

Romanian Journal of Communication and Public Relations

Volume 12, no. 2 (19) / 2010

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**Faculty of Communication
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Arguments for a New Policy Dialog on Access and Equity in Romanian Higher Education

Abstract

This paper presents the results of a research on two national representative samples of high school pupils and freshmen from state universities in Romania.¹ It focuses on reasons for dropping school during high school or during the first undergraduate year, and on factors that encourage pursuing higher education (bachelor's degree or master's degree). We construct theoretical models using demographic predictors, as well as a new dimension concerning materialistic values, in order to identify sources of inequity in higher education to undergraduate and graduate levels, which will be further used to suggest education and employment policies recommendation to improve chances to access to high levels of education. Findings show that gender is a key predictor, showing general trends of evolution in higher education. The most prominent sources of inequity are family income and parents' level of education, as well as a dimension of the materialistic scale, the role of possessions in defining success. We also suggest new areas of inquiry in the field of education.

Keywords: higher education, access and equity, education and employment policies, dropping school

1. Introduction

Over the last 20 years, the higher education system in Romania has undergone completely unprecedented transformations in all sectors. Some of these took place mainly under the pressure of the market (the emergence of private universities; the need for a broader choice of studies, both by setting up new curricula and by creating new forms of course delivery – distance education, development of teaching programs in foreign languages, etc.; the dramatic increase in the participation rate / access in higher education), while others were policy driven (reform of university management, of the financing system, introduction of new funding mechanisms for universities, both for the teaching and research components; the introduction of measures to address equity in higher education, and so on.) (OECD, 2000; Marga, 2001; Korca, 2008). Obviously, all these transformations took place at different speeds and with different outcomes, some of the above areas have reached functioning standards consistent with those

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found in other European countries, while in other fields, although progress is observed, there is still more to be done. The latter category includes policies related to access and equity in higher education – the area of interest for this article.

2. Theoretical Framework

Access and equity in higher education has always been a sensitive topic. Not long ago, in Europe, the subject was treated ideologically, as higher education had been considered the attribute of the few who belonged to families with a certain social status. Therefore, among the pressures that led to the massification of higher education were those related to its democratization, meaning opening the doors to all citizens, and thus ensuring that education has become much more equitable – or so it is believed (World Bank, 2000; Santiago *et al.*, 2009; Scott, 2009).

The next important debate over the access and equity of the field was related to economy, as experts in the economic field indicated that a higher level of education sets the basis not only for a higher social status and a higher income for a university degree holder, but, at the same time, it brings about a stronger economic development (Jimenez and Patrinos, 2008; Johnstone and Marcucci, 2010). These arguments accelerated the policies that encouraged the massification of higher education, as concept of *knowledge society* was becoming more and more prominent in the public arena and debates. Thus, we were witnessing in Europe, and almost everywhere in the world, a dramatic increase in the proportion of tertiary education graduates in the general population. In Europe, this indicator went from 1950's average of 10% (with a maximum of 18% in the Nordic countries and a minimum of 5% in the communist states) and to 2007's average of 43 % (with a maximum of 55-60% in the Nordic countries and a minimum of 25% in the former communist countries) (Santiago *et al.*, 2008; Koucký *et al.*, 2009). Along with the change of these indicators, the mission of the universities and the nature of the challenges they have to face have changed profoundly and substantially.

Further studies on access and equity have brought to light new elements. Thus, the idea that the problems of access and equity in higher education have as primary cause the social status was easily fought with the argument that today, after we have witnessed the massification, we still have cases related to gender inequity, age, place of residence, race, religion, physical handicap or political vision. Also, the idea that massification would address many issues of fairness stands only partially, as the relation between access and equity is not linear, but very complex, and takes into consideration an important number of variables. This is why, in the recent years, the studies focused on access and equity have been diversified, experts trying to better understand this phenomenon and the different ways it can be addressed (Altbach *et al.*, 2009).

3. Romanian Challenges

Romania is one of the countries that, until 1989, showed characteristics significantly different from the other European countries regarding the dynamics of higher education, a gap caused mainly by the communist policies promoted in Bucharest. Because of its specific approach, in 1989 Romania had one of the lowest Gross Enrolment ratios in Europe – below 10%, Albania and Malta being the only countries which reported lower numbers at that time

(UNESCO, 1997). Therefore, since 1990, access and equity policies have become an immediate priority.

Like in many others states, access and equity policies were primarily aimed to massively increase the number of students and, generally, this objective was accomplished. Thus, from 167,041 students registered in 1989 (Sadlak, 1990), today there are more than 800,000 enrolled students in Romania (Johnstone, 2008). The number of state universities increased from 38 in 1989, to 49 in 2009, to which a significant number of private higher education institutions have been added, which are accredited or in process of accreditation. This brings the total number of higher education institutions in Romania today to over 120. Moreover, a series of affirmative action policies have led to an improvement in access and equity issues regarding minorities or children coming from rural areas.

