
THE ESTIMATION OF DIMENSION AND FACTORS OF SCHOOL ABANDON¹

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Abstract

During the transition period, in Romania, the dimension of school abandon had risen. The main goals of the study are: to estimate the school abandon rate by each educational level in Romania, to identify the factors which affect school abandon on urban and rural areas and at development regions level; to analyze the causes of earlier school abandon. In the same time, the analysis had also followed the temporal component, by including in the database the last decade statistical information. The school abandon was measured as the difference between the numbers of pupils/students found at the end of the school year and the same category enrolled at the beginning of the same year.

Key words: school dropout rate, education, ANOVA Method, development region, urban/rural area.

In this paper are identified a series of issues related to school dropout phenomenon at national level. In this regard, the analysis of this phenomenon is realized by categories of education (primary, secondary, vocational, apprenticeship, post high school and foremen), at the level of the two areas (urban and rural) and at development regions level.

Using specific methods, we try to highlight some trends at pupils' level during the period 1990-2009. For each set of data series used in the analysis were pursued the following major issues: to highlight the existing trends in the case of school dropout for the period 2000-2009; the determination of some indicators to characterize the change of school dropout size from one period to another; the school dropout analysis on urban and rural areas. In the last case, the analysis is realized for the period 2000-2009.

The main objectives are related to the identification of the significant characteristics of school dropout phenomenon for the compulsory education and the comparison of the school dropout rate at education level from urban and rural areas.

1. Presentation at country at development regions level.

General characteristics of school dropout –Romania’s case

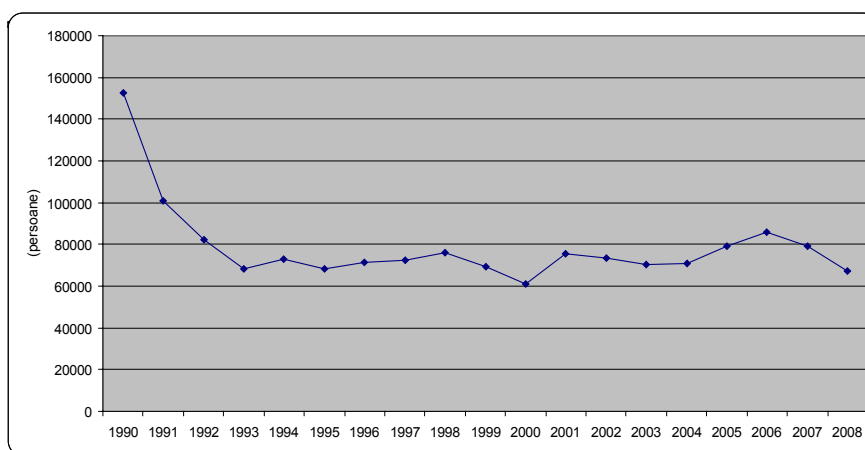
The school dropout rate and the number of pupils who abandoned school during the period 1990-2009 are presented below.

Number of school dropouts and school dropout rate for Romania

Table 1

School year	Number of school dropouts	School dropout rate (%)	School year	Number of school dropouts	School dropout rate (%)
1990-1991	152530	4.9	2000-2001	60947	1.8
1991-1992	100959	3.9	2001-2002	75368	2.3
1992-1993	82190	2.2	2002-2003	73505	2.3
1993-1994	68065	1.9	2003-2004	70480	2.2
1994-1995	72764	2.0	2004-2005	70997	2.3
1995-1996	68278	1.9	2005-2006	79333	2.6
1996-1997	71253	1.9	2006-2007	85609	3.0
1997-1998	72646	2.0	2007-2008	79237	2.8
1998-1999	75990	2.2	2008-2009	67104	2.4
1999-2000	69366	2.0			

The annual number of pupils who left school during the period 1990-2008



The above statistical data reveal a high school dropout level for the first two years after the political changes from 1989. Excepting the first two years after the 1989 regime change, the dropout rate is situated around the 2% value.

