and the demand for schooling.[16] In this study the industrial composition of the
provincial employment is hypothesized to affect demand for schooling. Provincial
percentages of the employed people in industry and in the service sectors represent local
employment characteristics[17]. The percentage of employment in agriculture is the reference
category. Finally, dummy variables representing residence in one of the seven regions of the
country are included to control for further regional differences in schooling attainments.
Marmara is the reference region.

IV. Data

The individual level sample data used in this study come from the household income
and expenditure survey conducted by the State Institute of Statistics of Turkey in 1994. It was
administered to 26,256 households around the country[18]. It was possible to identify 12,000
households with "children" in their relation to the household head. In this study I considered
only those children in the 14-19 age group (19-20 in the high school sample) in order to obtain
a representative sample of children. This issue is elaborated in the section on sample
randomness.

The mean years of schooling achieved by the children in the sample and by their
parents are given in Table 1. While the mean years of schooling is about the same for boys
and girls at age 14, the gender gap in achievement increases with age. By age 20 girls achieve
a year and a half less schooling than boys. Mothers achieve on average 2 years less schooling
than fathers. The difference between fathers' and mothers' years of schooling is more
pronounced than the difference between boys' and girls' years of schooling. This suggests that

there have been substantial improvements towards closing the gender gap recently. [19]

Issue of Sample Randomness

For children who are enrolled in school at the time of the survey, final schooling attainment is unknown. Such observations are right censored and could potentially bias the estimates of the school attainment model. [20] To circumvent this problem, estimation is carried out on different samples restricted to individuals above graduation ages from different levels of schooling. For example, students starting primary school around the age of 6-7 will be at least 12 years of age at completion. Therefore, in studying the determinants of primary school completion, the sample is restricted to individuals age 14 years and over. Similarly, the sample is restricted to individuals 16 years and over for studying the determinants of middle school completion since a student completing three additional years will be at least 15 years of age. Finally, for examining the determinants of high school completion the sample is restricted to individuals 19-20 years.

The sample used in this study includes only the "children" in relation to the household head. Indeed, the majority of the children in the sample were own children of the household head and the spouse if present. However, in the household there were grandchildren and other relatives in relation to the household head. Grandchildren were combined with the daughter-in-laws in the household. Therefore, it was not possible to identify the grandchildren or their parents since no information was collected on the marital status of the individuals. Further, it was not possible to observe the parents' education of the "other relatives" in the household. For this reason, the latter two groups are excluded and the sample is restricted only to the children in relation to the household head. This exclusion may render the sample of children non random and potentially bias the estimation results. Further, it is also possible and likely that the children, grandchildren, and the other relatives are all considered differently by the household in terms of the investments into their human capital. If this is the case, it necessitates modeling their schooling separately. Table 2 shows the mean years of schooling by age and relation to the household head for the 14-20 year olds. This table shows that the mean years of schooling of the grandchild plus daughter-in-law and the other relative categories are somewhat smaller than the mean years of schooling of the own children.

Another source of nonrandomness arises from the fact that children leave the household of their parents after a certain age and therefore, those we observe still in the household would be an unrepresentative sample. To investigate this issue, I computed the proportion of the own children in the household by age. The last column of Table 2 shows that the proportion of the own children in the household drops substantially after age 19. Therefore, to preserve the representativeness, I restrict the sample to age 14-19 to study the determinants of primary schooling and age 16-19 to study determinants of middle schooling. For studying the determinants of high schooling the sample is restricted to 19-20 year olds although in this case the inclusion of 20 year olds may compromise the representativeness of the sample. The alternative of having only 19 year olds to study the determinants of high school level resulted in too small a sample size.

V.   Estimation Results

This section presents the maximum likelihood ordered probit estimates of determinants of primary, middle and high schooling for boys and girls separately which are given respectively, in Tables 3,4 and 5. Table 6 gives the marginal effects of the selected covariates on the probability of attaining different levels of schooling computed using equation (1). Table 7 shows the mean and standard deviation of the variables for different samples used in the analysis.

Effects of Permanent Income

Per adult household expenditure[21] is used as a proxy for household permanent income. It may be correlated with the error terms in the schooling demand equations rendering potentially biased estimates. Several factors may cause this possible endogeneity. Labor supply decisions of the individuals and the savings decisions of the households which are endogenous will cause total expenditures to be endogenous also. Exogeneity testing of the log per adult total expenditure is performed using the suggestion of Rivers and Vuong (1988) which is a version of the Hausman (1978) test. The test involved testing for significance the coefficient estimate of the residuals included among the regressors of the schooling equations. The residuals came from an auxiliary regression of the total expenditure on exogenous

variables and identifying instruments.[22] The coefficient estimates on the residuals are presented in the last rows of the Tables 3-5. The null hypothesis of exogeneity of the total expenditure was rejected strongly in all samples. Thus, in the ordered probit estimates of schooling equations in Tables 3-5, predicted log per adult total expenditure is used. [23]