However, all these policies promoted in the past 20 years have not yet succeeded in ensuring a comfortable position for Romania. According to the data gathered by the World Bank in developing the research *Introducing a Student Loan Scheme in Romania. A Discussion Paper*, Romania has still one of the lowest participation rates in Europe and regarding to the distribution of admission on income quintiles, only 2% of those coming from the most socially challenged families (Incomes quintile 1) manage to graduate, while the at the opposite pole (Income quintile 5) the percentage is 43.1%. The discrepancy remains very high also when we analyze the rural / urban ratio; only 3.7% of the young individuals (ages between 25 and 29) from rural areas have completed higher education, while the percentage rises to 27.2%² for urban areas (Johnstone *et al.*, 2008).

These data and their popularization in the media made the discussion on access and equity in Romanian higher education reappear on the public agenda. In this context, the National School of Political Studies and Public Administration launched a comprehensive study on how the Romanian authorities could address in the future the issues of access and equity in higher education. The results presented in this article are only one of the outcomes of the study, and they capitalize both from the present research and from the experience of other research projects on education, in general, and on the policy dialogue associated to it. Also, this article is only the introduction for a larger series of articles and other publications addressing the topic.

4. Research Questions

Taking into account this theoretical framework and the Romanian medium and long-term educational strategy, we propose the following research questions regarding pupils and freshmen (first year students enrolled in college):

RQ1a: What factors influence pupils in general when dropping out the school?

RQ1b: What factors influence pupils in general to enroll in university?

RQ2a: Which are the factors that particularly influence freshmen when dropping out the school?

RQ2b: Which are the factors that particularly influence freshmen to think of enrolling lately in a master program?

Beyond the socio-demographical factors as family income, parents education, area of residence, gender, we took into consideration pupils' value orientation, particularly orientation

towards materialistic values, whether one or both parents are working abroad, and the distance between home and school or faculty.

The research outcomes are at the basis of future recommendations for policies and strategies, which should release the obstacles between pupils and higher education system in Romania. Therefore, the research questions are strictly related to the possibility of intervention through social policies that would simulate access to higher education, especially for risk-involved groups.

5. Methodology

We have conducted two national representative surveys using one sample (n=2642) of pupils from high school and one sample (n=1402) of freshmen from the public universities of Romania, using a multistage sampling design. In the first stage we divided Romanian 42 counties in four layers (treating Bucharest as a separate layer) using the rate of high school dropping for the school for the 2008-2009³ as a stratification criteria. For the second stage we randomly⁴ drew 17 counties (four for each layer). In the third stage we extracted classes from each selected county in two layers: classes from rural and small cities (less than 20 000 inhabitants) and classes from medium and large cities (more than 20 000 inhabitants). For the last stage we randomly drew 124 classes⁵ taking into account the size (number of the classes) of the layers.

The freshmen sample contained only students from public universities because we had not enough information about private universities from Ministry of Education, Research, Youth and Sport, so that we could not select one sample of both type of universities even though we initially wanted comparable figures for both public and private universities. For the freshmen sample we used a multistage sampling design too. In the first stage we divided the public universities in four layers using the number of freshmen enrolled in each university. In the second stage we randomly drew 15 universities taking into account the size of each layer. Five groups of students were questioned from each of the selected universities. Because we increased the chances of larger universities from the first layer to be drawn twice, University Babe?-Bolyai from Cluj had 10 groups of student selected in the sample. In the third stage we randomly drew, from every selected university, the faculty, bachelor field, and finally the specialization. When two or more groups were found at this stage, the field operator would choose randomly one of them.

In both surveys the questionnaires were collectively administrated in schools/faculties by field operators who interviewed all pupils/students from the selected classes/student groups.

Therefore the samples are representative only for the pupils/freshmen who usually go to classes or seminars. We do not have information about pupils or first-year students who had abandoned school/faculty at the time of the research. To fill this gap we are planning to continue the present survey using a qualitative research based on in-depth interviews with different educational system stakeholders and with pupils/freshmen who already dropped school.

Compared to other research on leaving school earlier we analyzed social values orientation that could play a role in the intention to continue education, particularly the presence of the materialistic *versus* non-materialistic values. In this respect we used the *Values-Oriented Materialism Scale* (VOMS) developed by Marsha L. Richins and Scott Dawson (1992). The scale has three components: *acquisition centrality*, *the role of acquisitions in the pursuit of*

happiness, and the role of possessions in defining success. The first one refers to the fact that „materialists place possessions and their acquisitions at the centre of their life”, the second one „view these as essential to their satisfaction and well-being in life”, and the third component underlines that „materialists tend to judge their own and others’ success by the number and quality of possessions accumulated” (Richins, Dawson, 1992, 304).

6. Measurements

To answer the research questions, we had to recode variables in the database, in order to predict school dropping and intention of further continuing studies from independent variables. First of all, the materialism scale for high school pupils was constructed using 13 items out of the original 18 during the pretesting phase. Some items did not group within the factors and they were excluded. When collecting data we calculated again the scale reliability and this time only 10 items remained. Table 1 shows the rotated solution of the principal components factor analysis, using varimax rotation. We kept factors with eigenvalues more than 1; they explain 64.759 of the variance.

