

DEVELOPMENT INDEX AND DEVELOPMENT REGIONS BASED UPON EDUCATION OPPORTUNITIES

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1. Introduction

It is possible to reach equality of opportunity in education by providing equal educational facilities throughout a region. Today, educational opportunities presented to students are not limited to schools, teachers and classrooms. In addition to these, computer, physics, chemistry, biology, vocational and foreign language laboratories and libraries used by the students in school, preparatory courses provided by private institutions within the district and the money spent on education by households and educational institutions also represent educational opportunities.

In this study, by using the data gathered from schools by the Ministry of National Education (MoNE) for the 2006-2007 educational years, the values of development index concerning educational opportunities have been computed for districts. Development groups have been obtained by clustering the districts with the same development index. Assuming that the average value of Turkey for each education indicator is the target, the deficiency in the number of teachers, classrooms, laboratories, computers, and libraries have been estimated for each district in Turkey. In this way, the districts that need priority in correcting deficiencies in educational tools have been clearly revealed, thereby providing guidance to the authorities on educational policies.

2. Methods

In this study, principal component analysis, cluster analysis and wheel of educational opportunities approach have been employed. Principal component analysis is used in order to compute the development index and development levels of all districts with regard to educational opportunities. Cluster analysis is used in order to obtain the districts with the similar development index in the same group. Wheel of educational opportunities, for the first time applied on education data, have been used in order to analyze the differences among development groups. Wheel of educational opportunities has been preferred in this study because it points to the main problems of districts in each development group at a glance, enables comparisons among groups and enables us to observe at a glance from which educational opportunities the differences among the development groups stem. Brief information on the methods used in study has been provided in the following section.

2.1. Principal Component Analysis and Cluster Analysis

Principal component analysis (PCA) is a variable reduction method. It is preferred when you have data on a number of variables, in which there is some redundancy. Redundancy is the correlation of the variables with one another, which makes it possible to reduce the variables into a smaller number of artificial variables known as principal component. Principal components should be able to account for most of the variance in the variables (Wolfgang, 2003).

In other words, in this method, p variables with n observation and with mutually dependent structure are converted k ($k \leq p$) variables with properties of linear, vertical and independent.

Assume that there is a data set with p variables and n observation, total variance will be explained by p variables. If k ($k \leq p$) variables explain most of the total variance, k components can represent original p variables. Therefore, p variables with n observation are reduced k components with n observation without a significant loss. In this study, principal component analysis has been used to compute the development index of the districts in Turkey.

Also, in this study, all the districts in Turkey are clustered according to values of development index by using cluster analysis. Cluster analysis is a statistical technique which can be applied to data displaying “natural” grouping character. In cluster analysis, the raw data is sorted through and grouped into clusters. A **cluster** can be defined as a group of homogeneous cases or observations. Hence, they are dissimilar to objects outside the cluster.

Principle component analysis reduces the number of variables by grouping them into a smaller set of factors. On the other hand, cluster analysis reduces the number of observations or cases by grouping them into a smaller set of clusters

2.2. Wheel of Educational Opportunities

Since the “Earth Summit” conducted at Rio de Janeiro in 1992, sustainable development concept is regarded as one of the most important development paradigm. In recent times, the debates in this context were directed at the issue of “measurement”, and the main focus of these debates was what the criteria or indicators could be (Birkmann and Frausto 2001), with which indicators an integrated approach could be taken and what analysis techniques and models could be appropriate in the process of evaluation and decision-making.

“Sustainability Wheel” is one of the methods developed in order to measure sustainability. Inspired by the method of “sustainability wheel”, the wheel of educational opportunities aims to see the educational needs for each region at a glance(OECD, 2002).

In order to prepare the wheels of educational opportunities, primarily, reference values and indicator values should be gathered together in a manner to form a wheel. In order to serve this purpose, all indicators with different units of measurement and different directions have been converted in the same direction and then standardized. Standardized values show normal distribution with 0 mean and 1 variance.

However, average value of each indicator for Turkey has been used as reference values, because of unavailable of prior reference values for each indicator. It is assumed that average values related to educational indicators used in this study form reference wheel. Namely, the objective is, at least, to reach the average values of Turkey for each indicator. As the related indicator moves away from the centre of the wheel, it signifies deterioration and as it moves closer, it signifies improvement for the related indicator (Şanalmiş,2007 and Irmen,E.,Milbert,A.,2001). By drawing wheel of educational opportunities for each development group, in terms of which educational opportunities the groups should be supported has been put forward.

3. Application

3.1. Variables Used in Study

In the study, 18 educational indicators have been used to represent educational opportunities at primary schools and 13 educational indicators have been used to represent educational opportunities at secondary schools. These indicators, for both educational levels, have been gathered in 4 main groups; basic education infrastructure, physical infrastructure, educational investment, and achievement. Education indicators used in the study and their main groups have been presented at Table 1.

