

An Analysis of Education Policy Towards Private Tutoring Centers in Turkey

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Abstract

This study estimates determinants of Private Tutoring choice in Turkey by using 2003 Household Budget Survey. According to findings, which were obtained by Logit Regression Models, income level, education level, numbers of siblings are some of the variables that effect Family's decision to send their child to Private Tutoring Centers (PTC). In addition to that, PTCs are found to increase economic efficiency in an economy. Finally, we conclude that PTCs create inequality in education. However, inequality can exacerbate when PTCs are banned.

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1. Introduction

In today's globalized world education has become critically important for economic growth and productivity. Policymakers in both developed and developing countries are aware of this fact and they focus on public education rather than private education for improvement in education system.

Even though private tutoring and the way it is practiced may differ from country to country, private tutoring as a supplement to public or private school exists in many countries today.

In Turkey, total number of private tutoring centers is about four thousand. Number of students who are attending a tutoring center is approximately 8% of all students. In the future, if no major reform is made in the university entrance exam system, this number is expected increase.

Since private tutoring centers has become so common in Turkey, government has decided to ban private tutoring centers, arguing that it creates educational inequality². However, some economists claim that private tutoring centers do not cause any educational inequality and their existence is economically efficient.

In this paper, determinants of private tutoring center attendance decision will be analyzed. We will use Household Budget Survey in 2003, which is obtained from Turkish Statistical

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² Very recently (March of 2014) government passed a bill about banning Private Tutoring Centers in Turkey. Unless the supreme court rules against this bill, Private Tutoring Centers will be closed by September of 2015.

Institute. By using Logit model we will find what factor play a role for a family to send their child to private tutoring centers. In addition to this, by using partial equilibrium model, we will analyze economic efficiency of private tutoring centers under certain assumptions. Last, we will discuss whether private tutoring causes educational inequality or not.

There are two major studies that analyze Private Tutoring Centers in Turkey. Gurun and Millimet (2008) uses a survey from 2002 by Higher Educational Council(YOK). They find that family income parents' education level, internet access and number of siblings play a significant role in Private Tutoring Center Attendance. The other study is by Tansel and Bircan(2005). They also use 2002 survey of Higher Educational Council(YÖK). They find that being a male student, mother's education and working status, family income and student's high school GPA positively effect probability of attending a tutoring center.

We use 2003 household budget survey for this study. Our sample includes middle school students as well as high school students. In addition we present an economic efficiency analysis of private tutoring centers.

2. Literature Review

Education is usually perceived as a government provided public good (Hartmann, 2008). However, in recent years, as supplement to public education private tutoring has become very common in the world (Bray, 1999). Private tutoring was very common in south and Central Asia in the past. Today, it is also very common in Europe, Africa and South America (UNESCO Bangkok, 2012). In many developing countries policymakers focus on public education and rarely discuss private tutoring even though education is a key factor in a countries development and productivity. According to Dang and Rogers (2008), private tutoring has emerged as a parallel education system, which includes supplementary educational materials. Private tutoring can be one to one as well as in groups. Sometimes, private tutoring is supplied by some firms, which has hundreds of branches.

2.1. Private Tutoring Around the World

Studies show that private tutoring is common in many countries independent of their education system, welfare level, and geographical location. Bray and Kwok (2003) show that certain percentage of students in primary and secondary education level take private tutoring in countries like Japan, South Korea, Egypt, India, Romania, Kenya and Taiwan. In South Korea, 72% of students took private tutoring in 2011 and spending on private tutoring in this country corresponds to 1.7 % of their GDP. This huge amount of money spent on private tutoring also equals to 80% of overall public spending on primary and secondary education in South Korea (Choi, 2012).

In another study by Aurini and Davis, it is shown that private tutoring is growing exponentially in Canada. Dang and Rogers (2007) state that percent of student who take private tutoring ranges between 25 to 90% in developing and developed countries. In European Union private tutoring is also common. In Bray (2011), it is expressed that percent of students who take private tutoring is 20% in Austria, 10% in Belgium, %27 in Romania, %54 in Portugal and %49 in Poland.