In all further analysis we will name VOMSH *the role of acquisitions in the pursuit of happiness*, VOMSS *the role of possessions in defining success*, and VOMSC the subscale *acquisition centrality*.

Table 1. Factor solution with varimax rotation for the materialism scale for high school pupils.

Rotated Component Matrix*			
	Component		
	VOMSH	VOMSS	VOMSC
I would be happier if I owned nicer things.	.850	.149	.093
I'd be happier if I could afford to buy more things.	.838	.130	.051
My life would be better if I possessed luxury goods.	.664	.396	.060
My life would be better if I owned certain things I don't have.	.654	.319	.019
I place much emphasis on the amount of material objects people own as a sign of success	.123	.732	.086
Some of the most important achievements in life include acquiring material possessions.	.279	.723	.038
The things I own say a lot about how well I'm doing in life.	.255	.712	.027
I admire people who own expensive homes, cars, and clothes.	.164	.699	.147
I sometimes buy things that I don't necessarily need.	.068	.044	.895
I enjoy spending money on things that aren't practical.	.063	.157	.873
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.			

* Rotation converged in 5 iterations.

The materialism scale for freshmen results from a factor analysis of 12 items. We used a principal components factor analysis, with a varimax rotation, applied to the 13 questions of the scale. One of the items was eliminated, and the 12 items grouped into 3 factors (with eigenvalues greater than 1), explaining 60.79% of the variance. The factor solution is shown in Table 2.

Table 2. Factor solution with varimax rotation for the materialism scale for freshmen.

Rotated Component Matrix*			
	Component		
	VOMSH	VOMSS	VOMSC
I would be happier if I owned nicer things.	.871	.096	.082
I'd be happier if I could afford to buy more things.	.869	.035	.048
I have all the things I really need to enjoy life	.719	.249	.034
My life would be better if I possessed luxury goods.	.648	.362	.127
My properties are important for me.	.510	.268	.216
I place much emphasis on the amount of material objects people own as a sign of success	.263	.704	.210
I admire people who own expensive homes, cars, and clothes.	.309	.697	.116
Some of the most important achievements in life include acquiring material possessions.	.427	.679	.090
The things I own say a lot about how well I'm doing in life.	.360	.664	.114
Compared to people I know, I consider properties less important.	-.126	.413	-.082
I sometimes buy things that I don't necessarily need.	.087	.037	.896
I enjoy spending money on things that aren't practical.	.110	.121	.875
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.			

* Rotation converged in 5 iterations.

The factor solution replicated in part the work of Richins and Dawson (1992), showing three dimension of the materialism scale: acquisitions centrality (VOMSC), with five items showing values greater than .400, the role of acquisitions in the pursuit of happiness ("VOMSH" from now on), with five items, and the role of possessions in defining success ("VOMSS" from now on), with two items.

The item "Compared to people I know, I consider properties less important." was coded in a reverse order, to keep the coherence of the scale.

We recoded all ordinal variables into dummies, to use them in logistic regressions. To avoid co-linearity, parents' education was coded as "1" if any of the parents has higher education, and 0 if none of them finished college. Income was recoded as to approximate families who can afford to buy at least some expensive goods (coded as 1), and families who cannot (coded

as 0). Gender was recoded as Female (1) and Male (0), and decision to pursue a bachelor program (for pupils) or a master program (for students) as Yes (1) or No (0). “Time to get to school” is a continuous variable described as pupils’/freshmen’s needed time (in minutes) to go to school.

For high school pupils database, we recoded high school residence as rural (1) (if the name of the place in official records was a “village”) and (0) for “town” or “city” plus “Bucharest”).

For freshmen database, we recoded parents’ residence as rural (1) and urban (0), clustering all cities bigger than 20 000 inhabitants (including Bucharest), respectively all towns smaller than 20 000 inhabitants. (chi square test showed no significant difference between rural area (less than 5 000 inhabitants) and small towns (less than 20 000 inhabitants), therefore we considered rural area as all town with less than 20 000 inhabitants.

For pupils, another selected variable was parents’ encouragement to have good grades in school. The variable was recoded as: (1) if parents encouraged very much the pupil to have high grades, and (0) if parents gave some encouragement or no encouragement at all.

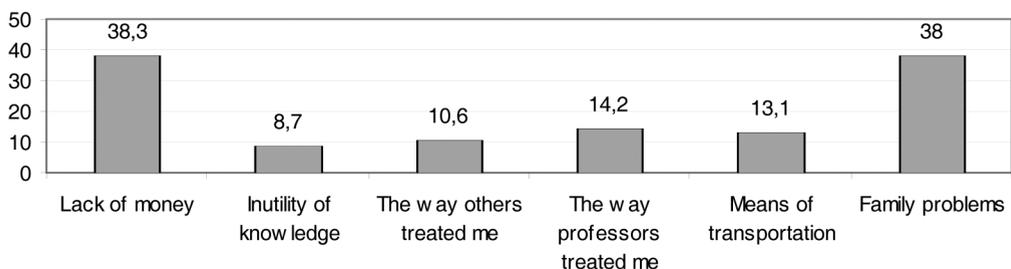
7. Findings for High School Level

We will analyze separately both studies (for high school pupils and freshmen), and then bridge the findings together in the Discussion section.