Table 1. Education Indicators by education level; data source and abbreviations

Education Indicators	Period	Source of Data	Educational Level and Main Group of Variables		
			Primary Education	Secondary Education	Abbreviations
Number of students per teachers	2006-2007	MoNE	a	a	ÖBÖS
Number of students per classroom	2006-2007	MoNE	a	a	DBÖS
The ratio of students in merged-classes ⁽¹⁾ in the total number of students	2006-2007	MoNE	a		BSÖğrmO
The ratio of teachers in merged-classes in the total number of teachers	2006-2007	MoNE	a		BSÖğrtO
The ratio of schools in merged-classes in the total number of schools	2006-2007	MoNE	a		BSOkulO
The ratio of schools with half-day-based education ⁽²⁾ in the total number of schools	2006-2007	MoNE	a		İOkulO
The ratio of schools with transporting ⁽³⁾ education in the total number of schools	2006-2007	MoNE	a		TOkulO
The ratio of students benefiting from transporting education in the total number of students	2006-2007	MoNE	a		TÖğrmO
The ratio of educational expenditure of household in districts in the total educational expenditure of household	2002	TURKSTAT	b	b	ÖBHaneH
The ratio of educational expenditure of educational institutions in districts in the total educational expenditure of education institutions	2002	TURKSTAT	b	b	ÖBEğitimKH
Number of students per computer	2006-2007	MoNE	c	c	BBÖğrmS
Number of computer laboratories per school	2006-2007	MoNE	c	c	BLOkulS
Number of biology laboratories per school	2006-2007	MoNE		c	BiyLOkulS
Number of physics laboratories per school	2006-2007	MoNE		c	FzLOkulS
Number of chemistry laboratories per school	2006-2007	MoNE		c	KLOkulS
Number of science laboratories per school	2006-2007	MoNE	c		FLOkulS
Number of vocational laboratories per school	2006-2007	MoNE		c	MesLLB
Number of foreign language laboratories per school	2006-2007	MoNE	c	c	YDOkulS
Number of libris per school	2006-2007	MoNE	c	c	KütOkulO
Ratio of placement to Anatolian and Science High Schools by OKS1 Exam	2006-2007	MoNE	d		OKS1YerO
Ratio to Anatolia and Science High School by OKS2 Exam	2006-2007	MoNE	d		OKS2YerO
Number of students per “dershane” ⁽⁴⁾ preparing students for OKS exam	2006-2007	MoNE	b		DBÖğrmSİ
Number of Student per “dershane” ⁽⁴⁾ preparing students for OSS exam	2006-2007	MoNE		b	DBÖğrmSO
Ratio of placement to universities by OSS Exam	2006-2007	ÖSYM		d	OSSYerO

⁽¹⁾: In Turkey, students in different grades (for only 1-5 grade) at the primary school are educated by the same teacher at the same classes in some rural region. This application at schools are called as merged class

⁽²⁾: In Turkey, in some crowded regions such as Istanbul and Kocaeli, education was offered in two sessions as morning and afternoon sessions. This application at schools is called as “half-day-based”.

⁽³⁾: Education is conducted by way of “transporting” the some districts in Turkey because there aren’t enough students and teachers or even schools. In this situation, students in the district are transported to schools in other closer districts and it is provided to students free of charge to benefit from educational opportunities.

⁽⁴⁾: dersane: Private establishments preparing students for various exams

Main group of education indicators: a- Basic education infrastructure

b- Educational investment

c- Physical infrastructure

d- Achievement of students

4. Results of Analysis

Principal component analysis has been applied separately for primary and secondary education by using education indicators related to primary and secondary education as shown in Table 1. As the result of the analysis for primary education, 5 independent components have been obtained which explain 75 percent of the total information of indicators used in study. For secondary education, 6 independent components have been obtained which explain 70 percent of total information of indicators used in study.

While index values have been computed by district, since it is desired to take the explanation amount of all components into account, components are multiplied by the explanation amount and added. Before multiplying, explanation amounts are adjusted to 1 in a manner that the index values are the weighted-mean of all components obtained from PCA. Development index values are computed by multiplying component values with new explanation amount, the total of which is 1. In the study, due to space concern, it is not possible to accommodate index values for each district. But the values can be found in the report prepared by Çıngı, Kadılar and Koçberber (Çıngı, Kadılar, Koçberber, 2008).

Districts are clustered by development index values. As the result of cluster analysis, all districts in Turkey are gathered into 10 groups. While the tenth group covers districts with the best educational opportunities, the first group covers the districts with the worst educational opportunities. The number of districts is different at each development group. 10 development groups are gathered two by two; therefore development levels are obtained as “the most developed”, “developed”, “medium-developed”, “underdeveloped” and “undeveloped”. Finally, educational opportunities are defined as “good”, “average” and “bad” by grouping the development levels. Districts at the level of the most developed and developed are defined as districts with “good” educational opportunities. Districts at the level of underdeveloped and undeveloped are defined as districts with “bad” educational opportunities. Districts at the level of medium-developed are defined as district with “average” educational opportunities.

The number of districts and percentage distribution by levels of development for primary and secondary education has been given in Table 2 and 3, respectively. Therefore, the number of districts where the educational opportunities are “good”, “average” and “bad” can be obtained.

Table 2. Educational Opportunities at Primary Schools, the Number of Districts and Percentage Distribution by the Level of Development and Development Groups

The Classification of Educational Opportunities	Levels of development	Development groups	Districts			
			Number	Cumulative number	Percent	Cumulative percent
Good	Most developed	10	1	1	0,11	0,11
		9	1	2	0,11	0,22
	Developed	8	6	8	0,65	0,87
		7	62	70	6,72	7,58
Average	Medium developed	6	145	215	15,71	23,29
		5	273	488	29,58	52,87
Bad	Underdeveloped	4	225	713	24,38	77,25
		3	118	831	12,78	90,03
	Undeveloped	2	55	886	5,96	95,99
		1	37	923	4,01	100,00

According to Table 2, of 923 districts, 70 districts (7.58%) are at the level of most developed and developed; also they are defined as districts with good educational opportunities. On the other hand, there are 435 districts (47.13%) at the level of underdeveloped and undeveloped and they are defined as districts with bad educational opportunities. The number of districts with the medium developed level and with average educational opportunities is 418 (%45.29). The results show that the number of districts with good educational opportunities is quite low in our country. About 94% of districts in Turkey can be classified as “average” or “bad” in terms of educational opportunities.