Per adult expenditures have strongly significant positive effects on the schooling achievement at all levels of schooling. Thus an increase in household permanent income reduces the probability of an illiterate individual and increases the probability of higher schooling achievements unambiguously in all the primary, middle and high school levels for both boys and girls. The positive coefficient indicates that schooling is a normal good and the growth in permanent income will increase the schooling achievement. It also indicates that households were credit constrained and the credit constraints may be more important among the poor. In all three levels of schooling, the coefficient estimate of the per adult expenditure was much larger for girls than for boys implying that an increase in permanent income contributes more to the probability of schooling achievement of girls than of boys. The positive connection between household income and schooling of children is confirmed in a number of studies (Behrman and Wolfe, 1984a; 1984b; Birdsall, 1985; Behrman et al. 1994; Parish and Willis, 1995; Alderman et al., 1997).

Effects of Parents Education

The coefficient estimates on the father's and mother's years of schooling were all positive and highly significant at the three levels of schooling considered. The results suggest that an increase in the parents years of schooling unambiguously reduces the probability of illiterate children and increases the probability of children's higher schooling achievements. Further, in all samples, the effects of the both parents' schooling on the probability of their daughters' achievement was larger than on their sons' achievement except for the mother's schooling at the primary level. Similar evidence on mother's schooling being more important for the schooling of daughters than of sons is provided by Behrman and Wolfe (1984), King and Lillard (1987), de Tray (1988), King and Bellew (1988), Lillard and Willis (1992), and Behrman et al. (1994). Further, a test of the hypothesis of equality of the father's and mother's schooling coefficients was not rejected at five percent level of significance in all samples

except at the primary level in the girls sample. On the other hand, the size of mother's schooling coefficients in the girl's samples increased with the level of schooling implying larger impact of mother's education on daughter's schooling at high school level than at the primary level, while in the boy's samples parental education effects remained about the same at different levels of schooling. Behrman and Wolfe (1987) in Nicaragua, King and Bellew (1988) in Peru and Behrman and Sussungkarn (1987) in Thailand found that the effects of the mother's and father's schooling on children's schooling achievements do not significantly differ from each other. Mother's schooling is found to be more important than the father's schooling in high-income countries (Schultz, 1993; Birdsall, 1985). Behrman (1997) provides a survey of the effect of mother's schooling on child education.

Effects of the Parents' Employment Status

For children who can work with their parents the opportunity cost of going to school will be higher than those who can not. If the father or the mother have their own business, this may facilitate the children's potential contribution to the household income. The dummy variables indicating the self employment status of the parents are expected to measure the effect of the alternative opportunities for children's time. The effect of mother being self employed was not statistically significant possibly due to the fact that there were very few self employed mothers. However, the effect of father being self employed was negative and statistically significant at the middle and high school levels for boys and at the middle school level for girls. Since only a few women are self employed, it is clearly the son who is being prepared to take over the father's business, and this apparently involves apprenticeship training more often than formal schooling. These results suggest that a father being self employed unambiguously reduces the probability of his son continuing middle and high school.[24]

Effects of Urban Location, School Availability and School Quality

The effect of an urban location was statistically significant in all samples except for girls at the primary level. The positive coefficient signifies that residing in an urban area unambiguously reduces the probability of becoming an illiterate individual and increases the

probability of receiving higher schooling. The significant coefficient estimates were much larger for girls than for boys suggesting that urbanization contributes more to the probability of schooling of girls than of boys.

The dummy variables indicating residence on an undeveloped street and a squatter settlement were mostly insignificant at the primary level. At the middle school level they were statistically significantly negative for both boys and girls with larger coefficient estimates for girls. At the high school level only the coefficient estimate of undeveloped street was statistically significantly negative for boys. The residence on an undeveloped street or in a squatter settlement may mean unavailability of local middle and high schools. Thus, the residence in these disadvantaged locations reduces the probability of schooling attainment. The effect was larger for girls than for boys.

Population densities of the district clusters were used as an indicator of the availability of schools and thus the costs of schooling. I expect better access to schooling in the densely populated areas. This price variable was statistically significant but had the unexpected negative sign for both boys and girls at the middle and high school levels. It was insignificant at the primary school level for boys. It is also possible that the population density is measuring the overcrowding at schools in the densely populated areas which would reduce their quality.