2.2. Private Tutoring in Turkey

In turkey majority of private tutoring prepare students to centralized exams. So, demand for private tutoring and arguments about private tutoring are based on these centralized exams. In other words, reason for private tutoring industry being as big as 1.7 billion is usually explained by nation-wide university entrance exam. However, the reasons why private tutoring sector has become so large in Turkey cannot be simply explained by nation-wide exams. Ozoglu

(2011) states that determinants of demand for private tutoring are complicated and intermingled. He points that social factor as well as nation-wide exams play a role in growing demand for private tutoring.

Schooling rate in Turkey has been increasing. This is why demand for higher education is growing, as many high school students want to get into a university. Unfortunately, number of higher education institutions has not grown as fast as number of students who demand higher education. Thus, excess demand was created in education market. Other than demand and supply imbalance, quality differences of universities, popularity of some jobs, social status concerns of high-income families also explain demand for private tutoring (Ozoglu 2011). In Turkey quality differences in public schools can be observed among different geographical regions. This results in inequality in public education quality across different cities. Hence, some disadvantaged students may want to close the quality gap by acquiring private tutoring. Daglı (2006) argues that social factors also play an important role in private tutoring demand in Turkey. Social factors here refer to “belief” or “perception” in the society. Student and their parents believe that without private tutoring being successful in university entrance exams and getting into a university is impossible.

There are two empirical analysis of private tutoring demand in Turkey. Tansel and Bircan (2005) use 2002 Higher Education Institute’s survey. Their probit model results suggest that female students have lower probability of attending private tutoring centers than male students. They also find that mother’s education, mother’s working status, family income, high school GPA significantly affect probability of attending private tutoring centers. In another study by Gurun and Millimet (2008), which uses the same survey as Tansel and Bircan, effect of private tutoring center attendance on university entrance exam is analyzed. In addition they figure out the determinants of decision to attend private tutoring centers. Accordingly, family income, access to Internet, number of siblings play significant role in decision to attend private tutoring.

Our work differs from the mentioned studies in several ways. First, we use 2003 Household Budget Survey in our study. Using this data set help us explain private tutoring attendance decision of not only high school students but also middle school students. Second we employ partial equilibrium analysis about efficiency of private tutoring market. Last, we discuss whether private tutoring centers cause educational inequality as argued by some policymakers recently.

3. Methodology

We will use 2003 Household Budget Survey in order to find determinants of Private Tutoring Center attendance. Turkish Statistics Institute has stopped asking questions about private tutor spending after 2003. This is the reason why we use 2003 survey. In this survey we have information about socio-demographic characteristics of 2500 Turkish families. Random selection of families by Turkish Statistics Institute in Household Budget Survey prevents potential problems like selection bias.

Various econometric techniques are used to solve qualitative response models. Linear Probability Model, Logit and Probit are some of them. These models are called probabilistic models because dependent variable is binary. In these types of econometric models the goal is to find determinants of probability of an event (attendance to private tutoring center). Although Linear Probability Model is simple, there are some criticisms about it. The facts that error terms(e_i) are not distributed normally, heteroscedastic variance of error terms, and predicted probability being greater than 1 are main problems with Linear Probability Models. Since interpretation of regression coefficients is simpler in Logit model compared to Probit model, studies in literature prefer Logit model. We will use Logit model parallel to the literature.

Logit Model:

Let's define Y as; $Y_i=1$ if student is attending Private Tutoring Center and $Y_i=0$ if student is not attending Private Tutoring Center. Cumulative logistic function can be written as:

$$P_i = E(Y_i = 1 | X_i) = 1 / (1 + e^{-Z_i}) \quad (1)$$

Where $Z_i = \alpha + \beta X_i$, and X_i is the vector of independent variables, P_i gives us information about independent variables and it shows us probability of attending Private Tutoring Center for family i .

