Analyzing and studying educational pyramid and changes in demographical indices of Tehran students during the school years 2000-2010

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Abstract

One of the effective factors in planning is paying attention to the increase and decrease of student population. In this study, using a variety of resources, it has been attempted that the growth changes and population decrease in the student population of Tehran in a 10-year period and considering the measures such as population density in-class students, the educational staff ratio, academic pyramid, the separation of school, number of classes and other aspects will be dealt with. Obviously, the results and findings of this potential research could be used in educational planning and population policy. In the present study, the method of data collection was done using the quantitative techniques of demography and a variety of statistical calculations. The research findings showed that the student population, number of classes and schools and the staff of ministry of education are being significantly decreased and has been associated with a negative growth rate in all levels.

Keywords: student population, the academic pyramid, class, school, educational staff

Introduction

After World War II, in many countries of the world, the social and economic transformations occurred and many other established countries were involved with a host of social issues. One of the major issues in most countries of the world in that period was the reconstruction of the education system that in most countries seemed to be common and obvious.

Thus, the ground was provided for development of training and enjoying all citizens of public education but the public education did not stop conflicts, violence and demands, but it became at starting point for many issues on various aspects of human life that was considered both an ultimate goal and as a tool to achieve other community goals and since by providing public education and the ground for community employment and productivity, the economic growth and development of community will be provided, public education was considered as a tool for economic and social development. The public education has multiple dimensions that are both a factor and a product of development and certainly such aspects of public education are describable in all social, political and cultural areas, etc. However, it is clear that public education is related to all aspects of human social life (Kashani, 1996). The changes in population growth of the world cause the problems of estimating the costs of public education and the net amount of investment at the educational levels. One of the social and economic principles of the world is considering the demographic statistics and indices of the different elements of education such as classrooms, teacher and educational staff per capita index, the index of laboratory equipment, library and educational aids, and most importantly, how the growth or decline in the population of students in different educational grades and its fluctuations. In many countries, especially in our country, education is seen as a value and the goal is an increase in the demand for education and raising the number of students. However, educational politicians and planners should calculate the educational facilities by the proper elements and tools, the number of teachers, staff.

In this study, we try to collect the changes in the student population between the years 2000 to 2010 based on changes in facilities, equipment and human resources so that the planner can measure and design their plans and visions based on it. According to official statistics released in the year 2001-2002 from the total population of 65 million people, 17,271,601 people were students of which 1,511,371 students studied in Tehran and in 1999-2000 from the total population of 13,040,274 students in the country, 1,086,508 students were in Tehran. From 1511371 students in the year of study start, 1326328 students were in public schools and 185,043 students were in nonprofit schools. In the school year 2001-2002 these amount has reached to 916,835 students in public schools and 169,673 students in nonprofit schools.

Thus, it is observed that the student population tends to be larger at the end of age pyramid and smaller on its head and from the view of many demographers this is a warning that threatens all elements of a political-economic system because the education plays an important role in choice and specialty of people for authorities and social occupations so that the performance of people in school, duration of study, field and existing facilities has a significant effect on determining job, income and social status in their future and if the student population in elementary grades decrease, this decrease in population will be extended to levels of higher education and job loss required to industries soon. Hence, such research could help to balance growth and the balance of the student population in the country. The education systems are compulsory based on public education and all children must have a minimum of formal education. However, only some of them are elevated to higher educational levels.

The important point to which the educational planners should pay a particular attention is evaluation of the educational system with knowing how the changes in the education system and education facilities and student population that is done by considering the decreasing student population and facilities needed which finally will lead to increase of the quality of education. The curriculum and educational planning and any comment on the education system are not possible without resorting to quantitative dimensions. Today, the necessity and importance of quantitative analysis and measurement in the evaluation of educational systems has been detected as an independent branch in the education area. We aim to be able to reach an ideal result by revealing the quantities of the various elements in the internal dimension to reach the desired outcome.