First of all, estimated for dropping school (The wording of the question was “Have you ever been in the situation of dropping school?”) showed that 12.8% of pupils have given thoughts to abandoning school at a certain point in their high school years.

What factors influence pupils in general when dropping out the school? First of all we should take into consideration the reasons of dropping school as seen by pupils. The respondents considered that the most important reasons for dropping out schools were the lack of money and the family problems (Figure 1).

Figure 1. Why did you consider dropping school?



As expected, there is a significant positive correlation between the family income and the risk of dropping out school for financial reasons ($\tilde{r} = .311$, $p < .01$, $N = 285$). As far as dropping school because of family problems is concerned, the research outcome shows that pupils with such problems are not especially those who have both parents working abroad ($r = .001$, $p = .99$, $N = 300$) As a matter of fact, instead of the common opinion expressed in mass media, pupils from families where both parents are working abroad do not necessary have lower grades ($r = -.022$, $p = .271$, $N = 2568$) and they are not less encouraged by families to have high school performance ($\tilde{r} = .000$, $p = .996$, $N = 2560$) than those with both parents living with them.

Table 3 shows the logistic regression coefficient, Wald test and odds ratio of each of the predictors. High school residence was not taken into consideration because, in relation to dropping school, there were significant similarities between rural area and Bucharest, on the one hand, and all other towns and cities on the other hand. We calculated chi squares for all types of grouping (considering the size of the residence) and we could not find a logical and reliable dummy variable as a predictor.

The role of acquisitions in the pursuit of happiness does not have a significant effect and “time to get to school” has no effect on dropping school. The odds ratio for gender indicates that, holding all other variables constant, a female is 0.60 times more likely to consider dropping school than a male. Family income plays an important role in the suggested logistic regression model; pupils from a family that can afford to buy expensive goods are 0.45 times more likely to consider dropping school than pupils from families that could not afford expensive goods. If in a pupil’s family at least one parent has higher education s/he is considering less dropping school than a pupil from a family where none of parents has higher education ($\text{Exp}(B)=.569, p<.05$). The presence of materialistic values that underline the role of possessions in defining success increases 1.39 times the chance to considering dropping school. If parents encouraged children to have high grades, pupils have smaller chance to drop school ($\text{Exp}(B)=.647, p<.01$).

Table 3. Logistic regression predicting situation of dropping school

Variables in the Equation						
	B	S.E.	Wald	df	Sig.	Exp(B)
Gender	-.507	.159	10.205	1	.001	.602
Parents' encouragement	-.435	.159	7.491	1	.006	.647
Family income	-.796	.161	24.410	1	.000	.451
Time to get to school	.013	.003	14.082	1	.000	1.013
Parents' education	-.563	.226	6.196	1	.013	.569
VOMSS	.416	.093	20.003	1	.000	1.515
Constant	-2.611	.343	57.919	1	.000	.073

The research outcomes raise some questions about the relationship between the predictors and the variable “average grade for the last school year”. If we introduce the variable “average grade for the last school year” into the logistic regression, the model explains more the predicted dependent variable⁶, but this time, only “family income” and “VOMSS” remain significant predictors (Table 4).

Table 4. Logistic regression predicting situation of dropping school with the predicting variable “average grade for the last school year”.

Variables in the Equation						
	B	S.E.	Wald	df	Sig.	Exp(B)
Gender	-.072	.171	.176	1	.675	.931
Parents' encouragement	-.299	.166	3.247	1	.072	.742
Family income	-.830	.167	24.640	1	.000	.436
Time to get to school	.010	.004	7.992	1	.005	1.010
Parents' education	-.206	.234	.775	1	.379	.814
VOMSS	.236	.097	5.942	1	.015	1.266
Average grade	-.787	.092	72.822	1	.000	.455
Constant	.488	.488	.998	1	.318	1.629

Univariate analysis apparently indicated that males were significantly more likely in the situation of dropping school (16.4%) than females (10,1%) ($\chi^2=18.96$, $df=1$, $N=2190$, $p<.01$). In fact, there is no correlation between gender and dropping school ($\phi=.093$, $p<.01$) and if we hold the variable “average grade for the last school year” constant, ϕ^2 becomes insignificant. Girls and boys do not consider dropping school differently because of the gender it self, but because girls are more diligent than boys (having higher grades) makes girls less in the situation of dropping school. Compared with males, females are less materialistic values oriented (Table 5) and consider education to be important to succeed in life to a higher extent ($\bar{n}=.127$, $p<.01$, $n=2408$). We can conclude that “gender” predicts “being in the situation of dropping school” indirectly, through other moderator variables, especially through “average grade for the last school year”.

Table 5. The relationship between gender, school performance, and materialistic values.