In an attempt to control for the differences in school quality, student-teacher ratios are computed at the primary, middle and high school levels for the districts and included among the explanatory variables.[25] The coefficient estimates on the student-teacher ratios were negative as expected but, statistically significant only at the primary school. This result implies that an increase in student-teacher ratio (which is a decline in the school quality) reduces probability of school attainment at the primary school level but has no significant impact at the other levels. The coefficient estimates of all other variables were robust to the inclusion of the student-teacher ratios. These results are not shown for brevity. [26]

Migration Effects

The distance of a province to the regional metro center and to Istanbul were both expected to capture the effects of migratory opportunities. The coefficients on distance to the

regional metro center were all negative and statistically significant except at the primary school level for boys. The coefficient estimates on the distance to Istanbul were negative and statistically significant except at the middle school level for girls and high school level for boys.[27] The negative coefficient estimates on distance to Istanbul continued to persist even when a dummy variable for Istanbul is included. (This result is not shown.) The results suggest that easier migration possibilities increase schooling attainment by allowing individuals to reap the higher rewards on schooling investments in an urban center than in a rural area. It may also be that the modernizing influences spread from these urban areas, changing the traditional attitudes of parents about schooling.

Effects of Local Employment Composition

During the past few decades the industrial composition of employment changed markedly in Turkey with a reduction in the share of agriculture in favor of the industry and the service sectors with a larger rate of growth in the service sector than in the industry.[28] The provincial percentages of the employment in industry and in service sectors were included to examine the effects of the local employment opportunities on schooling attainment. The coefficient estimates on the employment in industry were mostly insignificant and were positive when statistically significant implying that an increase in industrial employment will reduce probability of becoming an illiterate individual and increase the probabilities of receiving higher schooling. The percentage employed in services was insignificant in several samples and had a negative sign when significant suggesting that an increase in the share of service sector in local employment reduces the probability of receiving higher schooling. This may be due to poor wage prospects in the service sector.[29] Further, the service sector includes a heterogenous group of productive activities which may comprise higher skills options for men than for women. This may be the reason for the lack of inducement for girls to go to school to get service jobs.

Region Effects

Dummy variables for the six regions were included to take into account various regional differentials that are not considered hitherto in the analysis. Marmara was the reference region. All of the coefficient estimates were positive when statistically significant suggesting, ceteris paribus, higher probability of schooling attainment in those regions as compared to the Marmara region. This was a surprising result since Marmara is the most developed region of the country with higher schooling attainments than the other regions. [30] Tunalı (1996) also found that other regions had higher school enrollment probabilities than Marmara with the 1994 child labor survey data.

Threshold Coefficients

The threshold coefficients were statistically significant at all three levels of schooling for both boys and girls. They imply that for the same conditioning variables it is easier for girls to get literacy but, the balance turns in favor of boys at the other levels: Boys surmount the thresholds of primary and middle schools with greater probability than girls. For both boys and girls the greatest hurdle seems to be graduating from the primary school. The expected years of schooling at the high school level was 7.99 years for boys and 6.89 years for girls.

**VI.	Conclusion**

This paper examines the determinants of school attainment in Turkey. Ordered probit models are estimated for the primary, middle and high school levels for boys and girls separately. Schooling attainment was strongly related to household permanent income at the three levels of schooling for both boys and girls indicating that schooling is a normal good and that households are resource constrained in that higher incomes lead to higher schooling attainments. Effect of income on schooling of girls was larger than that of boys in all three schooling levels. This could be due to a taste effect as much as a more effective income constraint for girls than for boys. Both the boys' and the girls' schooling were found to be strongly related to their parents' education which may mean less intergenerational socioeconomic mobility. Parental education effects were larger on girls' than on boys'

schooling. The stronger impact of parental education on girls' schooling suggests less social mobility for girls than for boys. The test results indicated that the father's and the mother's education coefficient estimates were not significantly different from each other in most samples. The effect of father being self employed was negative at the middle and high school levels for boys and at the middle school level for girls implying that the work opportunity within the family business or the farm may be an alternative to schooling in particular for boys.

Urban location was associated with significantly higher schooling attainments for both boys and girls at most levels.. Undeveloped street or squatter settlements which could be indicators of school availability were associated with lower schooling attainments in several samples. Local population density may be measuring the overcrowding in schools in the densely populated areas. It had a negative impact on the probability of schooling in all samples.

The longer distances to the regional metro centers were associated with lower school attainments for both boys and girls at the middle and high school levels. Distance to Istanbul was also associated with lower schooling attainment at the primary school level for both boys and girls.. These results suggest that easier migration possibilities or easier spread of modern attitudes about schooling as measured by the propinquity to the regional metro centers or to a mega center like Istanbul increases the probability of school attainments. The greater the proportion of local employment in industry the higher the probability of schooling at the primary level, but it was insignificant at higher levels. This suggests that households in the industrializing communities tend to better educate their children than households in the agricultural communities. The proportion of local employment in the service sector was negatively associated with the probability of school attainment in some of the samples particularly for women. This may imply that schooling is not rewarded as highly in the service sector as compared to even agriculture.