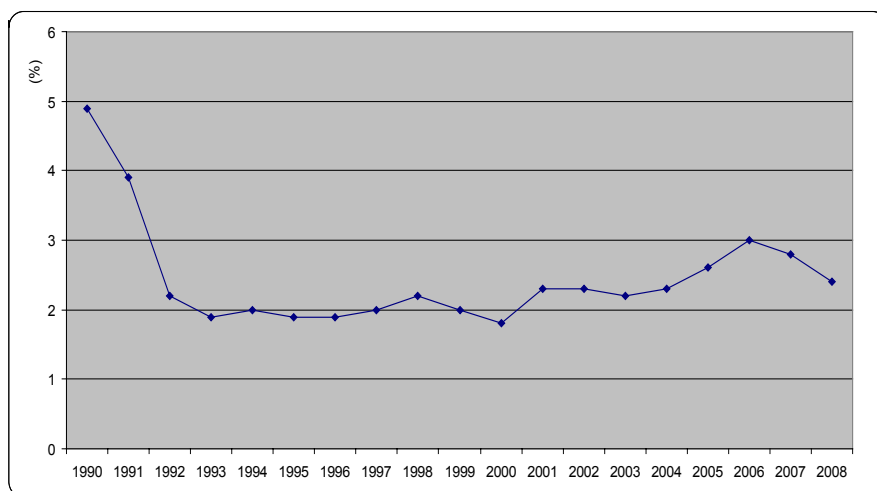
The school dropout rate corresponding to the transition period in Romania can be divided in three time periods:

- the first period, 1990 and 1991, is characterized by a high school dropout rate, which fluctuated around 4%;

- the second period, the years 1992-2000, within which were registered the lowest values of the school dropout rate, these fluctuating around 2%;

- the third period, 2001 and 2008, is characterized by an increasing trend of school dropouts. In all cases, the registered values were higher than 2%. For this period we notice the following: relatively constant level of 2.3% during 2001-2004 and the increase of school dropout for 2004-2006. In 2006 was registered the highest level of the indicator, of 3%. In the next two years, 2007 and 2008, the indicator registered a slight decline.

Annual school dropout rate for the period 1990-2008



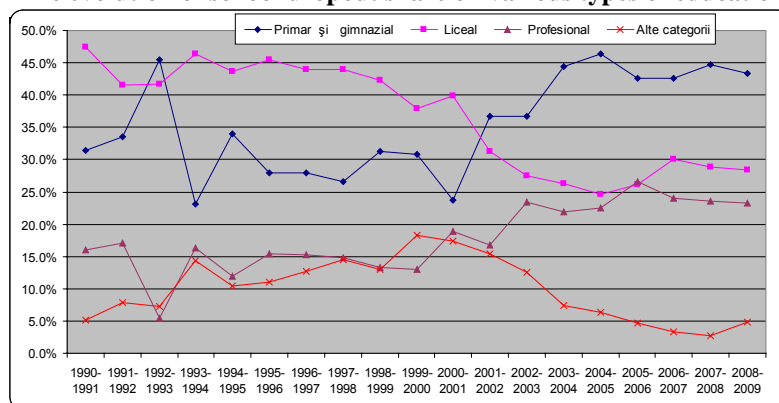
In the school dropout analysis must be pursued if there are significant differences between its size in absolute and relative values between different forms of education. In Table 2 and Figure 3 is presented the evolution of the school dropout share by type of education during the period 1990-2009.

**The repartition of school dropouts on types of education (%)
1990-2009**

Table 2

School year	Primary and secondary education	High school education	Vocational education	Other categories
1990-1991	31,5	47,4	16,0	5,1
1991-1992	33,5	41,6	17,0	7,9
1992-1993	45,5	41,8	5,4	7,3
1993-1994	23,1	46,3	16,3	14,3
1994-1995	34,0	43,7	11,9	10,4
1995-1996	28,0	45,5	15,5	11,1
1996-1997	28,0	44,0	15,3	12,6
1997-1998	26,6	44,0	14,9	14,6
1998-1999	31,3	42,4	13,2	13,1
1999-2000	30,8	37,9	13,0	18,3
2000-2001	23,8	39,9	18,9	17,4
2001-2002	36,6	31,2	16,7	15,4
2002-2003	36,6	27,5	23,4	12,5
2003-2004	44,4	26,3	21,9	7,4
2004-2005	46,4	24,7	22,6	6,4
2005-2006	42,6	26,1	26,6	4,7
2006-2007	42,7	30,0	24,0	3,3
2007-2008	44,8	28,8	23,6	2,8
2008-2009	43,4	28,5	23,3	4,9

The evolution of school dropout share on various types of education



In the following chart is presented the modification of the share of each type of education over the period 1990-2009.