Research objectives
- Studying educational pyramid and changes in demographic indices of students in Tehran in the past 10 school years to utilize this research findings in planning of education in Tehran.
- Studying the student population according to gender and educational levels from the academic year 2000-2010 and predicting its growth to the year 2021 and 2025
- Calculating and drawing out the Statistical indices for the ratio of student of each levels education to all student population in the same year in Tehran
- Studying the indices related to education factors and its changing trend in the past 10 school years, according to the public and nonprofit schools in Tehran
- Studying the educational staff and their ratio to students in the 10-year studied
- Studying the structure of education and its ratio to the student population in the 10-year studied

Theoretical approaches, definitions and background
The system of modern education in Iran consists of kindergartens, elementary schools, secondary schools, high schools, colleges and higher education institutions. The arrangements were pro-

vided to create this system since establishing the technical school in 1850 and ministry of Science in 1853 and gradually were organized after the constitutional revolution.

New education was considered as important cultural solution that after long years of obscurantism and stagnation and social decline was considered as a resort for many community problems., being founded and organized such an education required the fundamental changes in the political and social community system so that the ground will be provided for the establishment of education with all its structural and normative peculiarities.

The public education has multiple dimensions; it is both a factor and a product of development and certainly such aspects of public education are related to all aspects of human social life (Kashani, 1996).

Education is a derivation from: "see knowledge from your cradle to your grave" and is found in every society and has various forms. From learning based on experiences of life to school education, from industrial and non-industrial communities, from rural to urban areas, from a age group to other age group. Education is a social phenomenon and like any social phenomenon is studied sociologically (Alagheband, 1995).

Functions and transformations of education population: any system has the functions and the main criterion for receiving the concept of function is integrity of a structure or a system. The function is a fruitful and beneficial result of action of a member. In fact, a single member of the community can be considered as a unit in the whole structure, i.e. each subsystem in the whole system (society) is considered as a unit with a task and job, thus in the whole structure of community the education system has a task or role or it is totally functional.

Burton Clark (1964) argues that the appeal of education in the new period, simultaneously, result from the increase and decrease of its clarity.

In the simple and primary community, the education did not have a conscious purpose. Each person after the birthday found his way to adult life gradually during the different stages of life, according to their age and social status, adaptations required to social environment and behavior patterns. For example, teens went along with their father for gathering food, finding wounded animal or gathering fruits and eatable roots of plants and learned the way of working. Collecting food by this way did not require any special skills. Hence, getting ready to perform activities of daily living did not have a conscious educational or training purpose. Every teenager learned all these things by experiment.

Aristotle believed that education taught people to obey the law, realize the freedom obtained from doing it, and use their properties in the public interest by retaining the individual ownership (Naghibzadeh, 1998).

Jean -Jacques Rousseau (1778-1712 AD) was French philosopher, author of the book " Emile" and one of the first persons who revolt against formal education, and talked about individual rights in education. He showed enmity with the civilization that was conventional and saw it as bogus and corrupt. He believed greatly in the natural world in Emile and all his work and insisted that education should be start with understanding the students (Safavi , 1993).

Karl Mannheim (1893-1947) considered the education as a dynamic element and worthy of sociological study. According to him, education in itself is a social technic and a proper tool for social monitoring (Sarmad, 22).

Bidol (1969) argues that the ideal and reformist program of Mannheim for social education deserves careful attention, but is of limited value as a theoretical claim (Alagheband, 1998: 155).

Materials and methods

In this research, the study area is geographically 22 districts of Tehran except the satellite towns and towns dependent on the capital and according to time it includes within a period of 10 years from the school years 2000-2001 up to 2009-2010; also according to studies the demographic documents, government reports, official statistics, and so is only used as the library studies and organizationally the study area includes the organizations and centers, such as ministry of Education, Iran Statistic Centers, Ministry of culture and higher Education, management and planning organization, and presidential Archive and Database and sites related to with government agencies and the international communities. Using the method of collecting and analyzing information as document and using statistical yearbooks, the required information such as the number of students, number of classes, courses, education staff as well as a variety of indices was calculated and obtained and then analyzed using available statistics and estimated for 10 and 14 next year. In this study, a variety of one-dimensional, two-dimensional and multi-parameter tables by using a variety of quantitative methods and calculating the demographic results were used. The data collection method is done by using demographic techniques and multiple calculations at several levels of the population over 10 years and related tables are extracted. Method of data collection was census and monitoring of all documents and relevant statistics which was created by summarization and indices.

The statistical population

In this study, due to the availability of information needed in a decade (from the year 2000 to the year 2010), all available information was examined in this area and the demographic information and documents is extracted and examined using data from censuses, and Statistical yearbook of Education in Tehran, at the levels of education (elementary, secondary and high school). Target Population of this study is student population in Tehran in the schools years from 2000-2001 up to 2009-2010.