Our dependent variable is going to be whether a student in a family attends to Private Tutoring Center. Independent variables that will be used are family income, mother's education (1: primary school, 2: middle school, 3: high school, 4: college graduate), father's education (1: primary school, 2: middle school, 3: high school, 4: college graduate), mother's employment (1: if working, 0: if not working), existence of high school student in the family (1: if there is a high school student, 0 if not) number of siblings, whether parents read newspaper or not, and dummy variables for 7 geographical regions. We are expecting regional dummy variables to capture unobserved differences between regions that might affect a family's decision to send their child to Private Tutoring Center. We present summary statistics in Table 1.

By using the variables mentioned above, we can write log-likelihood function as follows:

$$\begin{aligned} L_i = \ln(P_i / (1 - P_i)) = & \alpha + \beta_1 \text{Income} + \beta_2 \text{MotherEduc} + \beta_3 \text{FatherEduc} + \beta_4 \text{MotherWork} + \\ & \beta_5 \text{Highschool} + \beta_6 \text{Siblings} + \beta_7 \text{Newspaper} + \beta_8 \text{Aegean} + \beta_9 \text{Mediterranean} + \beta_{10} \text{Central} \\ & + \beta_{11} \text{BlackSea} + \beta_{12} \text{Southeast} + \beta_{13} \text{Eastern} + u_i \end{aligned} \quad (2)$$

Where α and $\beta_1, \dots, \beta_{13}$ are the regression coefficients, P_i is the dependent variable (=1 if family sends the child to Private Tutoring, =0 if not) and u_i denotes the stochastic error term.

In binary logit models, marginal effects of independent variables on the probability dependent variable is found as follows:

$$\partial L / \partial X = P_i (1 - P_i) \beta_i \quad (3)$$

This implies that marginal effect of an independent variable is not constant over independent variable. So we analyze marginal effects at their average values.

Table 1: Descriptive statistics

Variables	Number of Observation	Mean	Standard Deviation	Min	Max
Income(thousand) TL)	12,437	8.57	10.68	0	381.21
Mother's Education	12,437	1.35	0.79	1	4
Father' Education	12,437	1.71	1.03	1	4
Highschool*	12,437	0.33	0.47	0	1
Number of Siblings	12,437	2.82	1.60	0	16
Mother work*	12,437	0.22	0.42	0	1
Newspaper*	12,437	0.13	0.33	0	1
Private Tutor*	12,437	0.11	0.31	0	1
Marmara Region*	12,437	0.23	0.42	0	1
Aegean Region*	12,437	0.23	0.42	0	1
Mediterranean Region*	12,437	0.13	0.34	0	1
Central Anatolia Region*	12,437	0.07	0.25	0	1
Black Sea Region*	12,437	0.14	0.35	0	1
Southeast Region*	12,437	0.12	0.32	0	1
Eastern Anatolia*	12,437	0.08	0.27	0	1

* These variables are dummy variables. Mean values show percentages.

4. Regression Estimation and Results

Logit regression above cannot be estimated with simple OLS. The appropriate estimation method for Logistic regression is maximum likelihood (Gujarati, 2009:551). In Table 2 we present maximum likelihood estimation results. According to our regression results all independent variables except Aegean and Mediterranean region dummies, are significant at %1. Marmara Region dummy is left out as it is our reference category. Regression coefficients in Table 2 do not give us any information about the effects of independent variables on probability of Private Tutoring attendance. We calculate marginal effect at average values of independent variables. Table 3 shows marginal effects of each independent variable on probability. For example, a family who has 10000TL yearly income, with a high school graduate father and mother, with 2 children, with newspaper reading habit and who live in Marmara region will send their child to private tutoring center with %44 probability. If this family's yearly income goes up by 5000TL probability of private tutoring attendance will increase by 2.5%. As mother's education increases from primary school to middle, probability of private tutoring center attendance increase by %1.4. For the representative family example given above, as mother's education increases from high school to college graduate, probability increases by %5.

As father's education increases by one unit, probability of private tutoring center attendance increases by %2.4. Mother's employment status is also significantly affecting private tutoring attendance decision. If mother is working the child is 2.3% less likely to attend a private tutoring center. This result might look surprising at first. However, given that we control for family income (including mother's earnings) and mother's education level, it might be the case that working mothers for some reason care less about private tutoring attendance. A family who has a child that attends to high school has %6.6 higher probability of sending their child to private tutoring center. In Turkey university entrance exam is taken during the last year of high school education or after graduating from high school. Thus, families care more about sending their child to private tutoring to get better prepared for the university entrance

exam. Number of siblings affects probability of private tutoring center attendance negatively. Having one more child will decrease probability of private tutoring center attendance by %0.4.