Table 3. Educational Opportunities at Secondary Schools, the Number of Districts and Percentage Distribution at the Level of Development and Development Groups

The Classification of Educational Opportunities	Level of Development	Development groups	Districts			
			Number	Cumulative number	Percent	Cumulative percent
Good	Most developed	10	4	4	0,56	0,56
		9	6	10	0,84	1,40
	Developed	8	32	42	4,49	5,89
		7	98	140	13,74	19,64
Average	Medium developed	6	165	305	23,14	42,78
		5	182	487	25,53	68,30
Bad	Underdeveloped	4	144	631	20,20	88,50
		3	61	692	8,56	97,05
	Undeveloped	2	19	711	2,66	99,72
		1	2	713	0,28	100,00

According to Table 3, of 713 districts with the schools at the level of secondary education, 140 districts (19.64%) are at the level of most developed and developed, also they are defined as districts with good educational opportunities. On the other hand, there are 226 districts (31.70%) at the level of underdeveloped and undeveloped and they are defined as districts with bad educational opportunities. For secondary education, the number of districts with the medium developed level and with average educational opportunities is 347 (%48.67). The results show that educational opportunities at secondary schools (high school, vocational high school, etc.) are better than those at primary schools in our country.

4.1. The Wheel and Quadrangle of Educational Opportunities by Development Groups

After obtaining development groups for both primary and secondary education separately, PCA has been applied to education indicators separately gathered in 4 main groups and index values for each main group have been computed (these are basic education infrastructure index, physical infrastructure index, achievement index and educational investment index). Then, quadrangle index has been obtained by adding these index values while wheel index has been obtained by adding standardized values of all education indicators. Negative values of index imply that districts in related development group are in good status by educational opportunities. All index values for development groups are given at Table 4 and Table 5.

Table 4: Wheel or Quadrangle index by development group

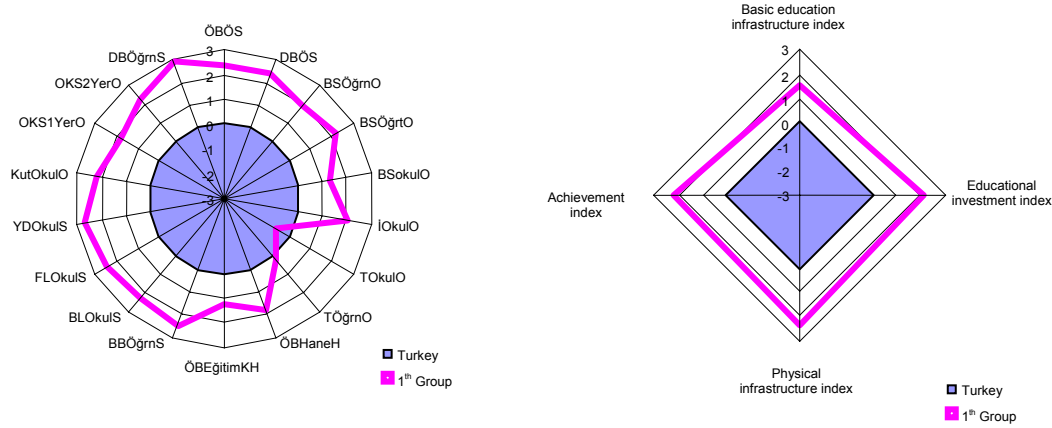
Development Group	Wheel Index	Development Group	Quadrangle index
1	33,651	1	8,192
2	16,778	2	4,326
3	8,001	3	2,869
4	1,413	4	1,554
5	-5,829	5	-1,139
6	-7,142	6	-2,132
7	-8,999	7	-2,300
8	-11,887	8	-4,193
9	-11,775	9	-2,594
10	-12,045	10	-4,411
Correlation Coefficient between indexes			0.981

Table 5: Basic Education Infrastructure Index, Physical Infrastructure Index, Achievement Index and Education Investment Index by Development Groups

Development Groups	Basic education infrastructure index	Development Group	Physical infrastructure index	Development Group	Achievement index	Development Group	Educational investment index
1	1,491	1	2,379	1	2,202	1	2,120
2	1,159	2	1,210	2	0,833	2	1,124
3	0,880	3	0,551	3	0,793	3	0,645
4	1,144	4	-0,081	4	0,467	4	0,025
5	0,811	5	-0,455	5	-1,247	5	-0,247
6	0,202	6	-0,580	6	-0,984	6	-0,770
7	-0,198	7	-0,681	7	-0,580	7	-0,842
8	-2,017	8	-0,682	8	-0,527	8	-0,967
9	-2,033	9	-0,875	9	-0,113	9	0,427
10	-2,198	10	-0,488	10	-0,651	10	-1,075

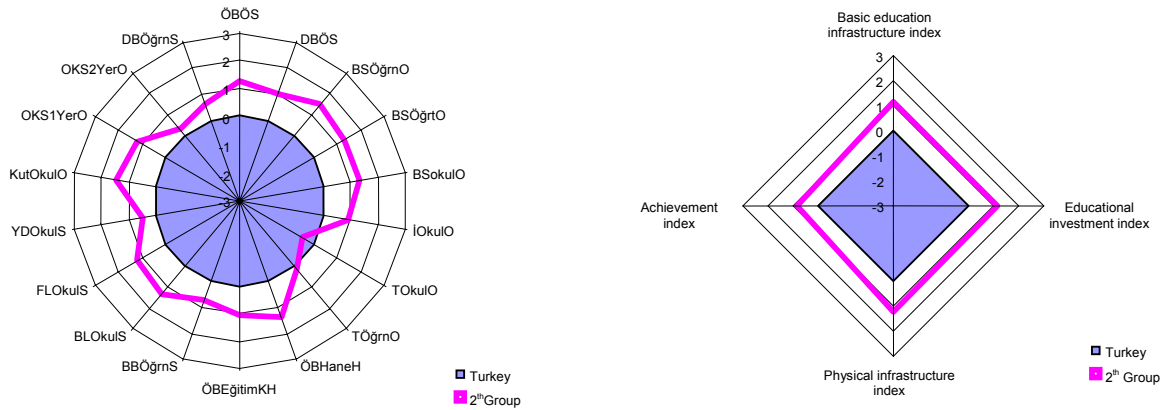
The wheel and quadrangle of educational opportunities for primary schools are drawn by using index values of wheel and quadrangle in Table 4 for each development group. The wheel and quadrangle of educational opportunities drawn for all development groups are given in Graph 1-10.