Descriptive characteristics of the shares of each type of education

Table 3

	Primary and secondary education	High school education	Vocational education	Other categories
Average	0.35	0.37	0.18	0.10
Std. deviation	0.018	0.019	0.012	0.011
Minimum	0.23	0.25	0.05	0.03
Maximum	0.46	0.47	0.27	0.18

If at the beginning of the transition period, except for school year 1992-1993, the highest proportion of school dropout has been registered at the high school education level, beginning with the 2001-2002 school year, the highest number of school dropouts was reported for the primary and secondary education. This situation is not at all favorable because we believe that economic and social losses are much higher for a school dropout in the case of primary and secondary education, unless for the one registered in the case of high school education. Beginning with the 2000-2001 school year, has been registered a considerable increase of the share of school dropout for the vocational education.

The size of school dropouts on types of education

Table 4

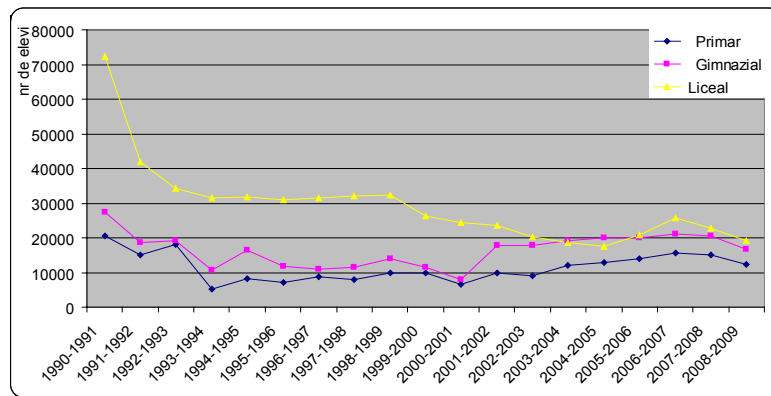
School year	Primary and secondary	Primary	Secondary	High school	Vocational	Apprenticeship	Post high school	Foremen
1990-1991	47999	20538	27461	72304	24420	7453	919	354
1991-1992	33814	15056	18758	42009	17207	5156	1708	1065
1992-1993	37423	18136	19287	34322	4442	4906	52	1045
1993-1994	15733	5116	10617	31534	11077	5701	2682	1338
1994-1995	24775	8276	16499	31812	8632	4756	2049	740
1995-1996	19104	7211	11893	31058	10549	4644	2923	263
1996-1997	19949	8855	11094	31372	10923	4683	3454	872
1997-1998	19291	7920	11371	31974	10794	3992	5899	696
1998-1999	23806	9881	13925	32197	10068	3090	6280	549
1999-2000	21375	9886	11489	26292	9036	4613	7504	546
2000-2001	14491	6591	7900	24321	11523	4399	6032	181
2001-2002	27617	9875	17742	23550	12614	4666	6692	229
2002-2003	26928	9060	17868	20232	17167	4193	4674	311
2003-2004	31284	12093	19191	18513	15442	1044	4012	185
2004-2005	32951	12970	19981	17516	16021	27	4375	107
2005-2006	33810	13877	19933	20705	21084	-	3590	144
2006-2007	36516	15552	20964	25674	20574	-	2835	10
2007-2008	35489	15062	20427	22838	18709	-	2191	10
2008-2009	29102	12265	16837	19107	15619	-	3088	188

Following the previous data, we observe that the number of school dropouts is rising with the transition from a form of education to another. Thus, for the majority of school years corresponding to the period 1990-2009, the following relation is verified:

$$NAP < NAG < NAL$$

Where: NAP – the number of school dropouts for primary education; NAG – the number of school dropouts for secondary education and NAL – the number of school dropouts for high school education.