Table 2: Logistic regression results

Variables	Coefficient	Standard Deviation	Z statistics	P> z
Income***	0.019	0.003	7.42	0.000
MotherEduc***	0.195	0.042	4.64	0.000
FatherEduc***	0.342	0.036	9.59	0.000
HighSchool***	0.788	0.064	12.30	0.000
Siblings**	-0.066	0.029	-2.29	0.022
MotherWork***	-0.337	0.083	-4.06	0.000
Newspaper***	0.598	0.079	7.57	0.000
Aegean	-0.063	0.084	-0.74	0.457
Mediterranean	0.074	0.100	0.74	0.462
Central***	-1.011	0.181	-5.58	0.000
BlackSea**	-0.276	0.108	-2.55	0.011
SouthEast***	-0.975	0.169	-5.78	0.000
Eastern**	-0.317	0.139	-2.29	0.022
Constant	-3.275	0.122	-26.81	0.000

Note: *** significant at %1, ** significant at %5

Keeping the family income constant more children for a family means less resources for each child. Hence, the higher the number of siblings the less likely the child will attend to private tutoring centers. Newspaper reading habit affects the probability positively. A family that buys a newspaper regularly has %5.3 higher probability of sending their child to tutoring centers. The reason why this variable was included in our analysis is because reading newspaper can proxy for overall intellectual level or perception of education by the family. Therefore, a family that reads newspaper regularly is assumed to give more importance to education as an investment. Effect of geographical regions on the probability will be discussed in another section.

Table 3: Logistic regression marginal effects

Variables	dy/dx Marginal	Standard Deviation	Z Statistics	P> z	Mean Values
Income****	0.009	0.000	7.32	0.000	8.57
MotherEduc**	0.014	0.003	4.61	0.000	0.00
FatherEduc****	0.025	0.003	9.71	0.000	1.71
HighSchool****	0.066	0.006	11.14	0.000	0.33
Siblings**	-0.005	0.002	-2.30	0.021	2.82
MotherWork**	-0.023	0.005	-4.39	0.000	0.22
Newspaper****	0.054	0.008	6.34	0.000	0.13
Aegean	-0.005	0.006	-0.75	0.451	0.23
Mediterranean	0.006	0.008	0.72	0.472	0.13
Central****	-0.053	0.006	-8.36	0.000	0.07
BlackSea**	-0.019	0.007	-2.77	0.006	0.14
SouthEast****	-0.054	0.007	-8.14	0.000	0.12
Eastern**	-0.054	0.008	-2.57	0.010	0.08

Note: dy/dx shows for dummy variabels the change is from 0 to 1.

5. Efficiency Analysis of Private Tutoring Market

In this section we will analyze how private tutoring affect education market efficiency. Our analysis depends on some assumptions regarding education market. First, we assume that education market is competitive. Second, supply of public education is assumed to be constant. Lets first think about supply and demand for education for a household. We present partial equilibrium analysis in Figure 1.

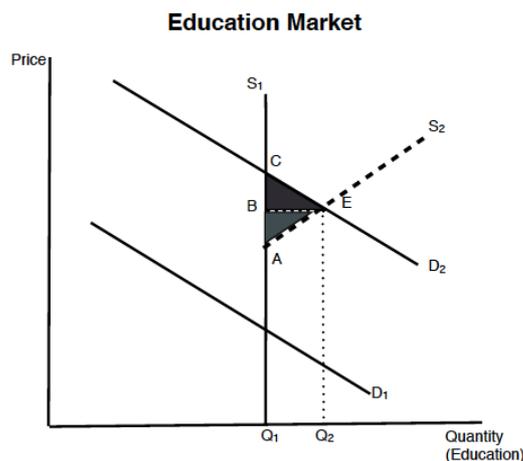


Figure 1: Supply and demand for education market

According to this analysis, supply of public education is demonstrated by S_1 while public education plus private tutoring supply is labeled as S_2 . The reason why S_1 gets vertical after some point is because supply of public education reaches its maximum capacity (both quality and quantity wise). Household demand for education is showed by D_1 (low demand) and D_2 (high demand). D_2 shows us demand for education by households who have high-income level, believe in education and have high expectation for the future. If household demand is D_2 ,