Graph. 1. The Wheel and Quadrangle of Educational Opportunities at Primary Schools of Districts for the First Development Group

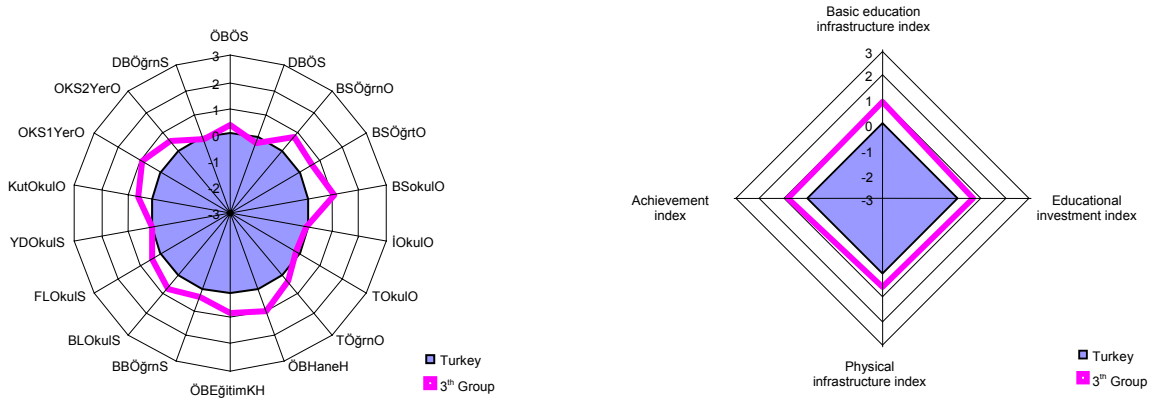


In Graph 1 and Graph 2, wheel and quadrangle of educational opportunities of districts in the first and the second development groups are given respectively. Districts in the first and second development group are the worst districts in terms of educational opportunities at primary schools. As it is seen from Graph 1 and Graph 2, almost all values of indicators are worse than the average values of Turkey. In these groups, only the transporting education indicator is better than reference values. Main reason for this situation is the intensively preferred merged-class education rather than transporting education in these development groups

Graph 2. The wheel and Quadrangle of Educational Opportunities at Primary Schools in Districts in the Second Development Group

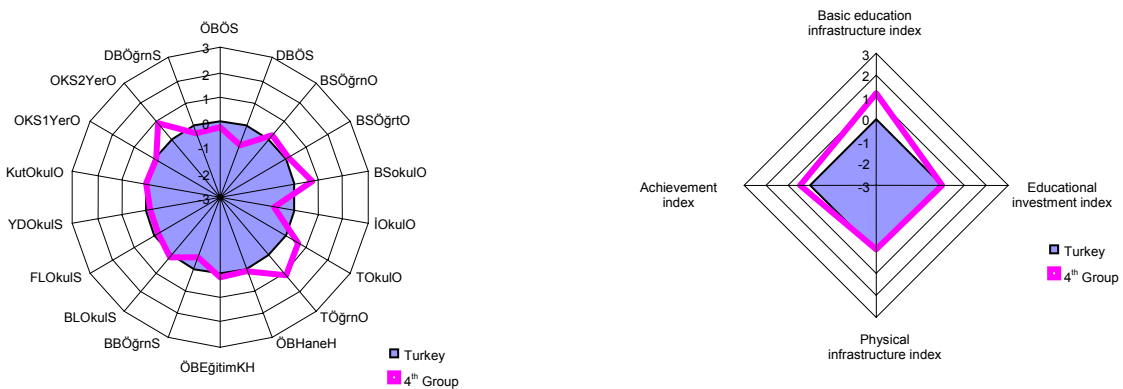


Graph 3. The Wheel and Quadrangle of Educational Opportunities at Primary Schools of Districts in the Third Development Group)



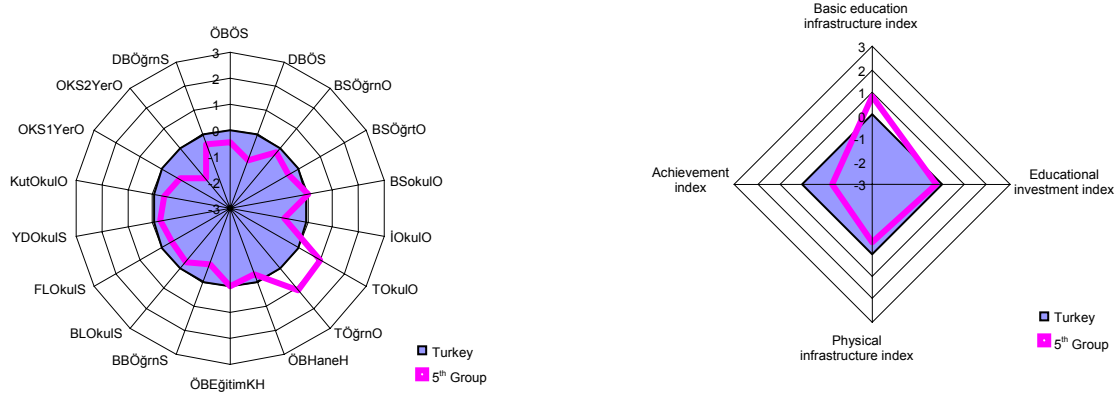
In Graph 3 and Graph 4, wheel and quadrangle of educational opportunities of districts in the third and the fourth development groups are given respectively. It is seen that educational indicators in these groups converge to reference values. Especially, physical infrastructure of schools is similar to the average values of Turkey.

