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EVALUATION OF PRIVATE SCHOOL LOCATION IN THE ISTANBUL METROPOLITAN AREA

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Abstract-*Investment in education is considered important for economic growth and poverty alleviation. In many developed and developing countries families contribute privately to the education of their children as a result of continuously shrinking public budgets. Also, in Istanbul private primary schools were supported by the government in order to answer to increasing demand due to continuous rural migration and to create a competitive educational market to improve the quality of primary education. This paper, first, analyzes the spatial distribution of private primary schools according to the concentric rings and illustrates the gap between the center and the periphery and among the districts. Then, the relationships between the number of private primary schools and demand and the characteristics of the districts are investigated by a regression analysis. According to the results, the number of public primary schools is the most important factor and GDP per capita is the second factor to affect the number of private primary schools in the districts. Currently, the cluster of private primary schools mainly in high-income districts does not allow developing a competitive educational market at the metropolitan level. It is expected that a more balanced market will be develop as the urban structure of Istanbul adjusted to the neo-liberal economies in the future. The results are useful for urban planners, investors and policy makers. Further research is suggested to investigate the impact of private primary schools on the quality of public primary school education in Istanbul.*

Key Words: Primary education, Private education, Location, Urban development, Istanbul.

1. INTRODUCTION

Generally, the role of human capital with a good educational level is taken an indispensable determinant of economic growth [1]. Especially, in developing countries, large amount of school age population increases the dimension of this responsibility. For this purpose, provision of quality and equity of education is very crucial. Recently, globalization put even more pressure on the developing countries governments to increase spending on education to produce a more educated and competitive labor force. On the other hand, global finance capital pressures governments to reduce the growth of public spending on education and to find other sources of finding for the expansion of their education systems. In many countries, public schools face strong pressures to upgrade and expand facilities and deliver better, more advanced, and higher-quality education while tax revenues and therefore budgets are shrinking each year [2]. School districts have few resources to address the pressing space needs especially in developing countries. In this case, private investment becomes inescapable approach to supply educational facility needs in societies with a rapidly growing young population. In addition, a number of studies demonstrate that private participation can encourage the public sector to improve the quality and efficiency of public schools [3, 4]. The present study is concerned with the growth of the number of private primary schools and their spatial distribution with respect to demand and characteristics of districts in Istanbul.

In the developed countries, private investment in primary education facilities has started long before the developing countries. The school finance landscape in the US has changed dramatically in the past forty years. Most states have undertaken major changes to their school finance programs, motivated principally by the notion that the unequal school resources associated with unequal incomes and community sorting lead to unequal educational and labor market outcomes [5]. Apart from recent studies by Hoxby [6] and Dee [7] that show that private primary schools raise the quality of public education, there is very little empirical evidence in the US [8]. Moreover,

founding of Gibbons, Machin and Silva [9] for English primary schools suggests that competition has no causal effect on the performance of schools. However, Arum [10] illustrated that public school students in US with private school sectors have improved educational outcomes. Bashir [11] reviewed the size of the private sector in 35 countries found that most developing countries in the sample have large private sectors at the secondary level accounting for at least 20% of total enrolment. Problems with public schools are usually more severe in low-income countries, since the quality and integrity of public sector service delivery is highly correlated with income levels [12, 13].

A large number of developing nations are in the process of decentralizing basic education, with the aim of diversifying revenue sources and introducing greater accountability and efficiency. This is especially true in Latin America, where Chile introduced the first significant reform in 1981 [14]. Studies illustrate that there is a remarkable willingness of households to pay for private education in even low-income countries such as Bollivia [12], Other developing countries also illustrate achievements in this trend such as Pal [15] argues that local public infrastructure exerts a significant and positive effect on the presence of private school as well as the quality of schooling in India villages as well as [16]. Glewwe and Patrinos [17] demonstrate that willingness to spend on education is increasing as household incomes rise in Vietnam, which is switching from a centrally planned to a market economy. Xu [18] shows that private education is gaining importance in China as a result of reforms in the China's education sector over the last two decades that have sought diversity of funding in education as also described by others [19, 20]. The growth of private schools is also observed in other Asian and African developing countries [21] such as in Bangladesh and Pakistan [22, 23], Cote d'Ivoire [24] Nigeria [4, 25] and in Ghana [26].