Data collection method

All statistics and figures in general office of education in Tehran, statistics and figures of planning office of ministry of education, Statistical yearbook of Education, planning office of ministry of education, Education Database, national statistical yearbook and statistical publications.

Data Analysis

The software of Access and Excel is used for data analysis. The growth rate, the average per capita and univariate, bivariate and multivariate tables are also used.

In this study, the unit of analysis is the student that its demographic information and statistics were studied during the period 2000-2010 by sex, type of school, educational level and educational grade and the final analysis is derived from three following levels: Statistics of yearbook of the Ministry of Education for 10 years and population growth; a series of documents annually; and number of persons either individually or in different levels. The unit of analysis in this study is the figures and information that are collected in the level of statistical yearbooks of Education and individual data.

Results

Based on studies conducted during 10 year in the school year 2000-2010, the student population and the number of classes has a declining trend so that student per capita in the year of beginning study in public and nonprofit classes was 30.8 and 21 people per class, respectively, and in the final year of the study, these values reached to 29.2 and 17.5 people in public and non-profit, respectively.

Table 1 shows the student population and the number of classrooms in the school year 2000-2010. The highest population number and also the highest classroom number were in 2000-2001 and the lowest classroom number was in 2009-2010. It should be noted that the number of nonprofit classes in 10 school years studied was increasing.

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Table 1. Ratio of per capita and average of student population in public and nonprofit schools to the classes during the school years 2000-2001 to 2009-2010

row	School year	Students			Class			Ratio			Per capita		
		Public	Nonprofit	Sum	Public	Nonprofit	Sum	Public	Nonprofit	Sum	Public	Nonprofit	Sum
1	2000-2001	1372201	187504	1559705	44450	8929	53379	3.24	4.76	3.42	30.87	21.00	29.22
2	2001-2002	1289291	182696	1471986	42361	9079	51440	3.29	4.97	3.49	30.44	20.12	28.62
3	2002-2003	1238983	183493	1422476	41020	9386	50406	3.31	5.12	3.54	30.20	19.55	28.22
4	2003-2004	1150053	183910	1333963	38593	9668	48261	3.36	5.26	3.62	29.80	19.02	27.64
5	2004-2005	1109911	181942	1291853	37671	9743	47414	3.39	5.36	3.67	29.46	18.67	27.25
6	2005-2006	1068443	175795	1244238	37136	9640	46776	3.48	5.48	3.76	28.77	18.24	26.60
7	2006-2007	1020751	172972	1193743	35661	9602	45263	3.49	5.55	3.79	28.62	18.02	26.37
8	2007-2008	980207	171874	1152081	33331	9525	42856	3.40	5.54	3.72	29.41	18.04	26.88
9	2088-2009	967702	174562	1142264	32275	9775	43050	3.44	5.60	3.77	29.08	17.86	26.53
10	2009-2010	950108	175285	1125393	32491	9990	42481	3.42	5.70	3.77	29.24	17.55	26.49
Sum		11147650	1790052	12937702	375989	95337	471326	3.37	5.33	3.64	29.65	18.78	27.45
Average		1114765	179005	1293770	37599	9534	47133	3	5	4	30	19	27

Table 2. The average student population in public and nonprofit schools according to the level in the school years 2000-2001 to 2009-2010

Row	School year	Elementary school			Secondary school			High school		
		Public	Nonprofit	Sum	Public	Nonprofit	Sum	Public	Nonprofit	Sum
1	2000-2001	489443	41412	530855	376108	231467	434353	460777	85386	546163
2	2001-2002	462657	40856	503513	349871	216633	405061	425029	84143	509172
3	2002-2003	458667	41268	499935	330115	204905	383459	400268	86254	486522
4	2003-2004	445107	42158	487265	297847	187196	348900	366572	87714	454286
5	2004-2005	444414	44136	488550	276806	175916	326162	345583	85278	430861
6	2005-2006	440235	45298	485533	261807	165182	308605	354196	80545	404741
7	2006-2007	436312	46185	482497	248116	156680	293062	300002	77871	377873
8	2007-2008	427170	47447	474617	239451	152560	284499	282330	75531	357861
9	2088-2009	433920	49551	482663	240678	154434	285960	261680	76560	338240
10	2009-2010	423645	50682	474327	243142	156661	291230	250048	70903	320951
Sum		4461570	448993	4909755	286394	1801634	3361291	3416485	810185	4226670
Average		446157	44899	490976	286394	180183	336129	341649	81019	422667

As shown in the data in Table 2 the average student population in public and nonprofit schools during 10 school years 2000-2010 were studied 43,999 students in preschool, 490,976 students in elementary school, 336129 students in secondary students and 422 667 students in high school.