Pearson's r		Gender	Average grade for the last school year	VOMSS
Gender	r	1	,317**	-,142**
	N	2446	2426	2394
Average grade for the last school year	r	,317**	1	-,249**
	N	2426	2581	2521
VOMSS	r	-,142**	-,249**	1
	N	2394	2521	2567

** Correlation is significant at the 0.01 level (2-tailed).

In order to build a model that could explain possible both direct and indirect influences for abandoning school, we will use binary simple regressions predicting average grade, as well as a logistic regression, using only significant predictors for dropping school. Results are shown in Table 6 and 7. (Adjusted R Square is .139 for the linear regression, and Nagelkerke R Square for the logistic regression is .196)

Table 6. Linear regression predicting average grade in the last year.

Coefficients					
	B	Std. Error	Beta	t	Sig.
(Constant)	3.360	.039		85.316	.000
Parents' encouragement	.140	.040	.070	3.470	.001
Parents' education	.412	.045	.185	9.137	.000
Gender	.611	.038	.322	15.888	.000

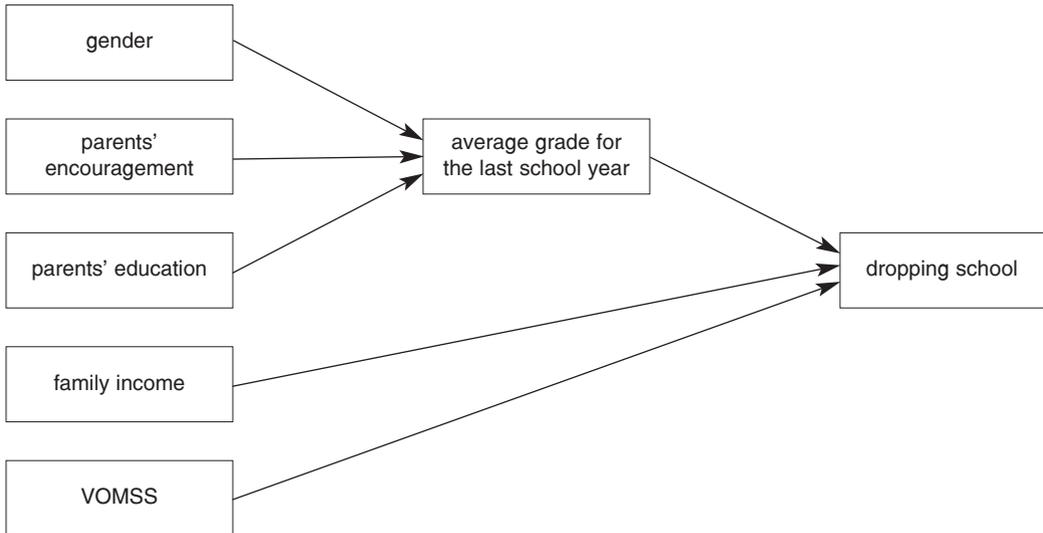
* Dependent Variable: Average grade.

Table 7. Logistic regression predicting dropping school.

Variables in the Equation						
	B	S.E.	Wald	df	Sig.	Exp(B)
Family income	-.923	.145	40.423	1	.000	.397
Time to get to school	.008	.003	6.086	1	.014	1.008
VOMSS	.169	.085	3.971	1	.046	1.184
Average grade	-.862	.077	125.643	1	.000	.422
Constant	.876	.424	4.279	1	.039	2.402

The regression equations argue for an explanatory model that could predict dropping school in both direct and indirect way. The model is shown in Figure 2. Time to get to school was not included in the model, since it has very low explanatory value ($Exp(B)=1.008$).

Figure 2. Explanatory model predicting dropping school intention.



Summing up, the model shows that there are indirect influences of gender, parents' encouragement, and parents' level of education, through pupil's average grade, and a direct influence of the grade, family income and "the role of possessions in defining success" of the materialism scale.

As far as pupils' intention of continuing their studies with a bachelor's degree, we will follow the same research logic, considering intention to go to college as the dependent variable and discussing the predicting variables.

Almost three out of four pupils are decided to enroll in university (74%). The majority of them are willing to go to a faculty in Romania (72.1%) whereas some of them (12.3%) prefer to go to a faculty abroad. In order to predict the decision of enrolling in university we have taken into account the same variables above using to predicting dropping out school. We added up a dummy variable, high school residence, to see if the location of the high school itself has a predicting value.

Table 8. Logistic regression to predict decision to enroll in university.

Variables in the Equation						
	B	S.E.	Wald	df	Sig.	Exp(B)
Gender	1.164	.154	57.255	1	.000	3.204
Parents' encouragement	.340	.152	4.992	1	.025	1.405
Family income	.444	.152	8.541	1	.003	1.559
Time to get to school	-.011	.004	8.817	1	.003	.989
Parents' education	.657	.188	12.201	1	.000	1.929
VOMSS	-.265	.088	9.017	1	.003	.767
High school residence	-.949	.271	12.245	1	.000	.387
Constant	1.096	.318	11.859	1	.001	2.992

Unlike the previous model, when we described the situation of dropping school, the variable “average grade for the last school year” has no significant effect when introduced in the logistic regression model except for parents’ encouragement. (Table 4).

Table 9. Logistic regression predicting decision to enroll in a faculty with the predicting variable “average grade for the last school year”.