Moreover, the previous studies illustrate that location of private primary school plays an important role in the enrolment to schooling in developed and especially in developing countries and varies according to the income of people. The study by Downes and Greenstein [27] examines the location choice of California private schools in 1978-79. The results indicate that the character of the population and the public schools influence location decisions. In Brazil, the study by Pizzolato, Barcelos and Nogueira [28] is concerned with the location of primary public schools. It is illustrated that a number of factors, such as questionable educations quality, limited capacity, poor location and social preferences, secure a participation of about 30% to the private school system. In Ghana, Fentiman, Hall and Bundy [26] investigated the impact of location, gender, age, and health on children access to basic schooling. The stark contrast in enrolment between the disadvantaged north and the south of the country is also confirmed.

Although private school law was passed in 1965 in Turkey, the number of private schools was not increased until 1985 in which free economy principles started to be implemented and government subsidy were provided. In other countries also, private primary schools are subsidized by governments [29] The main purpose of Turkish government policy is to provide private participation as an answer to the dramatic growth of demand for primary education, to modernize education system and facilities and to create a competitive market to improve the quality of public schools. Thus, after 1997, on the total, primary schooling increased from 80% to 90%. Private sector provided modern facilities and introduced modern technology into the education system [30]. Despite this achievement, there is still way to go to reach the AB goal for the girls at least 85% primary school education. The ratio of GDP spent for education in Turkey increased from 2.18 in 2006 % to 2.51% in 2009 and the Budget of Education ministry increased from 9.47% in 2006 to 10.64% in 2009 [31] which over passed the AB and OECD countries. Public and private spending all together is not successful to reduce the inequalities among the localities. While traditionally public schooling systems have been neighborhood based, private primary schools have larger market areas by providing transportation services for long distances.

The present paper investigates the spatial distribution of private primary schools in Istanbul. According to previous studies, locational decisions of all types of private schools depend most on characteristics of the community in which a school locates [27]. Therefore, in this study, the relationships between the number of private primary schools and the characteristics (5-14 age group population, GDP per capita, distance to the CBD, land price, population [32] density and number of public schools) of the districts are analyzed by the use of a regression analysis. The organization of the paper is as follows. Background information about the characteristics of the districts and the development and the spatial distribution of private primary schools are given in section two. In the third section, the relationships between the number of private primary schools and the characteristics of the districts are investigated by the use of regression analysis. The final section is devoted to a conclusion and suggestions for further research.

2. BACKGROUND

Most developing countries provide public education free or at minimal cost to their citizens. But because of recent increasing fiscal constraints, many countries have difficulties to provide free public education especially in the countries where the demand for schooling is projected to increase dramatically during the next decades. In order to solve this problem, some countries started to charge tuition fees, some others depend on private schools to handle at least part of the expansion [33]. In Istanbul, both systems were implemented to some extent. Private schools by attracting higher quality teachers and building higher quality facilities compete for students from upper and middle-income families. On the other hand, in public schools, families share heating expenses in order to contribute to the increasing operational costs of educational buildings.

Private provision and funding at all levels of education is widespread in developing countries. Bashir [11] reviewed the size of the private sector in 35 countries found that most developing countries in the sample have large private sectors at the secondary level accounting for at least 20% of total enrolment. Also, in Turkey, after 1980s, the number of private primary schools was increased with the government subsidy to create a competitive educational environment to improve the quality and quantity of primary education where it is needed. Traditionally, public schooling systems have been neighborhood based, but this tends to tie school quality to the socioeconomic status of local areas and has become usually linked to poor standards. On the other hand, private schools have more freedom to choose their location and have larger market areas by providing transportation services to attract students from middle and upper income families from different parts of Istanbul. However, in Germany, it was necessary to have unsatisfied need for primary education and also demand from the local families [29]. The spatial distribution of private primary schools is investigated with respect to demographic and socio-economic conditions of the city in the following part of this section.