In the future, income growth, increased parents' education, urbanization with accompanying improvement in the availability of schools and industrialization will contribute to increased schooling of the children, possibly more to girls' schooling than to boys' schooling. These factors must be considered in planning to meet the demands for educating

the youth of the country, who constitute about one-third of the sixty-three million people of Turkey.

Notes

1.   The labor market, private return on investment in women's education in many developing countries are significantly larger than those in men's education (Schultz, 1995a). Deolalikar (1995) finds in Indonesia that although returns to women's schooling is larger than men's, the school enrollment rates of boys is larger than girl's. Behrman and Deolalikar (1995) also find that returns for women's schooling is larger than those for men's in Indonesia. Schultz (1995a) finds that returns to women exceeded those to men for the last 15 years in Thailand but, women received two thirds of the secondary schooling years of men. In Côte d'lvoire and Ghana while women receive only half as many years of schooling as men, the returns to men and women are similar in Côte d'lvoire and the returns to women are higher at the middle school level than to men in Ghana (Schultz, 1995a). Vijverberg (1995) finds in Côte d'lvoire that labor market private returns to schooling favor women.

2.   The seventh five year development plan has the goal of universal enrollments for the eight year schooling and 75 percent enrollment rate at high school level (SPO, 1995).

3.   Some tuition fees are now being charged at the university level since 1988.

4.   These improvements took place in spite of the declines in the educational expenditures during this period. Total public educational expenditures as percentage of GNP declined from 3.7 in 1965 to 2.8 in 1980 and 3.1 in 1990. Educational expenditures as percentage of the total public budget declined from 19.4 in 1964 to 10.5 in 1980 and 13.3 in 1990 (Tansel and Kazemi, 1995).

5.   The increase in the secondary enrollment ratios in the 1990s was remarkable. The total secondary enrollment rate was 51 percent (40 percent for females) in 1991 and increased to 60 percent (50 percent for females) in 1992; a total of about 10 percent increase in one year (World Bank, 1994; 1995). In 1991, Turkey's secondary enrollment ratio lagged behind that of the average for Middle East and North African countries by about six percentage points (10 percentage points for females). It also lagged behind that of the average for middle-income economies by about five percentage points (15 percentage points for females). Turkey seems to have caught up with them in this respect in 1992. However, these secondary enrollment rates are far behind those of OECD countries.

6.   Egypt has higher total and female secondary enrollment rates than Turkey. These rates were 80 and 73 percent respectively, in Egypt compared to 60 and 50 percent respectively, in Turkey in 1992 (World Bank, 1995). However, since primary schooling is compulsory in Turkey, the adult illiteracy rates are much lower in Turkey than in Egypt. The adult illiteracy rates were 61 and 32 percent respectively, for females and males in Egypt compared to 28 and 8 percent in Turkey in 1995 (World Bank, 1996).

7.   Behrman and Rosenzweig (1994:149) state that the enrollment data from international sources "seem often to reflect opening day enrollments ..." and therefore, they would overestimate the actual enrollment ratios. The survey based attendance figures they compute for Malaysia indicate that official UNESCO figures overstate attendance for primary schooling by about ten percent.

8. According to the same source, 86 percent of the middle school graduates continued on to high school in 1984.

9. There is no indicator of the enrollments and the gender differences at the middle school level separately from the high school level. Sources give both together under the title of "secondary enrollment ratio."

10. The 1994 Household budget survey data which is being used in this study does not allow a study of the determinants of tertiary level schooling, since children attending tertiary level school do not live in their parents' household in general. Therefore, it would not be possible to observe most of them in this household level data. Those who are observed in their parents' household would constitute an unrepresentative and nonrandom sample.

11. The university system expanded enormously since the early 1980s. Recently, the number of universities scattered around the country increased to 57 and the enrollments expanded in the 1990s, in particular at the distance university which now accounts for about half of the total tertiary level enrollments. There is excess demand for the university education mainly due to high rates of return to schooling at this level (Tansel, 1994; Tansel, 1996). Vocational, technical and general high school graduates take part in the competitive examination for a place at the university. In general, about 20 percent of the participants of the two tier examinations gain admission to a university.

12. Alderman et al. (1987) discuss a number of circumstances which give rise to the positive association between household income and demand for schooling of children.

13. Information about population density of the 220 districts (ilce) in the sample was acquired from the 1990 Census of Population and merged with the individual level sample data. Population density of a district is measured as the number of people per kilometer square in that district. Data are obtained from State Institute of Statistics (1993).

