

DETERMINANTS OF THE OFFER FOR EDUCATIONAL SERVICES OF THE ROMANIAN MILITARY HIGHER EDUCATION INSTITUTIONS

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ABSTRACT: In a society of changes which is dynamic, in a state of permanent change, the offer for educational products and services is fundamented on the needs for instruction, it is flexible and addresses to diverse types of consumers. Adapting the educational offer to the demands of the labor market and of the employers, adjusting depending on the qualification needs, are priorities of the higher education institutions, of the Romanian educational policies. Beginning with the hypothesis that the educational offer of the military higher education system depends on macroeconomic factors, our analysis reveals that the demographic evolution does not exert a significant influence over the number of admission places for the military higher education institutions, the number of national military high school graduates having the strongest influence over the educational offer of the military higher education system.

KEYWORDS:: military; higher education; Romania; market; educational marketing

JEL CODES: B23; C34; I21; I23; M31

Introduction

The national higher education system contains all the accredited state, private or confessional higher education institutions, universities, study academies, institutes, higher education schools, which had obtained the provisory functioning authorization or accreditation, education providing organizations which run tuition activities based on authorized study programs to legally function provisorily/accredited, of university initial and continuous formation, programs which function on the principle of quality and correlation of the educational offer with the labour market. The higher education institutions' structure, the educational offer as well as the maximum scholarization capacity are established through Government decisions, elaborated annually by the Ministry of Education (Ministry of National Education and Scientific Research).

The transformation imposed to the military education by the new configuration of the Romanian society since 1989 presume the creation of a system which is supple, efficient, in accord with the necessary formation and professional development of the Army personnel, as well as the full compatibilization of the military higher education with the national education and the euroatlantic education, simultaneously with the promotion and development of the values and traditions of the Romanian Army. The educational offer ensures the initial and continuous formation at a university level of the students towards their personal development, emphasizing the professional enclosure of the individual to satisfy the need for competence of the military environment, as well as the socio-economic environment and other beneficiaries of the national defence system (The transformation strategy of the Romanian Army, 2007).

The study analyzes the social, economic and demographic tendencies in the Romanian society in the last 25 years and their impact on education, as well as to offer an image of the actual

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education system which contains as an essential component the military higher education institutions.

In the analyzed period there had been profound changes in all the domains of the Romanian society, the first ten years after 1990 being characterized as a very slow transition from an economic and political system to another as well as a falling period for the GDP. The perspective and attitude change was a slow process, which required a transition from a conformity mentality towards a centralized state to one of personal action and responsibility for the individual options (Egron-Polak, et al, 2015).

A concept with vast and generous dimensions, approached mostly through the results' point of view, education is an important domain for society, the apex being in periods of final evaluation, while the tendency of the last years belongs to the specialization and concentration of education, under the conditions of accentuated competition between universities and of informational explosion. Adaptation to labour market and the changes produced on the educational market require offers from the higher education institutions which bring forth for the consumer public educational products/services which develop capacities, a good professional insertion and last but not least the satisfaction regarding university experience (Micu, 2012).

Educational services are defined as an ensemble of specialized activities, taking place in public institutions or organizations, through which are solved problems which regard education and the need for education and instruction of several categories of beneficiaries, activities organized on educational levels or preparation degrees, in a public or private system, obligatory or optional, permanent or periodic (Gherguț, 2007; Enache et al, 2011).

The research of the evolution of the military higher education institutions' educational offer took into account the number of places contained in the educational offer of the military higher education institutions, as well as, the dynamics of the number of places offered by the military higher education institutions. The volume of the educational offer can be expressed both through the number of study programs included in the educational offer of the higher education institutions, on the three levels, bachelor degree, post-university courses and master's degree, PhD, and through the number of places offered for each study program, differentiated on forms of education (full-time education, part time education and distance education) and type of study financing (budget or tuition).

The educational offer takes shape and structures slowly, through numerous encounters with the demands and needs of the educational services consumers, the fact that the offer influences directly the education demand being significant, the consumers manifesting the tendency of orienting to the quality higher education institutions and educational services/products, well known on the market for this kind of services. Also, the dynamics of the labour market, as well as the opportunities offered by employers for qualified workforce, impose a close analysis of the educational offer sent out to the consumer public by the higher education institutions, which has to be well structured and convincing (Ciobanu, 2003).

The attraction of potential clients must represent a priority for the education institutions, the notoriety of the offered products and favorable image will contribute to the positive growth of the number of clients (Bălan, 2007).