Istanbul is the largest city of Turkey and between 1950 and 2007, its population increased from 1.002.085 to 12.573.836 primarily due to rural migration [34]. It is also the largest socio-economic, cultural and tourism center by being the capital of three empires, with unique natural and historical characteristic which further enhanced its attractiveness. Its tremendous population growth resulted in its expansion and thus increased the need for schools as well as for other social facilities. Provision of schools could not keep up with rapid population increase. Private investment was introduced in order to answer the demand for primary education in Istanbul.

The analysis of schooling for the education year 2007-2008 in Istanbul illustrated the nature and extent of private primary education. Although the number of private primary schools consisted of 15 percent of the total primary schools in Istanbul, only 4.5 percent of primary school children were enrolled in private schools [35]. However, James [36] clams that while the US private schools account for only about 11% of US enrolment (U.S. Dept. of Education, 1998), in the developing world, in contrast, private enrolment as a proportion of total enrolment is 2-3 times higher than in industrialized nations. In Turkey, the aim of the government policies is to increase the ratio of private primary school students to the level of developed countries.

The spatial distribution of characteristics of districts and private schools are investigated according to concentric rings for the year 2007. The core area covers up to 3 km. from the center, which correspond to the old CBD (Figure-1) with 2000 years of history and has since been continuously redeveloped and loosing population to the periphery [37]. This zone has 2.2 percent of population, 2.2 percent of 5-14 age group, 13.75 percent of GDP, 2.4 percent of people with higher education, 2.8 percent of primary schools of which has 984 students per school on the average, and 3.9 percent of private primary schools. 21 percent of the primary schools of this zone are private [34, 35].

The first ring reaches 10 km. from the center (Figure-1), which covers the area occupied by the city in the 1950s before the commencement of mass rural migration [37]. Much of the major development of this zone took place in the late 19th century and early 20th century, and the zone is now linked closely to the core and the periphery by subway, train, buses and ferry. Most of the buildings in this zone experienced renewal due to the changes often in construction density ratios, which caused the population increase. This zone has the 25 percent of population of the city, 44.32 percent of GDP, 44.6 percent of people with higher education which is the highest with respect to its population, 20.5 percent of 5-14 age group which is the highest with respect to its population, 28.8 percent of primary schools of which has 984 students on the average, and 41.1 percent of primary schools. Private schools count for 22 percent of the primary schools of this zone (Table-2) [34, 35]. This zone forms the economic backbone of the city by being the inner ring of the city, and includes mostly upper and middle-income people as well as a small amount of squatters.

The second ring is taken as the peripheral area beyond the first ring (Figure-1). This zone has 72.8 percent of population, 41.93 percent of GDP, 53 percent of people with higher education which is the lowest with respect to its population, 77.4 percent of 5-14 age group which is the highest with respect to its population, 68.4 percent of primary schools of which has 1570 students on the average, and 55 percent of private primary schools. The private primary schools count for 12.4 percent of the primary schools in the zone (Table-2) [34, 35]. This zone consists of large squatter areas as well as a small amount of upper and middle-income neighborhoods.

Table 2- Ratios of population distribution, primary school children, GDP, primary schools, students per school, number of private schools according to the concentric zones

Zones	Population(%)	5-14 Age Groups(%)	GDP(%)	High Education Groups	Primary Schools(%)	Students/ Schools	Private Schools/Total Private	Private Schools/Total Schools
Core	2.2	2.1	13.75	2.4	2.8	1044	3.9	20.0
I. Ring	25.0	20.5	44.32	44.6	28.8	984	41.1	23.0
II. Ring	72.8	77.4	41.93	53.0	68.4	1570	55.0	12.4