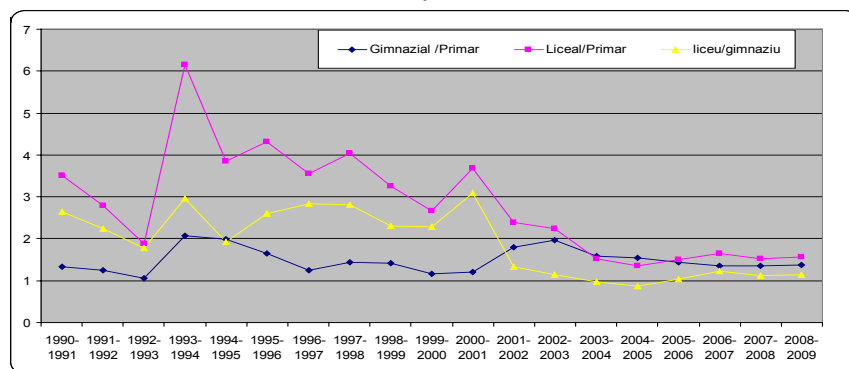
The evolution of the number of pupils who left school at the level of primary, secondary and high school education during the period 1990-2009



Excepting of one school year, 2004-2005, when the value of the ratio between the number of school dropouts for high school and secondary education was smaller than 1, for all other cases, the values for all three types of ratios were higher than 1.

We must note that a high number of children from primary education are abandoning school every year from various reasons. In the past five school years, the annual number of school dropouts for the primary education was situated between 12 and 15.5 thousands persons. This situation will lead to significant losses on economic and social plane, generated by the reduction of the qualification level of workers, high social costs and costs which will be supported in the future for the reinsertion activities in the school system of the persons who have left school.

The ratio between the number of school dropouts for secondary and primary education, for high school and primary education and for high school and secondary education



- The risk of school dropout rises once with the increase of pupil's age. Thus, between primary, secondary and high school education, the highest rate of school dropout was registered at high school level, followed by the one for secondary and primary education;

- For all three types of education, the lowest school dropout rates were registered for the period 1993-2001;

- A significant increase of school dropout rate for all three forms of education has been registered since the 2001-2002 school year;

- The highest values of school dropout were registered at the level of vocational, post high school and apprenticeship education. Should be noted the higher school dropout rate (in most years is higher than 6.0%) at the level of post high schools.

**Characteristics of school dropout for urban and rural area
The school dropout rate on types of education and on areas
(2000 - 2009)**

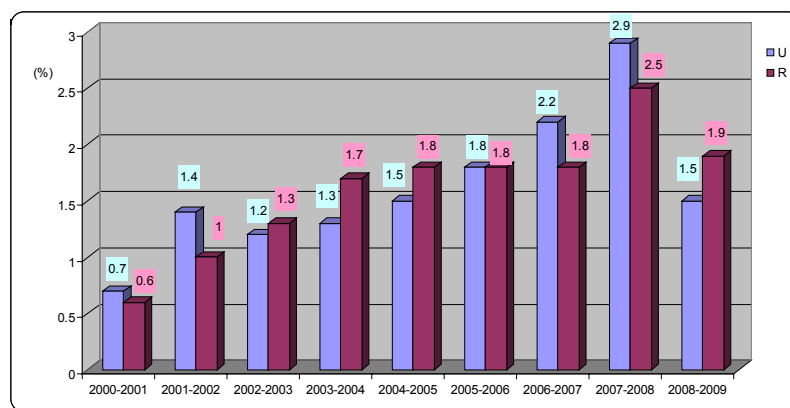
Table 5

School year	Primary and secondary education		High school education		Vocational education	
	Urban	Rural	Urban	Rural	Urban	Rural
2000-2001	0.7	0.6	3.4	5.0	7.1	4.3
2001-2002	1.4	1.0	3.2	4.4	7.2	4.8
2002-2003	1.2	1.3	2.7	3.7	8.0	7.5
2003-2004	1.3	1.7	2.4	2.8	6.4	3.4
2004-2005	1.5	1.8	2.3	2.1	5.9	4.0
2005-2006	1.8	1.8	1.6	4.0	7.6	6.7
2006-2007	2.2	1.8	3.3	3.0	8.4	7.4
2007-2008	2.9	2.5	2.9	3.5	8.7	7.4
2008-2009	1.5	1.9	2.5	1.9	8.3	8.1