14. Distance to a metro center is the distance of each of the 58 provinces (il) in the sample from a regional metro center in each of the seven regions, measured in kilometers. This data are merged with the individual level sample data. A province in a region is selected as the metro center of that region as the province which received most internal in migration during 1985-1990 according to the State Institute of Statistics (1994a), Table 59_ Net migration and migration rate 1985-1990. The provinces that were selected as metro center of a region were as follows. Istanbul in the Marmara region, Izmir in the Aegean region, Mersin in the Mediterranean region, Ankara in the Central Anatolia, Samsun in the Black Sea region, Malatya in the Eastern region and Gaziantep in the Southeastern region. The distance data are obtained from Karayolları Genel Müdürlüğü (1996).

15. Distance to Istanbul in kilometers in 1996 are measured for each of the 58 provinces in the sample and merged with the individual level sample data. The data are obtained from Karayolları Genel Müdürlüğü (1996).

16. Freeman (1986) classifies sectors such as finance, insurance and professional services as high education-intensive sectors; manufacturing, transportation, wholesale and retail

trade as intermediate education-intensive and agriculture, mining and construction as non-education intensive.

17. Data on the sector of employment of the employed people in each of the 58 provinces in the sample are merged with the individual level sample data. They were percentages of the total employed in industry and in service sectors in a province. The data are obtained from the State Institute of Statistics (1994a), Table 28_ Percentage of population by last week's economic activity and sex, 1990.

18. Interviews covered the 58 provinces out of the total of 76 provinces in the country. There were 281 clusters which were selected with stratified sampling.

19. The differences in the educational achievements of the children and their parents can also be seen in the distribution of the levels of schooling given below for the age group 14-20 (%):

Levels of Schooling	Boys	Girls	Fathers	Mothers
Illiterate	2.0	6.3	18.3	45.4
Literate	2.2	2.7	7.6	7.7
Primary School	44.9	53.3	53.3	39.8
Middle School	34.5	24.3	7.8	3.1
High School	16.3	13.4	8.4	2.7
University and above	0.2	0.1	4.6	1.4
Total	100.0	100.0	100.0	100.0
Total in Numbers	8157	7994	16151	16151

We observe that although the proportions of the illiterate children in the 14-20 age group are low, there are three times as many illiterate girls as there are boys. The proportion of the middle school graduate girls is about 10 percentage points less and the proportion of the high school graduate girls is 3 percentage points less than boys. We note the large difference in the achievements of fathers and mothers. The proportion of illiterate mothers is more than twice that of the illiterate fathers. The proportions of middle school, high school and university graduate mothers are less than half the proportions for fathers.

20. King and Lillard (1983) and (1987) include the contribution of the censored observations, due to enrollment at the time of the survey, in the likelihood function of the ordered probit model of school attainments.

21.   Since the households were interviewed at different months throughout 1994 during which the annual rate of inflation was about 90 percent the household total expenditure and unearned income figures were deflated by the local monthly consumer price index (CPI). Households in 16 major cities were assigned the monthly CPIs for those cities. Households in other locations were assigned either a rural or an urban monthly CPI for one of the five regions in which they are located according to whether they are in a rural or an urban location. A location is considered urban if its population is over 20,000. The base for the CPI figures was 1987. They were obtained from the State Institute of Statistics (1994b).

22.   See note 23 for the list of identifying instruments.

23.   Log per adult expenditure is predicted using a number of identifying instruments such as mother's age, father's age, number of adults, unearned rental income, unearned interest income, transfers from abroad and from the government, the decars of land owned, and the decars of orchard owned. These variables were individually and jointly significant in the prediction equation. The explanatory variables explained the 43 percent of the total variation in log per adult household expenditure with an F value of 240 with 38 and 11,961 degrees of freedom. The importance of having instruments that explain a significant portion of the variation in the endogenous explanatory variable in the first-stage regression is emphasized by Nelson and Startz (1990), Staiger and Stock (1993) and Bound et al. (1993). Since the instruments listed above performed quite well in predicting the log per adult total expenditure in the first-stage regression, inconsistency is not a likely problem in the estimates presented in Tables 3-5.

24.   Child labor force participation is a problem among low-income families. Further, since only five years of primary level schooling was compulsory, children have been entering the labor force at a younger age than in the OECD countries. Tunali (1996) reports that 7.4 percent of the children age 6-14 are engaged in market work which resulted in cash or in kind income or they supplied unpaid family labor according to the 1994 child labor survey.

25.   The student-teacher ratios are computed at the three levels of schooling for the 220 districts (ilçe) and merged with the individual level sample data. The data for the number of students and the number of teachers at each level of schooling in each district for the 1994-1995 academic year are obtained from State Institute of Statistics (1996b). In this case, since the student-teacher ratios are predicted on the basis of district averages, the standard errors are potentially biased downward. These could be corrected by a generalized White heteroscedasticity corrected estimator or by Huber standard errors (Deaton, 1995).