Although the investigation of the spatial distribution of primary schools illustrates that their largest share is located in the periphery, their ratio is still below the ratio school age population in this zone since school construction could not keep up with the rapid population increase due to constant rural migration with large families. As a result, the primary schools of the periphery are overcrowded and associated with low-level accessibility. Similarly, the periphery has the has the highest ratio of private primary schools, but much lower ratio than the ratio of school age population due to existence of high amount of lower income neighborhoods in this zone. For the same reason, the ratio of private primary schools within each zone illustrate that the one in the periphery is much lower as in the other developing countries [26]. Therefore, first of all, there is a need to increase the number of primary schools in the periphery in order to provide equitable accessibility to facilities with respect to other zones. As a second view, in order to provide equitable quality of primary education in this zone, private primary schools can be attracted to the periphery by providing land subsidy by the municipalities with the condition that they should provide tuition for some of the low-income students.Moreover, investigation of the distribution of primary schools according to the districts with respect to 5-14 age group population illustrates that there is a wide gap among the districts. While Besiktas which has the highest density of primary schools with respect to 5-14 age group population due to its central location, the peripheral lower income districts have much lower density of primary schools, such as Esenler, G.O.P. and Bagcilar. Similarly, investigation of the private primary school distribution shows that Besiktas has the highest density and the rest of the private primary schools is mostly clustered in the higher income districts (Sariyer, Kadikoy, Sisli, Uskudar and Bakirkoy) or near the higher income districts (Umraniye, Bahcelievler, B. Cekmece) which have available land (Table-1).

Table 1 - Distribution of population and age groups according to districts and income in Istanbul (2007)

	Pop. density (Pers./km²)	5-14 age group (person)	High education group	GDP/pers $ (1996)	Private Schools	Public Schools
Adalar	960	1125	2893	31.60	1	5
Avcilar	39	51272	59218	1138.8	3	23
B.Cekmece	3205	119919	10903	728.70	15	69
Bagcilar	33039	142190	64078	996.86	4	53
Bahcelievler	34503	92401	107	1056.08	12	38
Bakirkoy	7322	21847	98864	3401.32	16	27
Bayrampasa	28502	43565	39026	1415.67	0	25
Besiktas	10693	16499	102084	1661.85	14	29
Beykoz	769	38745	33963	482.84	3	48
Beyoglu	27596	39624	41586	2825.25	6	26
Catalca	66	14090	3214	300.22	0	35
Eminonu	6422	5300	5387	2572.69	3	8
Esenler	11631	103415	38209	486.02	5	30
Eyup	1384	54595	39882	722.67	2	37
Fatih	39125	57786	101740	1673.23	7	50
G.O.P.	3911	199495	76741	1291.63	4	68
Gungoren	44181	50741	59150	932.67	5	22
K.Cekmece	6760	144980	95946	1194.36	3	67
Kadiköy	17974	81109	292676	3280.34	19	73
Kagithane	26792	71142	55846	965.87	2	47
Kartal	6963	90060	77141	1380.41	9	52
Maltepe	6760	57289	105242	559.19	6	40
Pendik	2621	94230	59903	760.65	6	57
Sariyer	1823	39089	59108	497.34	15	37
Sile	32	3403	1214	147.19	0	9
Silivri	141	20303	9010	298.38	2	36
Sisli	9156	38487	87019	3526.56	15	32
Sultanbeyli	9451	62606	10840	535.53	3	24
Tuzla	1327	28935	8243	256.69	2	25
Umraniye	4157	160555	72729	922.65	11	85
Uskudar	15459	84552	146905	1248.82	34	69
Zeytinburnu	25553	48615	41729	1963.57	4	22

Thus, the analysis reveals that there is a large gap between the density of primary schools central and peripheral districts with respect to the number of school age children. In order to improve equity and quality of primary education, the number of the primary schools should be increased in the peripheral districts and the gap among the districts should be decreased. At the same time, it is expected that with the participation of private sector, it will be possible to improve quality and equity of primary education by providing a competitive educational market.