• For primary and secondary education, during the period 2000-2008, we observe a school dropout rate increase, both at the level of the schools from urban area and at the level of the ones from the rural area. For the school year 2008-2009 we observe a decrease of the school dropout rate size on the two areas. However, the values for the school year 2008-2009 are much higher than the ones from the beginning of the period. To establish if between the two areas there is a significant difference related to the school dropout rate for primary and secondary education, ANOVA method is applied. The F Statistics value suggest us that there aren't significant differences between the two data series;

• The analysis realised separately, for primary and secondary education, is highlighting the same conclusions, presented above. Both, in the case of these two data series, we observe that there are no significant differences between the schools from the two areas related to the school dropout evolution during the period 2000-2009. Both in urban area and in rural area, the school dropout rate is higher for the pupils from secondary education in relation with the primary one. The exception was registered for the school year 2000-2001, when, at the level of urban area, was observed a higher school dropout rate for the primary education compared with the secondary education, but this difference is insignificant.

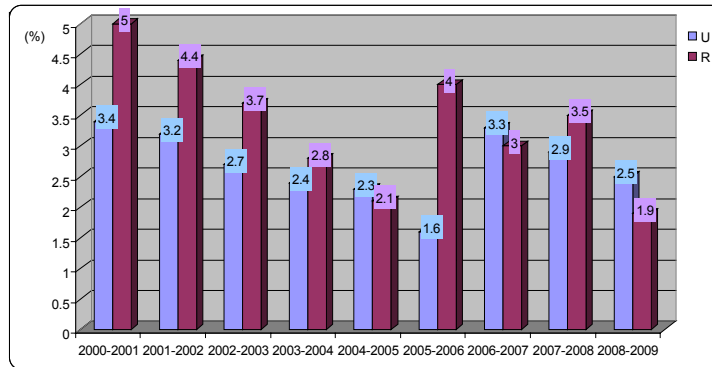
The evolution of the school dropout rate for primary and secondary education, for urban and rural areas, during the period 2000-2009



The school dropout rate in the case of high school education from urban area, during the analyzed period is situated between 1.6% (value registered for the school year 2005-2006) and 3.4% (value registered for the school year 2000-2001). In the case of high school education from rural area, the values are situated between 1.9% (value registered for the school year 2008-2009) and 5.0% (value registered for the school year 2000-2001). In order to establish if between the school dropout data series from urban and rural area there are significant differences, ANOVA method is applied. F Statistics value, equal to 3.00, allows us to decide if the school dropout rate for the urban area is different from the one from rural area (for the significance level $\alpha = 0,1$) In these conditions, we can affirm that, at the level of high school education from rural

area, is registered a school dropout rate higher than the one from urban area. During the whole period, the average school dropout rate for the high school education from urban area is equal to 2.7%, and the one from rural area is equal to 3.4%;

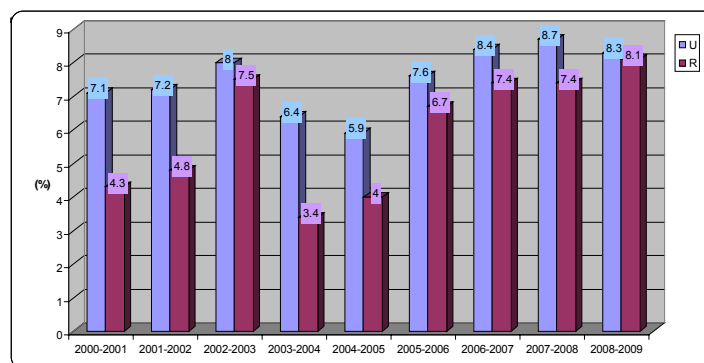
The evolution of the school dropout rate for high school education, for urban and rural areas, during the period 2000-2009



- The school dropout rate in the case of vocational education from urban area is varying at the level of the analyzed period between the lowest value - 5.9% (value registered for the school year 2004-2005) and the highest value - 8.7% (value registered for the school year 2007-2008). In the case of rural area, the dropout rate varies between 3.4% (2003-2004) and 8.1 (2008-2009);

- In order to establish if between the school dropout from the urban and rural area, in the case of vocational education, exist major differences, ANOVA method is applied. F Statistics value, equal to 5.2, allows us to decide if between the urban and rural area there are significant differences. During the period 2000-2009, the annual dropout rate in the case of vocational education from rural area, equal to 6.0%, is lower than the one from urban area, which is equal to 7.5%.