26.   Indicators of school quality are also used by Behrman et al. (1994) and Birdsall (1995).

27.   Per capita gross domestic product of Istanbul was US$ 3 111 in 1994 which was the fifth largest among the provinces of Turkey. (State Institute of Statistics, 1996a). Istanbul draws large numbers of migrants from all over the country.

28.   The percentage of the labor force in agriculture was 79 in 1960, declined to 53 in 1990 while the percentage in industry increased from 11 in 1960 to 18 in 1990 and the

percentage in services increased from 10 in 1960 to 29 in 1990 (World Bank, 1984; 1996).

29.   OECD (1996) points out to the poor quality of the jobs in general.

30.   Marmara region generated the 35.6 percent of the gross domestic product of Turkey in 1987 prices (State Institute of Statistics, 1996a).

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Table 1

**Mean Years of Schooling for Boys, Girls and Their Parents,
Age 14-20, Turkey, 1997**

	Boys		Girls		Father's	Mother's	
Age	Mean Years	Number of Observations	Mean Years	Number of Observations	Mean Years	Mean Years	Number of Observations
14	5.47	1430	5.35	1531	5.34	3.14	2961
15	6.30	1329	5.66	1333	5.16	3.02	2662
16	6.81	1303	6.04	1320	5.17	2.98	2623
17	7.27	1326	6.58	1242	5.14	3.02	2568
18	7.41	1148	6.58	1084	4.86	2.66	2232
19	7.71	891	6.92	715	4.80	2.58	1606
20	8.09	730	6.69	769	4.61	2.51	1499
Total	6.86	8157	6.14	7994	5.06	2.90	16151

Table 2

**Mean Years of Schooling by Age and Relation to the Household Head,
Age 14-20, Turkey, 1994**

Age	Children	Grandchildren and Daughters-in-Law	Other Relative	Proportion of the Own Children in the Household
14	5.40	5.20	5.13	92.65
15	5.98	5.73	4.90	91.92
16	6.42	5.96	5.49	90.95
17	6.94	5.43	6.05	89.20
18	7.01	5.21	5.38	85.35
19	7.36	5.23	5.94	84.57
20	7.37	4.80	5.76	77.19
Average	6.64	5.37	5.52	90.21

Table 3

**Ordered Probit Estimates of Primary Schooling,
Ages 14-19, Turkey, 1994**

Variables:	Boys		Girls	
	Coefficient	t-Ratio[a]	Coefficient	t-Ratio[a]
Constant	-3.6757	1.10	-4.7864	2.88
Age	0.4350	1.09	0.1212	0.34
Age Squared	-0.0116	0.95	-0.0037	0.34
Household Characteristics:				
Father's Years of Schooling	0.0442	3.84	0.0769	7.50
Mother's Year of Schooling	0.0694	4.57	0.0365	2.69
Father Self Employed	-0.0702	1.07	0.0145	0.25
Mother Self Employed	-0.0625	0.52	0.0636	0.59
No Father	0.0721	0.49	0.2572	2.22
No Mother	-0.1141	0.47	-0.1080	0.50
Log per Adult Expenditure[b]	0.3625	3.18	1.1024	12.40
Locational Characteristics:				
Urban Location	0.2670	2.33	0.0022	0.025
Undeveloped Street	-0.2406	2.37	-0.0163	0.21
Squatter Settlement	0.0040	0.02	-0.2329	1.63
Log Population Density	-0.0347	0.86	-0.1085	3.26
Distance to Metro Center $(\times 10^{-3})$	-0.1613	0.56	-0.3578	2.07
Distance to Istanbul $(\times 10^{-3})$	-0.9999	3.45	-1.1129	5.58
Employment in Industry	0.0147	1.73	0.0188	2.89
Employment in Service	-0.0163	1.98	-0.0218	3.88
Regions:				
Aegean	0.3944	2.12	0.9477	4.97
Mediterranean	0.9479	3.49	0.9525	5.31
Central Anatolia	0.5225	2.91	0.9932	6.56
Black Sea	1.1234	4.21	1.1069	6.53
East Anatolia	1.1622	3.33	1.3598	5.72
Southeast Anatolia	1.0379	3.18	1.0597	4.80
Thresholds:				
α_1	0.3846	12.70	0.2787	14.13
-Log Likelihood	1297		1913	
Chi-Squared (23)	372		1244	
Sample Size	7427		7225	
Exogeneity Testing:				
Residual Expenditure	-0.3861	12.66	-0.9848	10.11

Notes: a. Absolute value of the asymptotic t-ratio.
      b. Predicted log per adult total expenditure.