3. REGRESSION ANALYSIS

Using data from Istanbul metropolitan area, the relationships between the number of private primary schools and characteristics (GDP per capita, 5-14 age group population, distance to the CBD, education level, density of population, the number of public primary schools) of districts are investigated by the use of a regression analysis. The results are given in Table -3. The variables of the study explain only 42 percent of the variation in the number of private primary schools in the districts. According to the results, the number of public primary schools is the most important factor to affect the number of private primary schools in the districts. The results illustrate that the impact of GDP per capita on the number of private primary schools is also an important factor as it is expected and it is also showed by the other studies [17, 38]. On the other hand, some of the private primary schools are obliged to be located in the low income neighborhoods in the periphery by providing transportation services for long distances due to shortage of available land in the higher income neighborhoods. The relationship between the number of private primary schools and the number of children at the 5-14 age groups is not found significant. Thus, one of the aims of private primary schools is to fill the gap between the public primary schools and the capacity need of the districts is not true for the case of Istanbul. Other variables (number of people with high level of education and density of population), which are not significant, are not included in the analysis due to limited number of districts. However, in the previous studies, education level of people and the characteristics of public schools are found significant to affect the number of private schools [38].

Table 3- Regression results of private primary school locations analysis

	Beta	t	Sig.
Constant	.844	-1.89	.071
5-14 age group	-.201	-.97	.342
GDP/capita	.451	3.07	.005
Ln number of public schools	.629	3.06	.005
Dependent variable: Ln the number of private primary schools			
N=32 districts			

R	R^2	Adj.R^2	F	Sig.
.69	.48	.42	7.74	.001

Moreover, the previous analysis of the relationships between the number of private primary schools and the characteristics of the districts was also repeated according to the concentric rings. However, no variable was found significant at the concentric zone level. This means that the location system of private primary schools has not reached to a stable state at the local level yet.

At the same time, the relationships between the number of public primary schools and the characteristics of the districts are investigated by a regression analysis and the results are given in Table-4. The variables of the study explain only 57 percent of the variation in the number of public primary schools in the districts. The number of 5-14 age groups is the most important factor to affect the number of public primary schools as it is expected. However, this does not mean equity is provided to a great extent. There are great differences among the districts with respect to density of schools. Although officials try to construct new schools as many as possible in order to supply rapidly increasing demand but there are still shortages in some of the newly developed districts. Also, wealthy people contribute to this effort by donating land and buildings. As a result of regression analysis, no relationship is found between the number of public primary schools and the characteristics of the districts such as the education level of people, density of population and GDP per capita.

Table 4 - Regression results of public primary school locations analysis

	Beta	t	Sig.
Constant		14.80	.000
5-14 age group	.676	5.32	.000
GDP/capita	-.042	-.31	.760
Number of public schools	.349	2.57	.017
Dependent variable: Ln the number of public primary schools			
N=32 districts			

R	R^2	Adj.R^2	F	Sig.
.78	.61	.57	13.18	.000

Thus, the existing spatial distribution of private and public schools does not yet produce a competitive education market to improve the quality and equity of primary school education. Clustering of private primary schools in the higher income neighborhoods should be overcome by providing locational subsidies in the periphery in order to create a balanced distribution between public and private primary schools to improve education. At the same time, under used capacity of private primary schools (50%) can be used for the qualified lower income students by providing government scholarship [29].

4. CONCLUSION

Primary education continues to be the number one investment priority in developing countries. Primary education systems in many developing countries including Turkey face a number of challenges. A number of studies demonstrate that private participation can encourage the public sector to improve the quality and efficiency of public schools in developing countries. These countries are facing serious financial shortcomings to answer dramatically growing demand for primary education due to their rapid population increase. After 1985s, with the implementations of free economy principles, to rely on private education is adopted in Turkey in order to answer rapidly growing demand, to modernize education system and also to create a competitive environment to improve primary education. Although there is some government subsidy for private primary schools, it was always limited and much below the subsidy made for private hospitals.