The evolution of the school dropout rate for vocational education, for urban and rural areas, during the period 2000-2009



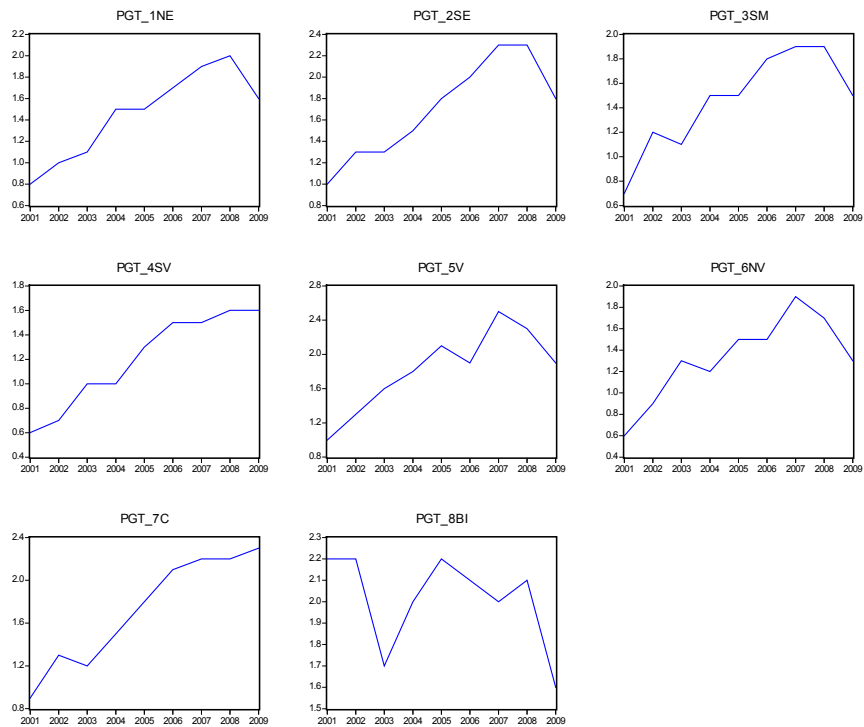
The school dropout size for the primary and secondary education is relative equal in the urban and rural areas. Alternatively, the scholar dropout at high school level is higher for the rural area and for the vocational one is higher for the urban area.

Characteristics of school dropout at development regions level

In Table 6 is presented the school dropout rate for the primary and secondary education (classes 1-8) at the level of the eight Romanian development regions.

Using these data series we will establish if between the eight development regions there are significant differences related to school abandon at the level of primary and secondary education.

The school dropout rate at the level of compulsory education (primary and secondary), at development regions level, for the period 2000-2009



The school dropout rate at the level of primary and secondary education, at development regions level, for the period 2000-2009

Table 6

School year	North-East Region	South East Region	South Region-Muntenia	South West Region	West Region	North West Region	Centre Region	Bucharest-Ilfov Region
2000-2001	0.8	1.0	0.7	0.6	1.0	0.6	0.9	2.2
2001-2002	1.0	1.3	1.2	0.7	1.3	0.9	1.3	2.2
2002-2003	1.1	1.3	1.1	1.0	1.6	1.3	1.2	1.7
2003-2004	1.5	1.5	1.5	1.0	1.8	1.2	1.5	2.0
2004-2005	1.5	1.8	1.5	1.3	2.1	1.5	1.8	2.2
2005-2006	1.7	2.0	1.8	1.5	1.9	1.5	2.1	2.1
2006-2007	1.9	2.3	1.9	1.5	2.5	1.9	2.2	2.0
2007-2008	2.0	2.3	1.9	1.6	2.3	1.7	2.2	2.1
2008-2009	1.6	1.8	1.5	1.6	1.9	1.3	2.3	1.6

To determine whether between the eight regions there are significant differences related to school dropout rate for the compulsory education ANOVA method is applied. F statistics value, equal to 3.88, is showing that the averages at the level of the eight development regions are different ($\alpha = 0,05$): Centre – 1.72, North East – 1.46, North West – 1.32, West – 1.82, South-East – 1.70, South – Muntenia – 1.45, South – West – 1.20% and Bucharest – Ilfov – 2.01.