Table 3. The amount of population growth in public and nonprofit schools according to the level in the school years 2000-2001 to 2009-2010

Row	School year	Elementary school			Secondary school			High school		
		Public	Nonprofit	Sum	Public	Nonprofit	Sum	Public	Nonprofit	Sum
1	2000-2001	489443	41412	530855	376108	58245	434353	460777	85386	546163
2	2001-2002	462657	40856	503513	346871	55190	405061	425029	84143	509172
3	2002-2003	458667	41268	499935	330115	53344	383459	400268	82254	486522
4	2003-2004	445107	42158	487265	297847	51053	348900	366572	87714	454286
5	2004-2005	444414	44136	488550	276806	49356	326162	345583	85278	430861
6	2005-2006	440235	45298	485533	261807	46798	308605	324196	80545	404741
7	2006-2007	436312	46185	482497	248116	44946	293062	300002	77871	377873
8	2007-2008	427170	47447	474617	239451	45048	284499	282330	75531	357861
9	2088-2009	433920	49551	482663	240678	45282	285960	261680	76560	338240
10	2009-2010	423645	50682	474327	243142	48088	291230	250048	70903	320951
Sum		4461570	448993	4909755	2863941	497350	3361291	3416485	810185	4226670
Growth rate		-0.0143	0.0204	-0.0112	-0.0427	-0.0190	-0.0392	-0.0593	-0.0184	-0.0518
Growth percent		-1.4334	2.0405	-1.1196	-4.2685	-1.8980	-3.9186	-5.9295	-1.8415	-5.1774

As shown in Table 3, during the 10 year studied the amount of population growth was -0.0215 in preschool, -0.0112 in elementary school, -0.0392 in secondary school and – 0.0518 in high school.

As observed in table 4, in the year of beginning study totally there were 242.98 students per school that there were 295.29 students in the public schools and 105.81 students in non-profit schools. And in the final year of study 2009-2010, there were a total of 187 students per school that there were 245.44 students in public schools and 81.64 students in nonprofit schools.

The data of table shows that during the 10 year studied 2000-2010 the number of schools in Tehran was faced with negative growth of totally 0.0064, so that it has reached from 6419 schools in the year of beginning study 2000-2001 to 6018 schools in school year 2009-2010.

On average, there were 80,515 staffs in education during 10-year study of which there were 78,897 people in public schools and 1618 people in non-profit schools that allocate themselves the ratio of 6.20, 7.06 and 0.91, respectively.

Table 4. Ratio and per capita of student population in public and nonprofit schools to the schools during the school years 2000-2001 to 2009-2010

row	School year	Students			School			Ratio			Per capita		
		Public	Nonprofit	Sum	Public	Nonprofit	Sum	Public	Nonprofit	Sum	Public	Nonprofit	Sum
1	2000-2001	1372201	187504	1559705	4647	1772	6419	0.34	0.95	0.41	295.29	105.81	242.98
2	2001-2002	1289291	182695	1471986	4653	1897	6550	0.36	1.04	0.44	277.09	93.31	224.73
3	2002-2003	1238983	183493	1422476	4574	2009	6583	0.37	1.09	0.46	270.88	91.34	216.08
4	2003-2004	1150053	183910	1333963	4481	2105	6586	0.39	1.14	0.49	256.65	87.37	202.55
5	2004-2005	1109911	181942	1291853	4509	2083	6592	0.41	1.14	0.51	246.15	87.35	195.97
6	2005-2006	10684	175795	1244238	4449	2096	6545	0.42	1.19	0.53	240.15	83.87	190.11
7	2006-2007	1020751	172992	1193743	4278	2121	6359	0.42	1.23	0.54	238.60	81.56	188.55
8	2007-2008	980207	171874	1152081	3936	2053	5989	0.40	1.19	0.52	249.04	83.72	192.37
9	2088-2009	967702	174562	1142264	3932	1898	5830	0.41	1.09	0.51	246.11	91.97	195.93
10	2009-2010	950108	175285	1125393	3871	2147	6018	0.41	1.22	0.53	245.44	81.64	187.00
Sum		11147650	1790059	12937702	43330	20181	63511	0.39	1.13	0.49	257.27	88.70	203.71
Average		1114765	179005	1293770	4333	2018	6351	0.39	1.13	0.50	256.54	89.09	203.43