In this paper, first, the spatial distribution of private primary schools was analyzed according to the concentric rings with respect to characteristics of these zones such as 5-14 age group population, GDP per capita, ratio of people with high level of education, ratio of primary schools, ratio of private schools and ratio of private schools within each zone. The results of the analysis illustrate that while the ratio of private schools and the GDP are highest in the intermediate zone, demand for primary education is highest in the periphery. Thus, the private primary schools follow higher income neighborhoods rather than high demand for primary education as it is expected and observed in other countries.

Then, the spatial distribution of private primary schools with respect to the characteristics of districts in Istanbul was analyzed by using a regression analysis. The number of private schools is taken as a dependent variable and 5-14 age group population, education level of public, GDP per capita and the number of public schools is taken as independent variables. The results indicate that the number of public schools is the most important factor for the number of private schools in a district. GDP per capita of the district is the second factor to affect the number of private primary schools in a district. Other variables, which are taken into consideration, are not fund significant to affect the number of private primary schools. With respect to public schools, only the 5-14 age group population has an impact on their numbers and the other variables, which are taken into consideration, are not found significant.

Thus, this paper illustrates unequal distribution of private primary schools with respect to 5-14 age group population and investigates the relationship between their numbers and the characteristics of the districts in Istanbul. The unequal private school resources associated with unequal incomes does not allow producing a competitive education market to improve equity and quality for primary school education that is a government policy. This situation leads to unequal educational and labor market outcomes. Therefore, more effort should be spend for a better distribution of public and private primary school distribution and improve the quality of primary education. Dökmeci [39]'s hierarchical model can be used for optimum location of new private primary schools by taking into consideration the distribution of school age children and the location of public primary schools, and the concept of population dynamics can be included into the model by using [40]'s approach

The results of the study can be useful for education planners, urban planners, investors and policy makers. Further research is suggested to analyze the impact of private participation on public primary education with respect to quality and equity of the educational system. Moreover, the relationship between type of school, public or private, is another important research topic in studies of school attainments, career patterns and especially of social mobility and social inequality.

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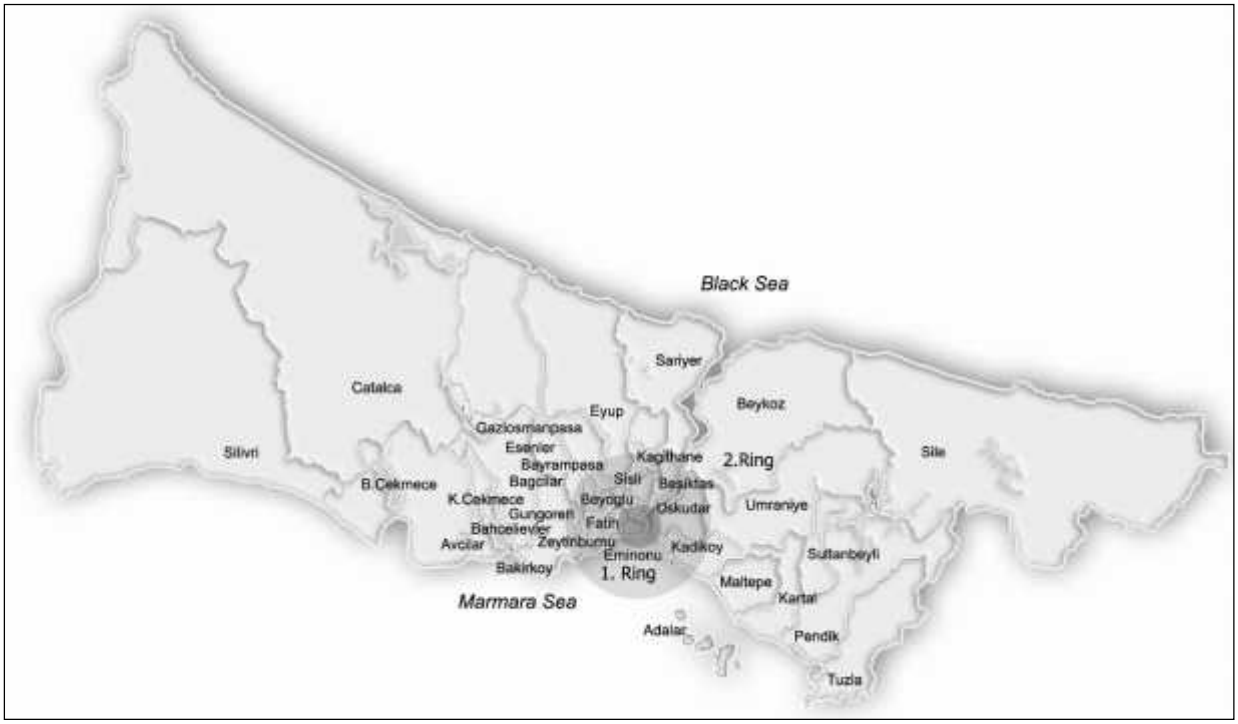