Table 4

Ordered Probit Estimates of Middle Schooling Ages 16-19, Turkey, 1994

Variables:	Boys		Girls	
	Coefficient	t-Ratio[a]	Coefficient	t-Ratio[a]
Constant	-5.8088	1.01	-4.5961	0.78
Age	0.4226	0.67	0.0819	0.12
Age Squared	-0.0130	0.69	-0.0026	0.13
Household Characteristics:				
Father's Years of Schooling	0.0530	6.58	0.0859	11.25
Mother's Year of Schooling	0.0509	5.62	0.0797	8.70
Father Self Employed	-0.2366	5.59	-0.0982	2.25
Mother Self Employed	-0.0360	0.44	-0.0131	0.17
No Father	0.0702	0.75	0.3896	4.37
No Mother	-0.2998	1.91	0.0888	0.51
Log per Adult Expenditure[b]	0.8553	10.46	1.0036	13.06
Locational Characteristics:				
Urban Location	0.1704	2.52	0.4416	6.79
Undeveloped Street	-0.1893	3.49	-0.2794	5.55
Squatter Settlement	-0.1846	1.68	-0.3197	2.90
Log Population Density	-0.1224	4.77	-0.0653	2.57
Distance to Metro Center $(\times 10^{-3})$	-0.5738	4.58	-0.7535	6.21
Distance to Istanbul $(\times 10^{-3})$	-0.2193	1.70	-0.1351	0.99
Employment in Industry	-0.0055	1.17	0.0044	0.88
Employment in Service	-0.0042	1.07	-0.0102	2.46
Regions:				
Aegean	-0.0295	0.30	0.2459	2.25
Mediterranean	0.3506	2.94	0.3856	3.13
Central Anatolia	0.2337	2.39	0.3475	3.24
Black Sea	0.4501	4.05	0.4395	3.81
East Anatolia	0.7523	4.81	0.4298	2.68
Southeast Anatolia	0.6355	4.25	0.2154	1.39
Thresholds:				
α_1	0.3410	9.47	0.2390	13.06
α_2	2.1418	42.26	2.3668	10.41
-Log Likelihood	3381		3245	
Chi-Squared (23)	932		1947	
Sample Size	4668		4361	
Exogeneity Testing:				
Residual Expenditure	-0.6841	7.76	-0.8273	9.96

Notes: a. Absolute value of the asymptotic t-ratio.
      b. Predicted log per adult total expenditure.

Table 5

Ordered Probit Estimates of High Schooling Ages 19-20, Turkey, 1994

Variables:	Boys		Girls	
	Coefficient	t-Ratio[a]	Coefficient	t-Ratio[a]
Constant	-1.5246	2.26	-5.2620	8.20
Age	0.1277	2.15	-0.0655	1.03
Household Characteristics:				
Father's Years of Schooling	0.0581	4.78	0.0796	6.53
Mother's Year of Schooling	0.0439	3.15	0.0921	5.96
Father Self Employed	-0.1744	2.61	-0.1094	1.52
Mother Self Employed	0.0349	0.28	-0.1729	1.18
No Father	0.2081	1.56	0.3726	2.62
No Mother	-0.3158	1.19	0.1742	0.75
Log per Adult Expenditure[b]	0.6881	5.79	1.1304	10.24
Locational Characteristics:				
Urban Location	0.2115	2.09	0.3675	3.68
Undeveloped Street	-0.1888	2.28	-0.1050	1.34
Squatter Settlement	-0.1572	0.85	0.0060	0.03
Log Population Density	-0.0813	2.01	-0.0881	2.08
Distance to Metro Center (x10^{-3})	-0.7233	3.69	-0.5747	2.67
Distance to Istanbul (x10^{-3})	-0.0499	0.25	0.3893	1.65
Employment in Industry	-0.0013	0.16	0.0089	0.97
Employment in Service	-0.0079	1.21	0.010	0.13
Regions:				
Aegean	-0.0908	0.56	0.2208	1.20
Mediterranean	0.1459	0.75	0.0238	0.12
Central Anatolia	0.3444	2.41	0.2974	1.68
Black Sea	0.2709	1.46	0.4227	2.11
East Anatolia	0.5364	2.15	0.0432	0.16
Southeast Anatolia	0.3052	1.27	-0.1772	0.26
Thresholds:				
α_1	0.2088	4.55	0.2153	6.22
α_2	2.0158	26.13	2.2706	30.34
α_3	2.4849	31.62	2.6183	33.70
-Log Likelihood	1716		1438	
Chi-Squared (23)	358		759	
Sample Size	1621		1484	
Exogeneity Testing:				
Residual Expenditure	-0.4620	3.64	-0.9531	8.03

Notes: a. Absolute value of the asymptotic t-ratio.
b. Predicted log per adult total expenditure.