amount of public education demanded is Q_1 . With private tutoring available the amount of education demanded goes up to Q_2 because households who demand more than public education have private tutoring opportunity. For families whose demand is D_1 will consume Q_1 amount of education no matter private tutoring exists or not. Marginal benefit of private tutoring is less than marginal cost for these families. For our efficiency measure, under partial equilibrium analysis, we use consumer and producer surplus. We can see in Figure 1 that existence of private tutoring increases efficiency because there is bigger consumer and producer surplus. Consumer surplus increase by the area of BCE while producer surplus increase by the area of ABE. Hence we can conclude that private tutoring supplements public education in the sense that existence of private tutoring increases overall welfare.

6. Private Tutoring Centers and Education Inequality

Recently, Turkey's educational policy agenda has been banning private tutoring centers. Those who support the ban usually argue that private tutoring centers cause educational inequality. In other words, they say that only high income families are able to send their children to private tutoring centers, thus children of high income families have comparative advantage in university entrance exam. Our goal in this study is not directly analyze whether private tutoring centers cause educational inequality or not. Instead, we will focus on geographical differences in private tutoring center attendance probability and discuss its implications for educational inequality. Our interest here is on marginal effects of geographical dummy variables in Table 3. Keeping in mind that Marmara region is our reference category, except Aegean and Mediterranean regions, students from all other regions have lower probability of attending private tutoring centers compared to Marmara region. A student who lives in Central or Southeast Anatolia has %5 lower probability of attending private tutoring center. A student who lives in Eastern Anatolia has %2.1 lower probability of attending private tutoring centers. Similarly, a student who lives in Black Sea region has 1.8 lower probability of attending private tutoring centers compared to a student who lives in Marmara region.

Attending private tutoring centers increases overall performance of students in university entrance exam. Thus, a student who takes private tutoring has better chance of getting into a university. Our results above showed that higher income families are more likely to send their children to private tutoring centers. Thus, we can talk about educational inequality stemming from income variation within a geographical region. We call such inequality "within region" inequality. Our results also showed that students from some geographical regions have significantly lower probabilities of private tutoring attendance. As a natural result of this, students from these geographical regions have less chance of being successful in university entrance exam. We call this type of inequality "inter regional" inequality. The reason for "inter regional" inequality in education may be due to some unobservable characteristics of regions that affect private tutoring attendance decision. It may also be because of private tutoring supply differences among geographical regions. Tansel and Bircan (2007) state that private tutoring supply difference among geographical regions is reduced over time. So, if supply differences are the main cause of 'inter regional' inequality, we can say that it has decreased over time.

7. Conclusion

Demand for private tutoring has been increasing over the years in all around the world. In Turkey, where private tutoring is a big market, economic analysis and understanding attendance decision of private tutoring centers is critical. After Turkish Government's action to ban private tutoring centers, the need for this kind of analysis has become obvious. Our econometric analysis showed that families with higher incomes are more likely to send their children to private tutoring centers and be more successful in university entrance exam. Thus, we can conclude that private tutoring centers can cause "within-region" education inequality. We also find that after private tutoring centers become more common in east and southeast

Turkey, “inter-region” educational inequality has decreased between eastern and western Turkey. Also, existence of private tutoring centers is found to be economically efficient. Hence, a ban on private tutoring centers will result in economic inefficiency and can stimulate underground tutoring where no tax is paid to the government. From the policy perspective our study suggests that government should not intervene the private education market. Also, to reduce educational inequality, government should give some incentives (subsidies, tax credits, etc.) for private tutoring in less developed regions such as eastern and southeast Turkey.

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