Graph 4. The Wheel and Quadrangle of Educational Opportunities at Primary Schools of Districts in Forth Development Group

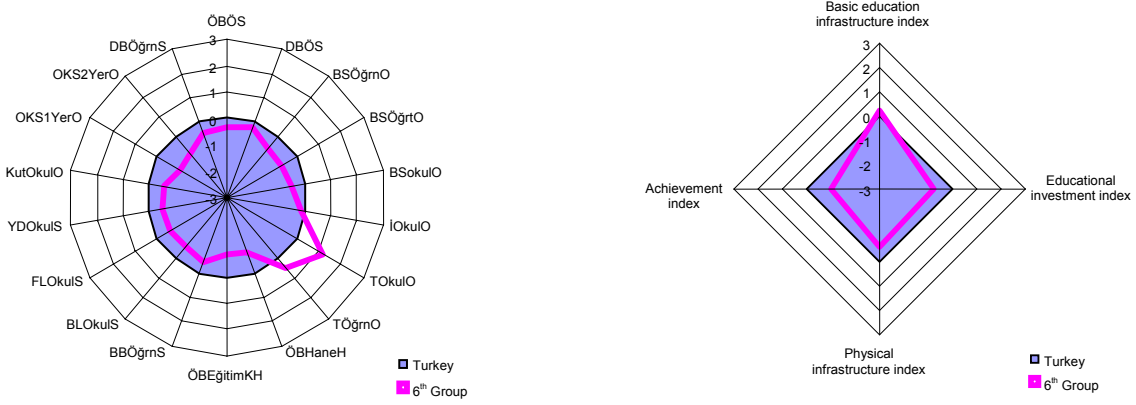


Although districts in the fifth and the sixth development group haven't reached reference values in terms of basic education infrastructure opportunities because transporting education is common, achievement of students in these groups are better than average values of Turkey.

Graph 5. The Wheel and Quadrangle of Educational Opportunities at Primary Schools of Districts in the Fifth Development Group

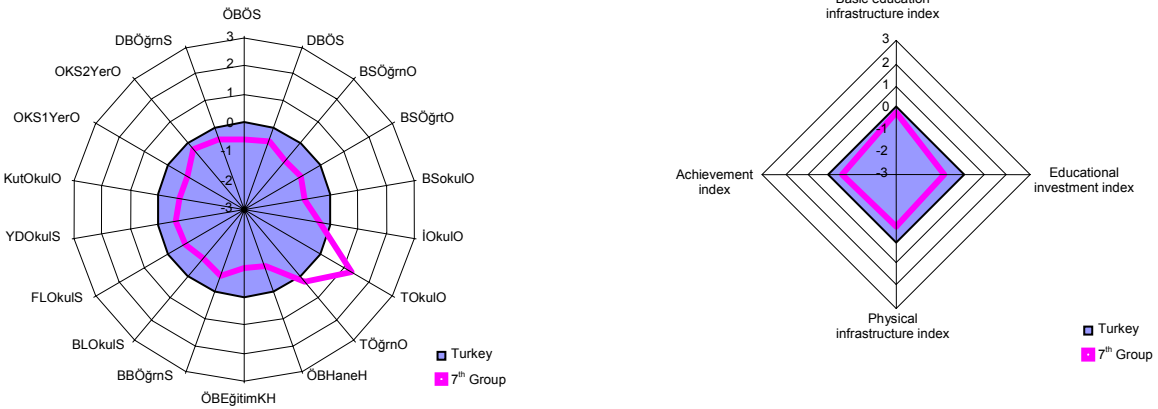


Graph 6. The Wheel and Quadrangle of Educational Opportunities at Primary Schools of Districts in the Sixth Development Group



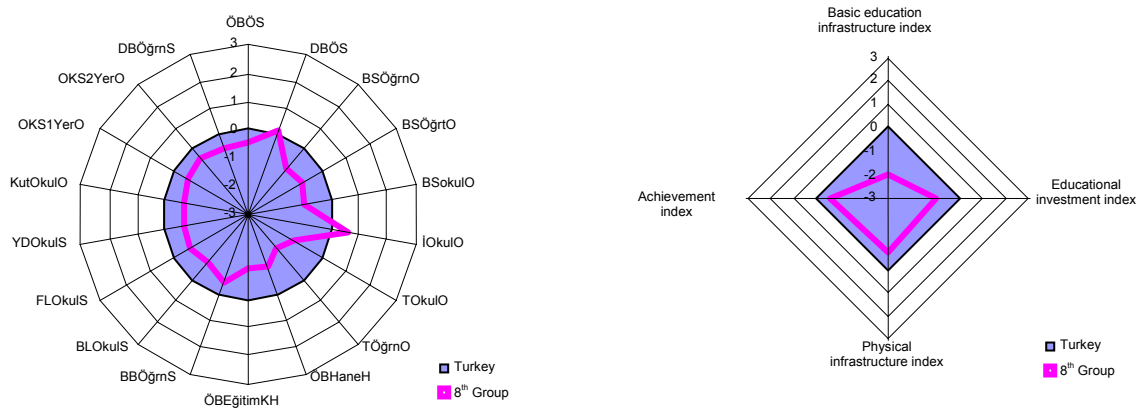
Effect of transporting education is seen in the seventh development group, too, even if it is not as much as in the fifth and the sixth development groups. But, all indicators except for transporting education are better than reference values.