Table 6

Marginal Effects of Mother's and Father's Schooling and Income (x 100)

	Primary School		Middle School		High School	
	Boys 14-19	Girls 14-19	Boys 16-19	Girls 16-19	Boys 19-20	Girls 19-20
Father's Schooling:						
Illiterate	-.09	-.34	-0.0	-.05	-.17	-.43
Literate	-.13	-.25	-.00	-.04	-.10	-.22
Primary School	.22	.59	-.001	-2.83	-1.97	-2.51
Middle School	-	-	.001	2.92	-.05	.43
High School	-	-	-	-	2.28	2.72
Mother's Schooling:						
Illiterate	-.15	-.16	-.00	-.04	-.12	-.49
Literate	-.20	-.12	-.00	-.04	-.07	-.25
Primary School	.35	.28	-.001	-2.61	-1.46	-2.88
Middle School	-	-	.001	2.69	-.04	.49
High School	-	-	-	-	1.69	3.12
Income:						
Illiterate	-.77	-4.88	-.00	-.51	-1.98	-5.73
Literate	-.1.04	-3.54	-.00	-.49	-1.15	-2.90
Primary School	1.81	8.42	-.01	-32.17	-23.48	-33.66
Middle School	-	-	.01	33.18	-.60	5.77
High School	-	-	-	-	27.20	36.52
Sample Size	7427	7225	4668	4361	1621	1484

Table 7

Mean and Standard Deviation for Boys and Girls Subsamples, Turkey, 1994

Variables:	Boys 14-19	Boys 16-19	Boys 19-20	Girls 14-19	Girls 16-19	Girls 19-20
Age	16.284	17.35	19.45	16.161	17.27	19.52
	(1.66)	(1.08)	(0.50)	(1.63)	(1.06)	(0.50)
Age Squared	267.9	302.0	378.6	263.8	299.5	381.2
	(54.3)	(37.7)	(19.4)	(53.4)	(37.1)	(19.5)
Age 20[a]	-	-	0.450	-	-	0.518
Household Characteristics:						
Father's Years of Schooling	5.114	4.98	4.70	5.106	5.055	4.721
	(3.64)	(3.62)	(3.52)	(3.74)	(3.75)	(3.70)
Mother's Year of Schooling	2.913	2.79	2.58	2.955	2.895	2.511
	(3.22)	(3.15)	(3.02)	(3.21)	(3.13)	(2.97)
Father Self Employed[a]	0.391	0.400	0.434	0.389	0.395	0.400
Mother Self Employed[a]	0.063	0.061	0.058	0.0691	0.070	0.072
No Father[a]	0.057	0.060	0.067	0.0680	0.071	0.083
No Mother[a]	0.012	0.013	0.015	0.010	0.011	0.021
Log per Adult Expenditure (TL)	5.710	5.744	5.761	5.674	5.716	5.748
	(0.71)	(0.70)	(0.72)	(0.73)	(0.74)	(0.71)
Log Predicted Expenditure (TL)	5.701	5.717	5.714	5.693	5.717	5.734
	(0.48)	(0.47)	(0.48)	(0.47)	(0.48)	(0.47)
Locational Characteristics:						
Urban Location[a]	0.685	0.690	0.658	0.684	0.687	0.683
Developed[a]	0.277	0.285	0.340	0.281	0.291	0.310
Undeveloped Street[a]	0.371	0.366	0.340	0.368	0.361	0.343
Squatter Settlement[a]	0.037	0.039	0.032	0.035	0.035	0.030
Population Density (per km sq)	604.8	614.8	608.1	679.5	726.0	755.9
	(2290)	(2372)	(2193)	(2885)	(3064)	(3298)
Distance to Metro Center (km)	203.9	203.6	206.3	210.8	211.0	203.7
	(186)	(186)	(187)	(187)	(188)	(185)
Distance to Istanbul (km)	826.0	825.8	819.8	829.2	822.9	826.5
	(409)	(411)	(416)	(407)	(408)	(413)
Employment in Industry (%)	16.395	16.46	16.48	16.190	16.29	16.53
	(8.75)	(8.85)	(9.12)	(8.67)	(8.76)	(8.90)
Employment in Service (%)	25.934	26.01	25.91	25.686	25.76	26.16
	(9.03)	(9.04)	(9.37)	(9.03)	(9.00)	(9.09)
Regions[a]:						
Marmara	0.132	0.137	0.140	0.127	0.131	0.139
Aegean	0.096	0.096	0.098	0.090	0.090	0.084
Mediterranean	0.147	0.147	0.143	0.149	0.152	0.152
Central Anatolia	0.155	0.151	0.164	0.150	0.159	0.161
Black Sea	0.148	0.142	0.139	0.159	0.158	0.140
East Anatolia	0.161	0.168	0.175	0.162	0.164	0.158
Southeast Anatolia	0.161	0.158	0.143	0.155	0.147	0.167
Sample Size	7427	4668	1621	7225	4361	1484

Note: a. The standard deviations of the dummy variables are not reported for brevity but may be computed from their reported means (m) as $sd = (m(1-m))^{1/2}$.