Variables in the Equation						
	B	S.E.	Wald	df	Sig.	Exp(B)
Gender	.929	.162	32.910	1	.000	2.532
Parents’ encouragement	.268	.156	2.949	1	.086	1.307
Family income	.462	.155	8.893	1	.003	1.587
Time to get to school	-.010	.004	7.876	1	.005	.990
Parents’ education	.493	.194	6.474	1	.011	1.637
VOMSS	-.191	.091	4.415	1	.036	.826
High school residence	-.972	.277	12.318	1	.000	.378
Average grade	.445	.085	27.245	1	.000	1.561
Constant	-.634	.467	1.843	1	.175	.530

We can conclude about a linear model, where all predicting variables directly predict enrolment in the university. Parents’ encouragement could still be kept into the equation regression, the significance value being close to .05. We could easily see that adding average grade as a predictor significantly increased to explanatory value of the model⁷.

Gender remains a very strong significant predictor for “wants to enroll in a university”. Univariate analysis indicates that females were significantly more likely to enroll in university (83.1%) than were males (64.6%) ($\chi^2=62.861$, $df=1$, $N=1396$, $p<.01$). If we keep the variable “average grade for the last school year” constant, the difference between the two genders decreases but still remains significant.

These figures should be associated with the fact that female subjects considered more than males that college graduation is important in order to succeed in life ($\tilde{n} = .195$, $p<.01$, $n=2354$). The correlation between “gender” and “importance accorded for graduation a college” remains low but significant if we hold the variable “average grade for the last school year” constant, too.

We conclude that there is a gender difference regarding the intention of enrolling in a faculty, females considering faculty degree as more important than male and as a result, they are more decided to enroll in university. Even after introducing the variable “average grade for the last school year” in the regression model, gender still had a significant effect on the decision to enroll in university.

The model for the enrolment intention showed a new significant predictor if compared with the model predicting dropping school intention, high school residence. Results show that pupils’ studying in rural areas are less likely to continue their studies with a bachelor’s degree than pupils in urban areas ($Exp(B)=.378$, $p<.01$).

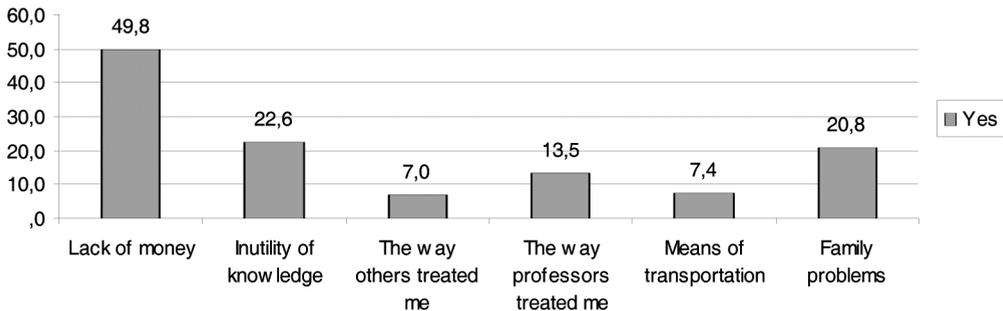
Taking into account the logistic regression for predicting “wants to enroll in a university” we can develop a linear causal model where predicting variables act directly on predicted variable.

8. Findings for University Level

The main question we tried to answer was who think about abandoning college during the first year of studies.

There are 18.3% of freshmen who thought about dropping school, and another 7.1% decline the answer this particular question. The main reason why freshmen think about abandoning school is the lack of money, representing the reason of almost half of those who consider the possibility of dropping school during their first year of study. Second and third reasons are the inutility of the information that students receive during the first year and family problems.

Figure 3. Reasons for dropping school for freshmen.



There are some statistically significant correlations between the intention of dropping school and the general grade of the freshmen's first exam session ($\tilde{r}=-.118$, $p<.01$, $N=1192$), mother's and father's level of education ($\tilde{r}=-.83$, $p<.01$, $N=1179$ for mother's education and $\tilde{r}=-.088$, $p<.01$, $N=1169$ for father's education), and family income ($\tilde{r}=-.133$, $p<.01$, $N=1213$). All correlations are weak, and in fact, when detailed on different reasons for dropping school, only lack of money is significantly correlated with three out of the four variables ($\tilde{r}=-.151$, $p<.05$, $N=246$ – mother's education; $\tilde{r}=-.141$, $p<.05$, $N=242$ – father's education; $\tilde{r}=-.220$, $p<.01$, $N=258$ – parents' residence, and $\tilde{r}=-.303$, $p<.01$, $N=258$ – family income). None of the correlations is strong, and generally the higher parents education, the lower chances of dropping school, the higher the family income the lower chances of dropping school, and the bigger the size of parents home town, the lower the chances of dropping school.

The most important aspect related to chances of abandoning school whereas in college is related to the possibility of a prediction model that could offer valuable insights usable to propose policies and to suggest solutions against scholar abandon.

Logistic regressions used to help creating a general portrait of the freshman with good chances of dropping school showed interesting results. A first general regression equation with and without average grade of first semester will give us a general idea about how the grade might influence other variables in the equation.