Graph 7. The Wheel and Quadrangle of Educational Opportunities at Primary Schools of Districts in the Seventh Development Group

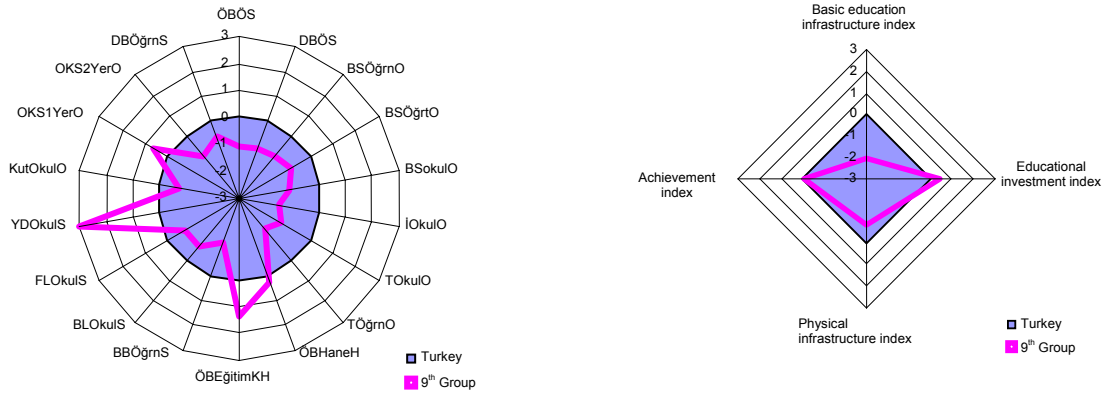


It is seen that districts in the eighth and the ninth development groups are better than the average values of Turkey in terms of all indicators. Especially, basic education infrastructure opportunities are very good in these two groups. But, in the ninth group, investment in education and achievement of students are not enough for a group at this development level.

Graph 8. The Wheel and Quadrangle of Educational Opportunities at Primary Schools of Districts in the Eighth Development Group

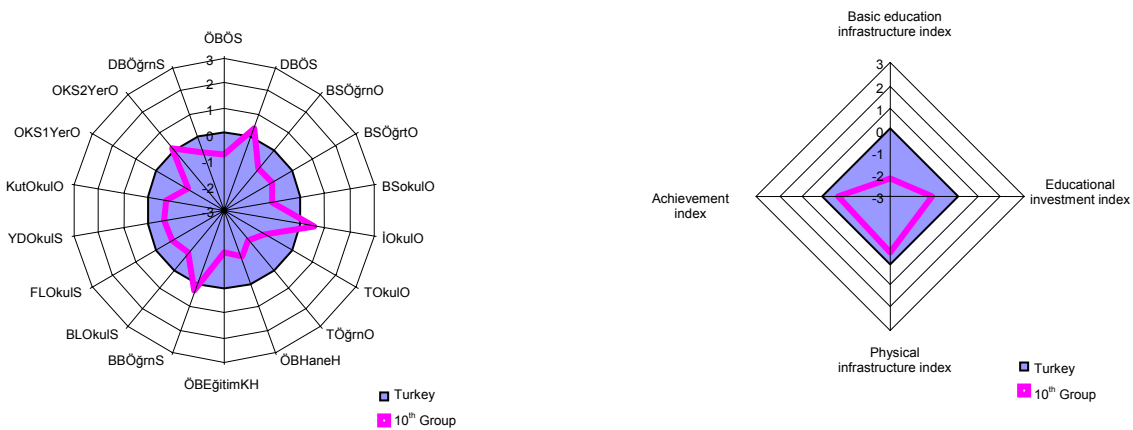


Graph 9. The Wheel and Quadrangle of Educational Opportunities at Primary Schools of Districts in the Ninth Development Group)



The tenth development group is the best group in terms of educational opportunities at primary schools. Basic education infrastructure of schools in the group is very good, also, educational investment is very high level. Due to overpopulation of districts in the group, some indicators such as the number of students per classroom and per computer are a little worse than the reference values.

Graph 10. The Wheel and Quadrangle of Educational Opportunities at Primary Schools of Districts in the Tenth Development Group)

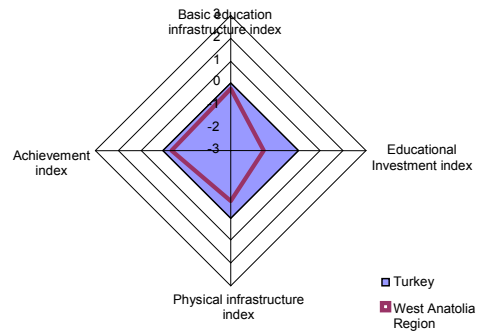
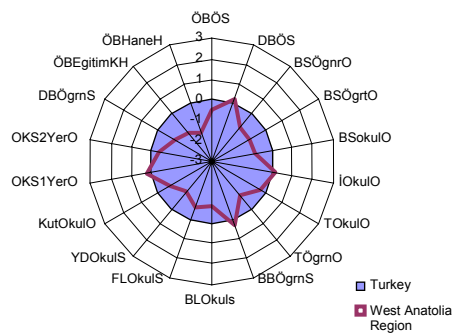


The wheel of educational opportunities is drawn for secondary schools and obtained similar results. But, it is seen that educational opportunities at secondary schools are better than those of primary schools in Turkey. Especially, secondary schools are richer than primary schools in terms of physical infrastructure. Nevertheless, foreign language laboratories are not given consideration in schools in Turkey. Both primary and secondary schools should be supported in terms of foreign language laboratories.