Beginning with the definition of the concept of marketing formulated by Kotler & Armstrong (2012), it could be stated that to have success, the higher education institutions must offer their clients a value and greater satisfaction than their educational market competitors, more than simply adapt to the needs of the target consumers, to obtaining strategic advantages through the firm positioning of the offers in the minds of the consumers. The educational market includes more types of clients, consumers, as well as their needs, educational products/services, thus, the education institutions must determine which segments offer the most opportunities, the consumers being grouped in several modes, based on geographic, demographic, psychographic and behavioural factors (Kotler & Armstrong, 2012).

The educational offer of the higher education institutions is placed in the mind of the targeted consumers as offering one or more essential opportunities. Optimal results are obtained when the markets or target markets have been chosen after several analyses and the higher education institutions marketing programs elaborated accordingly (Kotler & Keller, 2008).

The university educational offer is determined by factors which contribute to its quality, such as the institutional and organizational framework of the educational services contractors, the evolution and contents of the university formation programs, the participants to the educational process – students, faculty, costs of study programs (Grigoruț, et al., 2011).

According to Kotler and Keller (2008), education institutions must monitor the influence factors of the macroenvironment (demographic, economic, natural, technologic, political and legislative, socio-cultural influences), for each tendency or evolution, they must identify the associated opportunities and threats.

The educational offer of higher education institutions is a result of the interaction of more factors of economic, social and cultural nature (Report of the National Scientific Research Institute for Labour and Social Protection, 2011), as well as the demand for higher education of the high school graduate population, the evolution of faculty and the quality of the material base of the higher education institutions, the demand for workforce with higher education which existed on a short and medium term on the workforce market.

The educational services offer is composed of the totality of the activities which the universities, as specialized units, develop to satisfy the demand for education expressed by the consumer public. Defining the target audience, analysis of the behavior and mode of reference to the educational offer are essential aspects in the development of a marketing vision of military higher education institutions (Enache, 2012).

The educational offer of military higher education institutions, centred on the expectations of educational services consumers, generates their satisfaction after the option for university experience in the military system, by comparing opinions on educational products/services offered by military education institutions with expectations had before opting. The expectations of the clients are based on anterior university experiences, informations and recommendations from friends, family, as well as opportunities and benefits transmitted through educational offers, both of universities in which they study or for which they have opted to enroll, and of the competitors (Kotler & Keller, 2008).

A component of the marketing mix, the educational product offered by universities determines the other elements – distribution, promotion, price – satisfying the needs and demands of the consumers. For that purpose, it is necessary to determine the multidimensional nature of the demand and to include in the educational offer of the products/services requested on the market. The educational product of the education institutions reflects the motivation for the option of educational services' consumers, offering the satisfaction of their needs, but also complementary functions, advantages related with the products offered by other universities through the high degree of satisfaction of the needs for education, thus being favored by the consumers presented with a large palette of offers on the educational market (Stanciu, 2002).

The educational product is a key element of the education institutions' offer, planning the marketing mix beginning with formulating an offer to satisfy the needs and demands of the target audience, considering the offer depending on three elements: the characteristic attributes and quality of the offered product, the mix and quality of the services, the price (Kotler, 2005).

The research aims at assigning coordinates to the educational offer of the military higher education institutions, defining the variables which influence the evolution and the hypotheses which underlie further research, the situation in which the results will denote a favorable conjuncture implying the execution of more ample and more detailed research. Markets can not

exist isolated by environmental factors, demographic evolution, economic development, legislative framework or other social factors developing influences over the education in general and the education institutions. Consumers experiment differently offer which exists at a given moment in time on the educational market, they set and follow at the same time the market trends, react to the social changes and to the progress of technics (Epure, 2007).

Taking into account the definition given by Florescu (1992), according to which the product policy is the conduct relative to the dimensions, structure and evolution of the range of products and services which represent the object of the institutions' activities, related permanently to the demands of the market on which it evolves, to the tendencies manifested by the competitors, Raboca (2011) reveals that the product policy represents the preoccupations as a whole (actions and activities) related both to the way the products must be offered and presents to the consumers, and to the way these are perceived by clients. The product policy must serve to the objectives of the education institutions' activities, to help the production of education products/services on the market.