Table 5. Ratio of student population growth in public and nonprofit schools to the schools during the school years 2000-2001 to 2009-2010

row	School year	Students			School			Ratio			Per capita		
		Public	Nonprofit	Sum	Public	Nonprofit	Sum	Public	Nonprofit	Sum	Public	Nonprofit	Sum
1	2000-2001	1372201	187504	1559705	4647	1772	6419	0.34	0.95	0.41	295.29	105.81	242.98
2	2001-2002	1289291	182695	1471986	4653	1897	6550	0.36	1.04	0.44	277.09	93.31	224.73
3	2002-2003	1238983	183493	1422476	4574	2009	6583	0.37	1.09	0.46	270.88	91.34	216.08
4	2003-2004	1150053	183910	1333963	4481	2105	6586	0.39	1.14	0.49	256.65	87.37	202.55
5	2004-2005	1109911	181942	1291853	4509	2083	6592	0.41	1.14	0.51	246.15	87.35	195.97
6	2005-2006	10684	175795	1244238	4449	2096	6545	0.42	1.19	0.53	240.15	83.87	190.11
7	2006-2007	1020751	172992	1193743	4278	2121	6359	0.42	1.23	0.54	238.60	81.56	188.55
8	2007-2008	980207	171874	1152081	3936	2053	5989	0.40	1.19	0.52	249.04	83.72	192.37
9	2088-2009	967702	174562	1142264	3932	1898	5830	0.41	1.09	0.51	246.11	91.97	195.93
10	2009-2010	950108	175285	1125393	3871	2147	6018	0.41	1.22	0.53	245.44	81.64	187.00
Sum		11147650	1790059	12937702	43330	20181	63511	0.39	1.13	0.49	257.27	88.70	203.71
Growth rate		-0.0361	-0.0067	-0.0321	-0.0181	0.0194	-0.0064	0.0187	0.0263	0.0265	-0.0183	-0.0256	-0.0258
Growth percent		-3.6092	-0.6716	-3.2110	-1.8105	1.9382	-0.6430	1.8661	2.6274	2.6532	-1.8319	-2.5602	-2.5846

Table 6. The ratio of student population in public and nonprofit schools to public and nonprofit staff in the school years 2000-2001 to 2009-2010

row	School year	Students			Staff			Ratio		
		Public	Nonprofit	Sum	Public	Nonprofit	Sum	Public	Nonprofit	Sum
1	2000-2001	1372201	187504	1559705	95225	680	95905	6094	0.36	6.15
2	2001-2002	1289291	182695	1471986	90558	1629	92187	7.02	0.89	6.26
3	2002-2003	1238983	183493	1422476	89361	1732	91093	7.42	1.07	6.54
4	2003-2004	1150013	183910	1333963	85281	1959	87240	7.42	1.07	6.54
5	2004-2005	1109911	181942	1291853	82816	2183	84999	7.42	1.07	6.54
6	2005-2006	1068443	175795	1244238	82816	2183	84999	7.46	1.20	6.58
7	2006-2007	1020751	172992	1193743	77079	2152	79231	7.55	1.24	6.64
8	2007-2008	980207	171874	1152081	69314	1350	70664	7.07	0.79	6.13
9	2088-2009	967702	174562	1142264	61057	1189	62246	6.31	0.68	5.45
10	2009-2010	950108	175285	1125393	58314	1136	59450	6.14	0.65	5.28
Sum		11147650	1790052	12937702	788972	16181	805153	7.08	0.90	6.22
Average		1114765	179005	1293770	78897	1618	80515	7.06	0.91	6.20

Resource: Statistical Yearbook of the country, the Iranian Statistics Center & Statistical Yearbook of educational, Office of Planning, Ministry of Education

Table 7 shows the type of ownership of educational buildings in the 10 year of study. As seen in the above table, most of the buildings of education in 10 school years of study at both elementary and high levels have the positive growth of 0.0034 and 0.0067and only the buildings of the secondary school had descending trend of -0.066

As seen in Table 8, predicting the student population in public and nonprofit schools in the school year 2009-2010 was performed at different levels in 2022 and 2026. In elementary school the student population with growth rate of -0.0392 will reach to 195267 people in 2022 and 405,154 people in 2026. And in the secondary school the student population with growth rate of -0.0392 will reach to 195,267 people in 2022 and 166,413 people in 2026. And in the high school population with growth rate of -0.0518 will reach to 188,606 people in 2022 and 152,476 people in 12026.