4.2. Wheel of Educational Opportunities by Geographical Regions

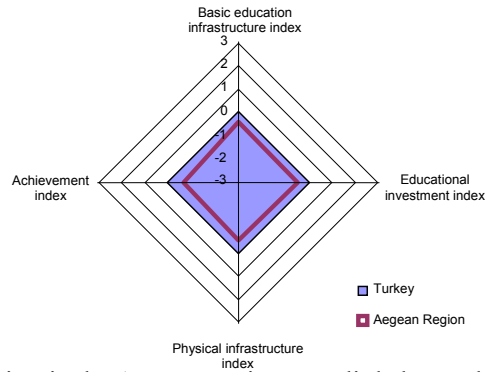
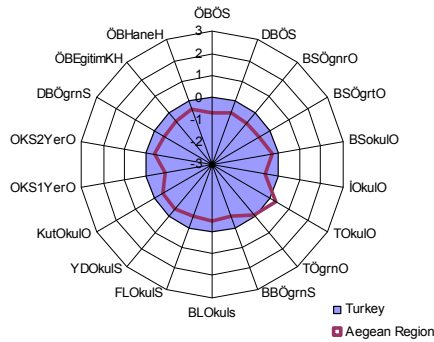
At the same time, the wheels of educational opportunities have been obtained in terms of geographical region, too. But, in this study, the wheels of educational opportunities are only given for primary schools in 3 geographical regions selected.

Graph 11. The Wheel and Quadrangle of Educational Opportunities at Primary Schools of Districts in West Anatolia Region



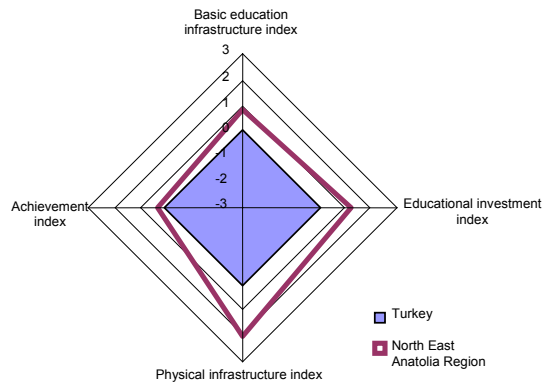
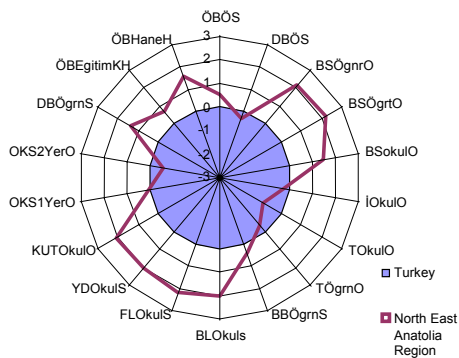
Schools in the West Anatolia Region in terms of physical infrastructure and educational investment are in good status. However, basic infrastructure opportunities of schools and achievement of students in the national exams are the same level as the average of Turkey.

Graph 12. The Wheel and Quadrangle of Educational Opportunities at Primary Schools of Districts in the Aegean Region



It is seen that educational opportunities of districts in the Aegean Region are a little better than those of average of Turkey.

Graph 13. The Wheel and Quadrangle of Educational Opportunities at Primary Schools of Districts in the North East Anatolia Region



Educational opportunities of districts in North East Anatolia Region are worse than average of Turkey. Especially, schools in this region lack physical infrastructure. Despite this, national achievement of the students is slightly better than the average of Turkey, which is a striking result.

4.3. Educational Needs at Primary Schools by Development Groups

Table 6. Educational Needs at Primary Schools and Number of Districts with Educational Needs by Development Groups

Development Groups	Number of Teachers		Number of Classroom		Number of Computer		Number of Computer Laboratories	
	Estimated Need for Teacher	Number of Districts with Teacher Need	Estimated Need for Classroom	Number of Districts with Classroom Need	Estimated Need for Computer	Number of Districts with Computer Need	Estimated Need for Computer Laboratories	Number of Districts with Computer Laboratories Need
1	7.931	37	6.916	37	6.670	32	1.029	37
2	8.060	54	7.211	45	6.248	45	1.139	54
3	8.757	84	10.283	52	10.056	73	1.480	113
4	11.654	76	22.600	52	17.503	69	1.461	189
5	3.609	45	14.831	57	8.437	43	559	142
6	17.987	31	40.486	54	21.130	39	40	20
7	6.051	16	18.685	23	6.648	15	0	3
8	1.071	1	2.568	4	1.079	2	0	0
9	0	0	0	0	0	0	0	0
10	0	0	585	1	653	1	0	0
Total	65.120	344	124.165	325	78.425	319	5.708	558

Table 6. Educational Needs at Primary Schools and Number of Districts with Educational Needs by Development Group (Cont.)