When through the educational offer universities propose study programs, qualifications, which satisfy the needs of the students, set tuition fees which meet their expectations and incomes and those of their families, they provide data which can be used to take informed decisions regarding the qualification possibilities, thus it could be observed easily the quality of the services in relation to the price, it is much more probable that the demand will cover the offer. The basic instruments of the marketing mix, regarding the educational products offered by the higher education institutions, the price of these products, the place and promotion of the image and educational offer, are used by institutions to raise not only the number of the provided study programs, but also the number of enrollments, the quality of accepted students growing implicitly after the apparition of the competition. The educational products offered by the education institutions, tangible products, impose the special use of the marketing mix in the education field, starting from the 4P model, to the 7P approach, for the satisfaction of the clients' needs, product, price, place, promotion, personnel, physical facilities and processes (Ivy, 2008).

The product is that which the universities offer on the interest markets, that which they sell, it is more that a simple set of tangible characteristics, it is a complex pack of benefits which satisfy the needs of the consumer clients of the educational services/products (Ivy, 2008).

The necessity of research arises as an imperative for the higher education institutions in the attempt to define and evaluate certain relevant aspects for decision-making, the university management targeting the identification, characterization and quantification of the market segments interested by the educational offer of the institution, and also assigning the way in which the candidates' options place on the educational market the products and services offered by the university. The Romanian educational system depends on a series of influence factors, through concepts and methods developed by educational marketing, whose techniques permit the identification of certain particularities insufficiently explored through other concepts and methods, the higher education achieves a constant goal of reducing the existent discrepancies between the expectations of the educational services' consumers interested by the promoted offer on the market and the products/services offered by the academic community (Petrică, 2014).

The educational offer of the military higher education institutions comprises both budget financed places and those with tuition fees, the number of places with tuition fees had grown from 190 places in the 2005/2006 university year, for all study cycles, which represents 51,3% of the educational offer for that university year, growing to 1556 places in the 2014/2015 university year, which represents 66,8% of the educational offer, the average annual variation rate being of 26,32%

The educational offer of the education institutions must combine the expectations of the university services' consumers and the labour market's requirements with the missions and objectives of the education institutions, through the promotion of those educational

products/services, study specializations/programs which offer the graduates increased chances on the labour market, by insuring the educational standards demanded by employers and, last but not least, by centring the quality of those products on performances tested after graduation. One of the most efficient educational strategies may be considered that in which are correlated the educational offer and the demands of the labour market (Petrică, 2014).

So, education is considered as a key element to keep and increase the competitive ability of a country or a region, both under a productivist and a human approach. Therefore, it is so important to analyse the educational offer of a country or a region, particularly its university offer, because it determines partly the long-term sustainability of its economic growth and development (Fernández, et al., 2004).

The demand for university education continues to grow every year to the extent that the educational offer in higher education can not deal with this upward trend of the number of students. Analyses are necessary to determine the level and nature of the educational programs that must be offered, the identification of the factors which affect the educational demand and offer trend in the university education, to determine the challenges with which the demand and offer confront and thus develop strategies to approach the challenges associated to the tendencies of the demand and offer (Madanji, 2014).

Educational programs and services offered by higher education institutions are means through which the institutions' goals, aspirations, values and objectives are animated. Through the educational programs and services offer are made available to the students, other beneficiaries, clients from inside and outside the university and society as a whole, the expertise of the faculty and the personnel, other resources of the institution (Brent, 2007).

Methodological notes

The study proposed an analysis of the model in which the educational offer in the military higher education system is influenced by demographic, economic, technological, cultural, political or natural factors, which act upon the educational market on which the military higher education institutions act.

To predict the educational offer of the military higher education institutions, taking into account the evolution of the demographic, economic, technological, political factors, we used a multiple regression model, the analysed data being introduced in the SPSS program version 20.

The association degree between the mentioned variables as influence factors of the educational offer of the military higher education institutions was set using the Pearson correlation quotient, an indicator of the intensity of the connections between variables.

The independent variables considered in this study: population of Romania, population aged 15-19 years old, number of new-borns, school population, number of students enrolled in Romanian high schools, number of students enrolled in military high schools, number of military high school graduates, total number of high school graduates, number of high school students who passed the baccalaureate exam, number of Romanian universities, number of faculties, number of didactic personnel in higher education, number of didactic personnel in secondary education, ratio of education expenditures in the Gross Domestic Product, ratio of defence expenditure in the Gross Domestic Product, number of internet connections, number of military personnel.