Table 10. Logistic regression for predicting chances of dropping school without the variable Grade.

Variables in the Equation						
	B	S.E.	Wald	df	Sig.	Exp(B)
Gender	-.026	.170	.023	1	.880	.975
Family income	-.569	.173	10.836	1	.001	.566
Time to get to school	.011	.004	7.303	1	.007	1.011
Parents' education	-.078	.184	.178	1	.673	.925
VOMSH	-.072	.122	.352	1	.553	.930
VOMSC	.333	.137	5.933	1	.015	1.395
VOMSS	.028	.081	.116	1	.733	1.028
Parents' residence	-.018	.169	.011	1	.915	.982
Constant	-2.098	.403	27.056	1	.000	.123

Table 11. Logistic regression for predicting chances of dropping school with the variable Grade.

Variables in the Equation						
	B	S.E.	Wald	df	Sig.	Exp(B)
Gender	.016	.175	.008	1	.927	1.016
Family income	-.597	.176	11.498	1	.001	.551
Time to get to school	.010	.004	6.142	1	.013	1.010
Parents' education	-.013	.187	.005	1	.944	.987
VOMSH	-.062	.123	.254	1	.614	.940
VOMSC	.323	.139	5.440	1	.020	1.382
VOMSS	.021	.083	.066	1	.797	1.022
Parents' residence	-.024	.172	.020	1	.887	.976
Average grade	-.207	.083	6.143	1	.013	.813
Constant	-1.409	.502	7.869	1	.005	.244

Comparing the two tables it is easy to notice that, unlike pupils in high school, freshmen gender is not significant as predicting variable in none of the two regressions. In a second step, we kept in the regression equation only significant variables. The results are shown in Table 12.

Table 12. Regression results for predicting chances of dropping school.

Variables in the Equation						
	B	S.E.	Wald	df	Sig.	Exp(B)
VOMSS	.306	.106	8.284	1	.004	1.358
Family income	-.551	.164	11.350	1	.001	.576
Time to get to school	.010	.004	6.947	1	.008	1.010
Average grade	-.269	.078	11.803	1	.001	.764
Constant	-1.304	.415	9.873	1	.002	.271

To test for colinearity we used Spearman's rho (\tilde{r}) coefficient between every two variables in the equation model. All significant correlations are very low, and therefore they do not influence the model.

Table 13. The degree of correlation of the variables in the regression equation predicting chances of dropping school.

Spearman's rho		Drop school	Average grade	Income	VOMSS	Time to school
Drop school	rho	1.000	-.118**	-.092**	.104**	.065*
	N	1238	1192	1187	1205	1155
Average grade	rho	-.118**	1.000	.028	-.125**	-.007
	N	1192	1340	1291	1309	1261
Income	rho	-.092**	.028	1.000	.056*	-.123**
	N	1187	1291	1342	1309	1246
VOMSS	rho	.104**	-.125**	.056*	1.000	.019
	N	1205	1309	1309	1360	1266
Time to school	rho	.065*	-.007	-.123**	.019	1.000
	N	1155	1261	1246	1266	1296

* Correlation is significant at the 0.05 level (2-tailed).

** Correlation is significant at the 0.01 level (2-tailed).

Even though the explanatory power of the model is not high (the Nagelkerke R Square of the model is .060), the model offers some insights about the variables that might influence the chances of abandoning school during first year of undergraduate studies. Results show that the role of possessions in defining success, family income, and average grade of first semester are significant predictors; the time students need to get to school is not important, $\text{Exp}(B)=1.010$, even though statistically significant. However, it slightly increases the explanatory value of the model (from Nagelkerke R Square = .047 to .060). Results show that students who believe materialistic assets are important in defining success are more likely to drop school than less materialistic-oriented students ($\text{Exp}(B)=1.358$, $p<.01$). Holding all variables constant, students from families with low income are 58% more likely to abandon school than students from families with (relatively) high income. The average grade during the first semester of school also influences the chances of dropping school; students with higher grades are less likely to abandon school ($\text{Exp}(B)=.764$, $p<.01$).

As far as pursuing a master program after graduation, freshmen seems to be influenced only by the role of acquisitions in the pursuit of happiness dimension of the materialism scale, and by the average grade they manage to obtain during the first semester and gender. Gender remains statistically significant, even after the grade is added to the regression.

The final regression equation results is shown in Table 14:

Table 14. The regression results predicting chances to follow an MA program.

Variables in the Equation						
	B	S.E.	Wald	df	Sig.	Exp(B)
VOMSH	.180	.074	5.939	1	.015	1.197
Gender	.234	.123	3.625	1	.057	1.264
Average grade	.190	.061	9.784	1	.002	1.210
Constant	-1.114	.344	10.509	1	.001	.328

The explanatory power of the model is very weak (the Nagelkerke R Square of the model is .027), as well as the differences between chances of groups of students, based on the three variables. One possible explanation is that first year of undergraduate program is too early of a time to decide about what students would do in more than two years from then. Therefore it should be hazardous to pretend have found the reasons why some students decide to go to a master program or not.