Development Groups	Number of Science Laboratories		Number of Foreign Language Laboratories		Number of Libraries	
	Estimated Need for Science Laboratories	Number of Districts with Computer Laboratories Need	Estimated Need for Foreign Language Laboratories	Number of Districts with Foreign Language Laboratories Need	Estimated Need for Libraries	Number of Districts with Library Need
1	883	37	526	37	755	37
2	1.023	55	678	55	876	55
3	1.240	117	1.036	118	1.079	116
4	1.093	194	1.572	223	1.021	192
5	266	119	1.449	272	354	109
6	11	10	696	142	10	12
7	1	3	270	55	1	2
8	0	0	23	5	0	0
9	0	0	0	1	0	0
10	0	0	0	0	0	0
Total	4.518	535	6.249	908	4.096	523

In Table 6, it is seen that estimated need for teacher for primary schools is 65.120. Also, the number of districts with teacher need is 344. While there is no teacher need in the ninth and tenth groups, which are two development groups with the best educational opportunities, the group with the most teacher need is the sixth group. Other educational needs in the Table 6 can be commented similarly.

Table 7. Educational Needs at Secondary Schools and Number of Districts Having Educational Needs by Development Group

Development Groups	Number of Teachers		Number of Classrooms		Number of Computers		Number of Computer Laboratories	
	Estimated Need for Teacher	Number of Districts with Teacher Need	Estimated Need for Classroom	Number of Districts with Classroom Need	Estimated Need for Computer	Number of Districts with Computer Need	Estimated Need for Computer Laboratories	Number of Districts with Computer Laboratories Need
1	74	2	55	2	70	2	5	2
2	183	19	49	19	178	19	25	19
3	1.310	61	651	61	1.371	61	56	61
4	2.083	144	1.394	144	2.133	144	124	144
5	1.680	182	2.381	182	4.055	182	170	182
6	4.412	165	8.820	165	13.414	165	217	165
7	3.096	98	7.798	98	11.150	98	116	98
8	2.328	32	5.891	32	10.389	32	43	32
9	392	6	832	6	2.119	6		
10			550	4	1.285	4		
Total	15.559	709	28.420	713	46.163	713	757	703

Table 7. Educational Needs at Secondary Schools and Number of Districts Having Educational Needs by Development Group (Cont.)

Development Groups	Number of Science Laboratories		Number of Foreign Language Laboratories		Number of Libraries		Number of Physic, Chemistry and Biology Laboratories	
	Estimated Need for Science Laboratories	Number of Districts with Computer Laboratories Need	Estimated Needs for Foreign Language Laboratories	Number of Districts with Foreign Language Laboratories Need	Estimated Need for Libraries	Number of Districts with Library Need	Estimated Need for Physics, Chemistry and Biology Laboratory	Number of Districts with Physics, Chemistry and Biology Laboratories Need
1	1	2	0	2	3	2	4	2
2	8	19	2	19	17	19	28	19
3	23	61	9	61	39	61	85	61
4	47	144	26	144	83	144	213	144
5	87	182	43	182	116	182	203	182
6	122	165	31	165	184	165	145	165
7	106	98	13	98	137	98	36	98
8	53	32	1	32	74	32	9	32
9	10	6			1	6		
10	3	4						
Total	460	713	126	703	654	709	724	703

In Table 7, it is seen that estimated need for teacher for secondary schools is 15.559. Also, The number of districts with teacher need is 709. When they are compared with primary school, it is seen that the need for teacher at the secondary schools are lower than those at primary schools; on the other hand, the number of districts with teacher need at secondary schools are higher than those at primary schools. While there is no need for teacher in the tenth group, which is the best group in terms of educational opportunities, the group with the most teacher needs for secondary schools is the sixth group. Other educational needs in the Table 7 can be commented similarly.

4.4. Educational Needs of Districts in Undeveloped Groups

In this study, a survey questionnaire was conducted with districts' directors of education in undeveloped groups in terms of educational opportunities at primary and secondary education The aim of the survey is to put forward why educational opportunities in the designated districts are the worst in all districts and to determine precisely what the main problems concerning education are in these districts; thus, to produce some realistic and specific solutions for the districts different from the other districts. As a result of the survey; w can understand there are not enough teachers in the districts, and some schools couldn't conduct educational activities because of maintenance or security problems in the region. Also, in these districts, the number of students who drop out

schooling is very high. Generally, the reasons are that their families don't want them to continue schooling, they contribute to family income and they help with household chore. It is seen that the practice of merged classroom is common in these districts and about half of education directors decided to start new classroom construction in order to stop merged classroom practice. Educational contributions have been provided to almost 90% percent of districts by foundations, associations, private and legal bodies, and finally by MoNE other than current expenditures. Most of the contributions made and sources transferred by MoNE have been used for the purpose of maintenance of schools in the districts. Small fragment of contributions and sources have been used to meet needs of educational materials such as computers, projectors, etc. The most important educational needs are sorted as computer, physics, chemistry, biology laboratories, classrooms, projectors in the districts. In these districts, it has been stated that construction work for 1674 classrooms and 217 schools has bn launched. Finally, the most important education problems are addressed by education directors as cleanness and physical problems of the schools, insufficient investment in education by students' family, insufficient number of teachers, classrooms and laboratories, and low educational level of families, in the order of importance.

5. Conclusions

Huge differences among groups have been observed when educational opportunities are evaluated at a wide range as in this study. With this study, strong and weak points of districts have been set forth in terms of educational opportunities and accordingly the amount of contribution and support to be devoted the districts has been established. Especially, teaching staff and classroom support should be devoted to the districts in the first group. Merged class practices should be ended. Although transporting education is regarded as an educational opportunity by some education authorities, it is costly to students, family and to the state. Hence, alternative solutions should be sought in order to overcome the negative aspects of transporting education.

If analyses in this study can be conducted each year or current period by MoNE, it will be possible to determine the requirements of education for both provinces and districts objectively and to follow the development of districts over a period of time.

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