It should be note that the highest growth rate is in elementary level with -0.0112 and the lowest is in high school with -0.0518.

As seen, the prediction of number of class in public and nonprofit schools was performed according to education grade 2022 and 2026. In the elementary school, the available classes with the growth rate of -0.0089 will reach to 15,148 classes in 2022 and 14,615 classes in 2026. In the secondary school, the available classes with the growth rate of -0.0285 will reach to 7589 classes in 2022 and 6760 classes in 2026. In the high school, the available classes with the growth rate of -0.0314 will reach to 10296 classes in 2022 and 9062 classes in 2026. The highest growth rate of class is in elementary level with -0.0089 and the lowest is in high school with -0.0314.

Table 7. The average and growth rate of education buildings (according to ownership) according to the levels

Row	School year	Elementary school					Secondary school					High school					sum				
		Public	Rented	endowed or given	Other	sum	Public	Rented	endowed or given	Other	sum	Public	Rented	endowed or given	Other	sum	Public	Rented	endowed or given	Other	sum
1	2000-2001	639	226	95	27	987	525	102	73	18	718	656	49	48	13	766	1820	377	216	58	2471
2	2001-2002	634	198	96	31	959	537	90	60	21	708	651	44	46	18	759	1822	332	202	70	2426
3	2002-2003	650	176	85	36	947	538	82	63	22	705	669	43	48	21	781	1857	301	196	79	2433
4	2003-2004	805	160	94	32	1091	500	64	61	16	641	671	48	44	21	784	1976	272	199	69	2516
5	2004-2005	823	134	98	36	1091	502	59	52	22	635	696	64	48	22	830	2093	275	202	80	2650
6	2005-2006	832	133	94	35	1094	499	63	46	19	627	696	59	47	23	825	2099	270	191	77	2637
7	2006-2007	807	127	95	36	1065	497	66	49	18	630	695	58	46	23	822	2069	564	193	77	2603
8	2007-2008	785	111	83	42	1021	471	55	44	23	593	687	56	45	31	819	1966	225	173	96	2460
9	2088-2009	785	111	83	42	1021	333	20	6	3	362	687	56	45	31	819	1828	190	135	76	2229
10	2009-2010	785	111	83	42	1021	333	20	6	3	362	687	56	45	31	819	1828	190	135	76	2229
sum		7545	1487	906	359	10297	4735	621	460	165	5981	6795	533	462	234	8024	19358	2696	1842	758	24654
Average		755	149	91	36	1030	474	62	46	17	598	680	53	46	23	802	1936	270	184	76	2465
Growth rate		0.0208	-0.0686	-0.0134	0.0452	0.0034	-0.0445	-0.1503	-0.2211	-0.1640	-0.0662	0.0046	0.0134	-0.0064	0.0908	0.0067	0.0004	-0.0662	-0.0459	0.0274	-0.0103

As shown in Table 10, the prediction of population is done (according to staff and service employees). Generally the number of educational employee with the negative growth of -0.0467 will reach from 805,153 in 2009-2010 to 499,102 in 2022 and 412,205 in 2026. The level is -0.0449 in staff and -0.0759 in service employees; in other words, the number of staff will reach to 35,696 people in 2022 and 29,709 people in 2026 and the number of service employee will reach to 1349 people in 2022 and 984 people in 2026.

As seen in Table 11, the prediction of educational buildings was done in three grades in 2022 and 2026. In the elementary school, the available buildings with the growth rate of 0.0034 will reach to from 1021 to 1056 in 2022 and 1071 in 2026. In the secondary school the available buildings with the growth rate of –0.0662 will reach from 362 to 183 in 2022 and 139 in 2026. In the high school, the available buildings with the growth rate of 0.0067 will reach from 819 to 876 classes in 2022 and 899 in 2026. It should be mote that the highest growth rate is in elementary level with 0.034 and the lowest is in secondary school with -0.0662.