9. Discussion

The main purpose of the present study was to identify the key factors that could be taken into consideration when discussing education policies regarding dropping school (at both high school level, and university level), and regarding encouragement to further pursue education (bachelor's degree, respectively master's degree). European policies regarding education and employment are mostly concerned with identifying possible sources of inequity in access to education (particularly higher education). Given that the European Union desires a knowledge based economy, increasing the percentage of people graduating high school and further pursuing a university degree is a key purpose of both employment and education strategies. Therefore we looked for theoretical explanations (models) for reasons why people might get into the situation of dropping school during their studies and reasons for continuing their studies.

We have considered first of all traditional demographic factors that might be strong predictors, such as "gender", "family income", "residence", "parents' education", to which we added "time to get to school" and "average grade in last year of school" (for high school pupils) or "average grade during the first semester" (for freshmen).

A new dimension, measuring the materialistic values of young people, was added. Three distinct variables measuring three aspects of the materialistic scale were constructed using a factor analysis; one of them proved to be a good predictor for both dropping school and intention to enroll in university.

We will further discuss the most important findings of our research, considering comparisons and contrasts between high school and university levels.

As far as dropping school intention is concerned, we have identified two distinct models that offer the most important predictors. The first one, built for high school level, is a model with both direct and indirect predictors. In a first step, "gender", "parents' encouragement" for good results in school, and "parents' education" predicted a mediator variable, "average grade for the last school year". The second step considers this particular variable, as well as "family income" and one dimension of the materialistic scale, "the role of possessions in defining success", to predict intention of dropping school. The second model is a linear one, and has as predictors "family income", "average grade during the first year of studies", and "the role of possessions in defining success" (dimension of the materialism scale).

Gender proved to have different roles in high school, if compared to university. It appears as a good predictor in both models, but, because of the mediator in the high school model, actually gender only predicts average grade, and not the risk of dropping school, because girls are usually more diligent than boys, and therefore they usually have higher grades. On the other hand, gender is a direct predictor for dropping out of university.

The materialistic scale adds a new perspective to the standard prediction models using classic demographic independent variables. One dimension of the scale, respectively the role

of possessions in defining success, has proven a good direct predictor in both models. This is to say that people who believe possessions are a good indicator for personal success are more likely to drop school. We can infer that being a materialistic person positively influences the risk of dropping school, at both high school and undergraduate levels.

Summing up the two models, we identified one constant variable that could be considered a source of inequity, family income. Children from low-income families are more predisposed to abandon school. For the high school model, other sources of inequity are gender, parents' encouragement to have good results in school, and parents' level of education. Boys are more likely to drop school, as well as pupils with no parents' encouragement and coming from families where none of the parents having higher education.

Further discussing the intention of continuing school after graduation, only high school data has proven significant. For the university sample, the problem of pursuing a master program is yet to early to predict, given that the entire sample was drawn from freshmen population. As far as high school is concerned, we will present results in comparison with dropping school intention findings.

In the predicting model of pursuing a university program, all variables in the equation regression were significant with and without the "average grade" variable, which argues for a linear model, all variables being direct predictors. Besides all variables used in the dropping school model, a new variable appears, high school residence, as a strong predictor. It shows that, in regard to the intention of enrolling in a university program, people studying in urban area are more likely to further continuing their education, which offers a new source of inequity to be taken into consideration when discussing education policies. In this particular model, gender proved to be the most powerful predictor. This indicates a general trend toward the feminization of higher education system. In other words, more and more girls would become students, whereas the percentage of boys enrolled in university programs would slowly but steadily decrease. Of course, this should be further discussed, considering the fields of education high school graduate might chose in their bachelor programs.

Projecting these outcomes against the general background of European public policies, we suggest action to be taken at three different levels. First refers to developing social and economic policies that would help low income families to financially support their children's education. Second, since parents' education influences both grades and children chances to higher education, policies should encourage high educated people from both rural and urban areas to live and work in rural areas. Thus the rural areas would have better chances to get access to higher educated human resources and thus to economic and social growth. Last but not least, we have identified a new area of investigation, concerning materialistic values. We do not have enough data to support causal explanations about how materialistic values are formed and appropriated by teenagers. This new perspective offers a direction of inquiry attempting to identify sources of personality building in regard to materialistic values. This might concern socialization sources, such as family, school, media, etc.

Notes

¹ This article is the result of research in the POS DRU project no. 41506: Instruments And Mechanisms Of Growth And Facilitation Of Higher Education Access Based On Horizontal And Vertical Partnerships Among Institutions Of Education, Central And Local Structures Of The Educational System And Social Actors, financed by the E.U. through the European Social Fund.

² The data is valid for the 2005/06 academic year.

³ Romanian National Institute offered figures for Statistics.

⁴ To draw randomly we used the facilities offered by the site www.random.org.

⁵ The sampling frame was offered by Ministry of Education, Research, Youth and Sport. It contained information for the school year 2009-2010 about all high schools from all Romanian counties: high school address, number of classes and number of pupils enrolled in each year of study from every high school.

⁶ Nagelkerke R Square in the first model is .112 and in the second model is .193.

⁷ Nagelkerke R Square in the first model is .107 and in the second model is .198.

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