Causes of earlier school abandon

In order to combat school dropout should be considered the apparition and development causes of this phenomenon and the level of a country, region or community. Among its most important factors we mention the following ones:

(1) Causes related to the economic and social characteristics of the young man who leaves the education system preterm. We must take account that school dropout phenomenon has a social nature, but the individual is the one who takes the decision to leave the education system earlier. Among the most important factors in this category there are: ***The economic and social environment*** in which the young man lives before leaving school; ***Parents' educational profile***. Generally, the vulnerability to school dropout is higher for the childs belonging to parents with a lower education level; ***The membership of the young man to a particular socio-economic or ethnic group***. The school dropout rate is much higher among children from migrant families. According realized calculus, the school dropout rate among young people from migrant families is 26.4%, while for young people from native families is only 13.1%. Also, in this study is mentioned that the school dropout size is higher for Roma population. "These groups tend to face to less family support, to be the subject of discrimination in the education system and to have a more limited access to informal and non-formal learning opportunities outside the compulsory education" [1].

(2) *The causes related to the quality of the education system are playing an important role in the case of early school abandon at a community level.* A modern education system must implement those instruments and teaching methods to support a young person in difficulty to adapt to the learning process. By applying quantitative methods were demonstrated the following: *The decrease of the number of pupils/students per teacher* can be an important factor in preventing and reducing school dropout; *The size of education expenditures in GDP* represents an important factor of the learning process quality. The decrease of the education expenditures share in GDP below a certain level leads to a reduction of the quality of learning and, thus, to increase the apparition risk of school dropout phenomenon at the level of a school population vulnerable at this phenomenon.

(3) *Causes related to economic and social development of a region or county.* Generally, in the case of counties or cities where the unemployment rate is higher, we also meet a higher school dropout rate; The school dropout rate is higher for the counties where the destruction of industrialization process was accelerated. A higher rate of school dropout is recorded for the counties with a lower level of development (measured by GDP per capita).

Conclusions

In order to realize the analysis at national level across the entire school population were used data sets on school dropout for the period 1990-2009. For a thoroughgoing study on the two areas (urban and rural) and by type of education (primary, secondary, high school, vocational and post high school) were used data series for the period 2000-2009.

After processing the data series, have been identified a series of characteristics of school dropout at national level. The most important issues were related to the comparative analysis of school dropout at the level of population on various types of education, to the comparison of school dropout at the level of the schools from rural areas and for those from urban areas.

The political changes from 1989 have determined an increase of school dropout among pupils. Thus, during the first two years after the political changes from 1989, was recorded the highest school dropout level for all types of education. The dropout rate was stabilized during the next period around the 2% value. Even in these conditions, in Romania is registered one of the highest school dropout rates from the European Union.

At the level of the analyzed period, situated between 1990 and 2009, are distinguished three time periods that have different school dropout characteristics: the first period, which includes two academic years, 1990-1991 and 1991-1992, is characterized by a very high school dropout rate, the second period is situated between the years 1992-2000 and is characterized by a school dropout rate that has fluctuated around 2%, the third period is situated between 2001 and 2008 and is characterized by an increasing trend of the values for the indicator, closed to 3%.

During the analyzed period, the school dropout share has been modified

on each form of education in the total number of school dropouts registered at the national level. If, at the beginning of the transition period, the largest share of school dropout has been registered at high school education level, since 2001-2002 school year, the most retirements are recorded for the population of pupils from primary and secondary education.

Generally, the number of school dropouts increases with the transition from a form of education to another. Thus, for most school years, the number of school dropouts for primary education is lower than the one for the secondary education and the number of school dropouts from the secondary education is lower than the one from high school education.

For primary and secondary education there are no major differences between the school dropout rate of pupils from urban and rural areas. Alternatively, the school dropout at high school level is higher for the pupils from rural area and for the pupils from the vocational education is higher for the ones from urban areas.

Acknowledgements

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