Table 8. Prediction of student population in public and nonprofit schools

row	School year	Elementary school			Secondary school			High school		
		Public	Nonprofit	Sum	Public	Nonprofit	Sum	Public	Nonprofit	Sum
1	2009-2010	423645	50682	474327	243142	48088	291230	250048	70903	320951
2	2022	366693	62027	423818	157184	39702	195267	135693	58877	188606
3	2026	346116	67247	405154	132016	36773	166413	106260	54658	152476
Growth rate		-0.0143	0.0204	-0.0112	-0.0427	-0.0190	-0.0392	-0.0593	-0.0184	-0.0518

Table 9. Prediction of number of class in public and nonprofit schools according to education grade

row	School year	Elementary school			Secondary school			High school			Grand total
		Public	Nonprofit	Sum	Public	Nonprofit	Sum	Public	Nonprofit	Sum	
1	2009-2010	13796	2772	16568	8763	1371	10134	9470	4697	14167	42481
2	2022	11859	3708	15148	6926	769	7589	5889	5173	10296	33808
3	2026	11163	4166	14615	6304	610	6760	4870	5376	9062	30857
Growth rate		-0.0150	0.0295	-0.0089	-0.0232	-0.0562	-0.0285	-0.0464	0.0097	-0.0314	-0.0226

Table 10. Prediction of public and nonprofit staff according to staff and service employee

row	School year	Number of employee			Number of staff			Number of service employee		
		Public	Nonprofit	Sum	Public	Nonprofit	Sum	Public	Nonprofit	Sum
1	2009-2010	788972	16181	805153	55338	1144	56482	2968	0	2968
2	2022	483154	27026	499102	34527	1929	35696	1349	0	1349
3	2026	397095	33181	412205	285809	2378	29709	984	0	984
Growth rate		-0.0479	0.0526	-0.0467	-0.0461	0.0537	-0.0449	-0.0758	-1.0000	-0.0759

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Table 11. Predictions educational buildings according to the grades

Row	School year	Elementary school					Secondary school					High school				
		Public	Rented	endowed or given	Other	sum	Public	Rented	endowed or given	Other	sum	Public	Rented	endowed or given	Other	sum
1	2009-2010	785	111	83	42	1021	333	20	6	3	362	687	56	45	31	819
2	2022	964	55	73	65	1056	211	4	0	0	183	719	64	42	74	876
3	2026	1047	41	69	78	1071	176	2	0	0	139	733	68	41	105	899
Growth rate		0.0208	-0.0686	-0.0134	0.0452	0.0034	-0.0445	-0.1503	-0.2211	-0.1640	-0.0662	0.0046	0.0134	-0.0064	0.0908	0.0067

Conclusion

This study has examined the changes in the student population in Tehran in the school years 2000-2010 and has estimated it for years 2022 and 2026. Methods of research in this study are documents that have been obtained from the annual statistics of education and census results. The target population is student population in Tehran in the school years 2000- 2010.

According to the statistics of education, the boy and girl student population in three levels (elementary-secondary-high) in the year of beginning study (2000-2001) was 1,511,371 people that has reached to1, 086,508 people in the final year of the study (2009-2010) that was faced with the negative growth of -0.0321 and totally the student population has been reduced 434,312 people in 10 academic years of study.

In the school year of beginning study (2000-2001), the number of students was 1326328 in public schools and 185043 in nonprofit schools that in the final year has reached with the growth rate of -0.0361 percent to 916835 in public schools and with the growth rate of -0.0067 percent 169673 in nonprofit schools that is as follows according to each grade. In the school year of beginning study in elementary schools the number of students was 489,443 students in public elementary schools and 41,412 students in nonprofit and totally 530,855 students and in the final year of study, 423 645 students in public and 50 682 students in non-profit and totally 474,327 students.

In the school year of beginning study, in secondary schools, the number of students was 376,108 students in public schools and 58245 students in nonprofit and totally 434,353 students and in the final year of study, 243 142 students in public and 48 088 students in non-profit and totally 291,230 students.

In the school year of beginning study, in high schools, the number of students was 460,777 students in public schools and 85,386 students in nonprofit and totally 546,163 students and in the final year of study, 250,048 students in public and 70,903 students in non-profit and totally 320,951 students.