Figure 1 - Distribution of concentric zones in Istanbul

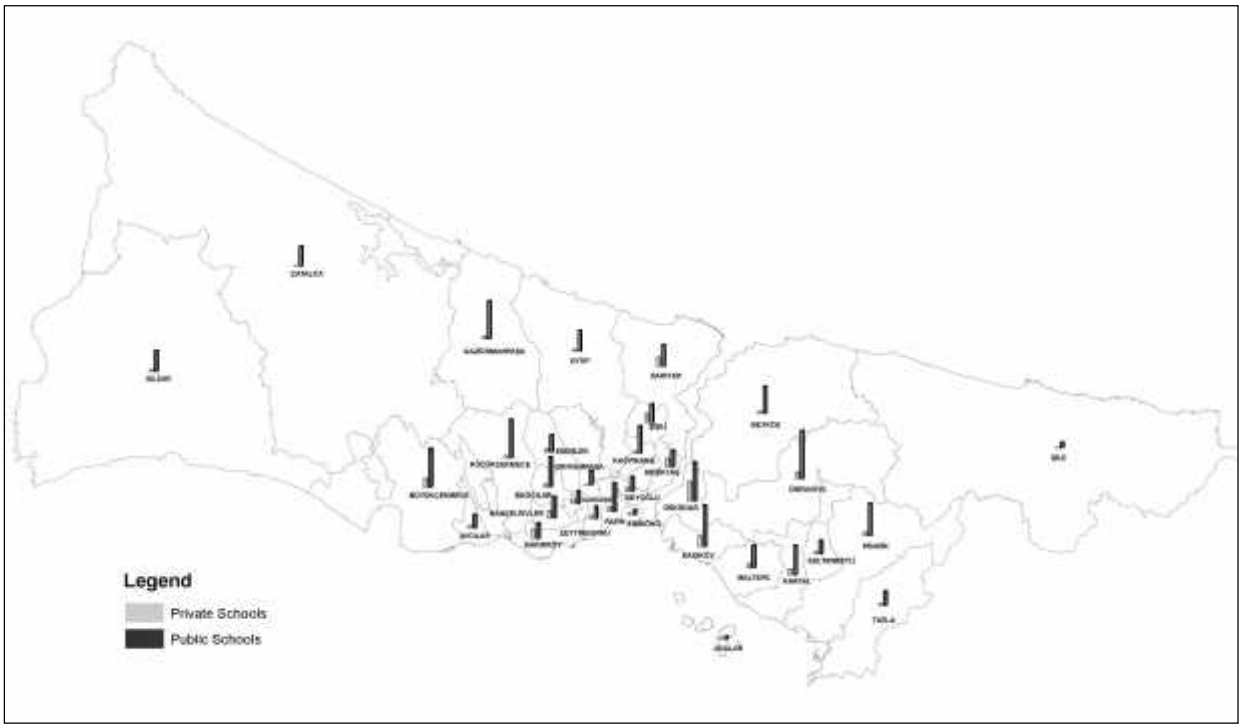

Figure 2 - Distribution of concentric zones in Istanbul