Totally, the number of student classes had the growth rate of -0.0226 during the 10-year of study and a total of 53 379 class in the starting year of 2000-2001 reached to 42 481 class in 2009-2010. This amount was 32,491 with the growth rate of -.0.0309 in public classes and 9990 with the growth rate of -0.0113 in nonprofit classes.

In the school year of beginning study, 2000-2001 a total per capita of class for student was 29.22; in other words, there was one class for 29.22 students that it has reached to 26.49 with the ascending growth of -0.098 in the final year that it was 29.24 in students of public schools and 17.55 in students of nonprofit schools. It should be noted that the highest number of students was in the school year 2000-2001 in high school with a total of 546,163 people of which 283,909 students were girls and 262,254 students were boys. In 2009-2010 this number reached to a total of 320,951 students that had the growth rate of -0.0518 that in boy student with the growth rate of -0.0505 and in girl students with the growth rate of -0.0529 reached to 2029871 and 2196799, respectively.

Also, in the final year of study in 2009-2010, the highest number of students was in elementary schools with a total of 474,327 people of which 231,373 were girl and 242,954 were boy.

This study shows that in 2000-2001 there were totally 50,972 classes of which 25,349 class were for girls and 25,623 were for boys that with a negative growth of -0.0104 has reached to 40,688 in 2009-2010 that has reached to 20475 in the class of girl students with the growth rate of -0.012 and to 20213 in the class of boy students with the growth rate of -0.089.

In general, we can say that in the 10 year of study the population of girl students with the growth rate of -0.0083 has reached from 22,008 to 16,454 that this amount in boy students with the growth rate of -0.0044 has reached from 20 357 to 14 775. As seen, the population of boy students has been declining.

As the findings show, in the year of beginning study, there was one public school for every 295.29 students in a public school a non-profit school for every 105.81 that in the final year of study this figure has reached to 245.44 in public schools with growth rate of -0.0183 and to 81.64 in non-profit schools with growth rate of -0.0256. About the education employee, it can be said that in the year of beginning study from a total of 95905 employees, 95225 people were in the public sector and 680 people were in the nonprofit sector.

This number has reached to 59,450 people with the growth rate of -0.0467 that has reached to 788, 972 people in public sector with growth rate of -0.0479 and to 1136 people in the nonprofit sector with growth rate of 0.0526; In the other words, in the year of beginning study, there were 6.14 employees in public sector and 0.65 employee in the nonprofit sector for every 100 students.

These findings indicate in the year of beginning study from 2471 the education building, there were 1820 public buildings, 377 rented buildings, 216 endowed or given buildings and 58 other buildings that totally has reached to 24302 building with the growth rate of -0.0103 in the final year of study that has reached 1828 in public buildings with the growth rate of 0.0004, 190 in rented buildings with a growth rate of -0.0662 and 135 in endowed or given buildings with the growth rate of 0.0459.

From total 2471 education buildings in school year 2000-2001, there were 987 buildings in elementary school, , 718 buildings and 766 buildings in secondary school and 766 building in high school and the numbers in the school year 2009-2010 were 1021, 687 and 819, respectively.

According to the population of students, in the final year of study 2009-2010, it is anticipated that with the growth rate of -0.0112 the student population will likely reach to 1400 people in elementary schools in 2022 and 405,154 people in 2026. In the secondary school, from the total population in 2009-2010 that was 291,230 people it with the demographic growth of -0.0392 will likely reach to 195267 people in 2022 and to 166,413 people in 2026.

In high school from the total of student population that was 320951 people, with the growth of -0.0518 will likely reached to188606 people in 2022 and 152,476 people in 2026.

Recommendations of the study

- Considering the reduced rates of the student population, it is proposed that to prevent the recess in the age pyramid at the levels of preschool to sixth grade the policies encouraging the increase and growth of population will be considered.

- Considering the negative rate of students, the facilities, properly planning for reallocation and reviewing the facilities increased.

- Considering the increasing capacity of student population in the lower educational levels some steps will be taken in the modernization and upgrading of the old school in terms of buildings and equipment.

- Ministry of Education standardizes quality indices in the public and non-profit schools for distributive justice.

- In designing and developing the training programs, the priorities and needs will be observed to achieve more focused goals.

- Since the demographic changes have led to numerous fluctuations and changes in capacity, facilities, teaching staff, school enrollment rates in schools and educational levels, it is suggested that doing researches of need-assessment will be continued at all levels and will be used as a prerequisite for educational planning.

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