Main findings of the research

Higher education in Romania is characterized by an annually increasing delay between the number of students registered in the system and the number of graduates. Thus, in school year 1990/1991 there were 25927 graduates for 192810 registered students and, in ten years the number of graduates reached 76230, while the number of registered students was 533152. In school year

2005/2006 the number of graduates reached 112244, while the number of registered students reached 411229. This delay, gradually increasing each year, can be interpreted in two different ways. On one hand, it can be argued that its effects are not neglectable: inefficacious consumption of resources, the increase in studies period, a growing tendency of dropping out from studies. In other words, the consequences can be viewed as negative: the resources spent for forming a graduate increases. On the other hand, this delay can suggest some different things. For example, the fact that many students opt for entering the work marketplace during their studies, reduces the time they have for finishing their studies. Beyond these interpretations, one thing is certain: a careful monitoring and exact data regarding the causes of this delay between the number of students and the number of graduates is needed (Starea Calității în Învățământul Superior ARACIS, Barometrul calității– 2009).

Data from the National Institute of Statistics show that in the last 25 years the rate of young people between 19 and 23 in higher education grew from 10.6% in 1990, peaking in 2008 with 78.3%, in the following period a descending trend being observed, although there may be increases from one year to another, reaching 66.8% in 2014/2015. The factors that determine the evolution of this indicator vary, from the constant decrease in population, including the age segment eligible for higher education, the low rate of graduation for the baccalaureate exam by high school graduates, the choice of young people to study abroad, the effects of the economic crisis, which led to a decrease in economic power of families and thus limited the options for potential students regarding universities located elsewhere than their hometown.

After a period of relative stability throughout the 1980-1990 decade, higher education in Romania was amply transformed after 1990. First of all, a spectacular increase in the number of students and universities was observed. We further present the evolution of the number of students between 1980 and 2015 (Figure 1).

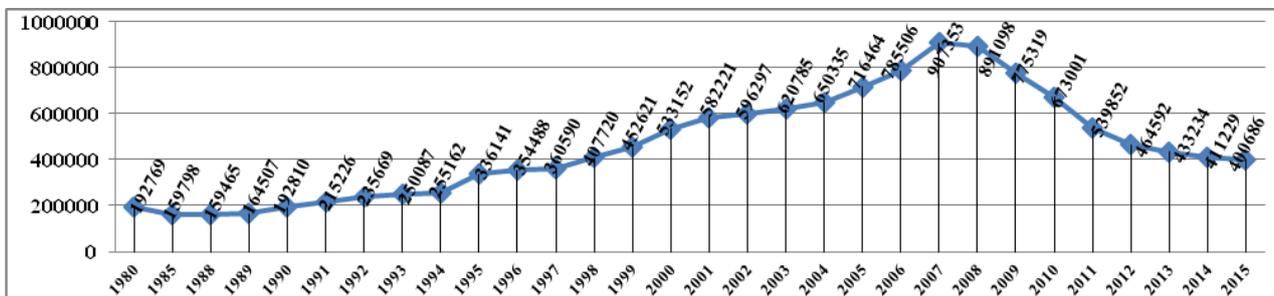


Figure 1. The evolution of the number of students between 1980 and 2015

Source: National Institute of Statistics

What can be observed is the constant dynamics of the number of students between 1980 and 1990, followed by a doubling in students numbers after the 1989 revolution, reaching, in 1990, 407720 students, compared to just 192810 in 1990. In the following period, until 2007, the highest rhythm of increase being registered, with 714543 more students than in the beginning of the 1990s, this evolution being influenced by the apparition and development of private higher education institutions. The apparition of a large number of private institutions, their politics of massively increasing the scholarization figures, resulted in an increase in student numbers, but also a decrease in quality of the professional preparation offered.

The number of students rose from 83 students per 10000 inhabitants in the school year 1990/1991 to 330 students per 10000 inhabitants in 2005/2006, reaching a peak in 2007 when 429 students per 10000 inhabitants were registered. In the following period the trend started to decline, in 2015 the number of students being of 201 per 10000 inhabitants.

The dynamics of young people registered in high school and superior education is due to the reduction by half of the number of newborns from the year 1990, the data from the National Institute of Statistic, pointing out to the fact that the number of newborns went from 314746 in 1990

to 196242 in 2011, in this time period a total of 5.12 million children being born, the declining trend being continuous, in the year 2015 187372 children being born, 127000 fewer than in the year 1990. From this total, a majority consisted of males, 2.63 million, while the number of females was of approximately 2.48 million.

The data shows that while in 1990 there were no significant differences between newborns in urban and rural areas, the dynamics in the 25 years analyzed showed 17138 more newborns in urban, rather than rural areas.

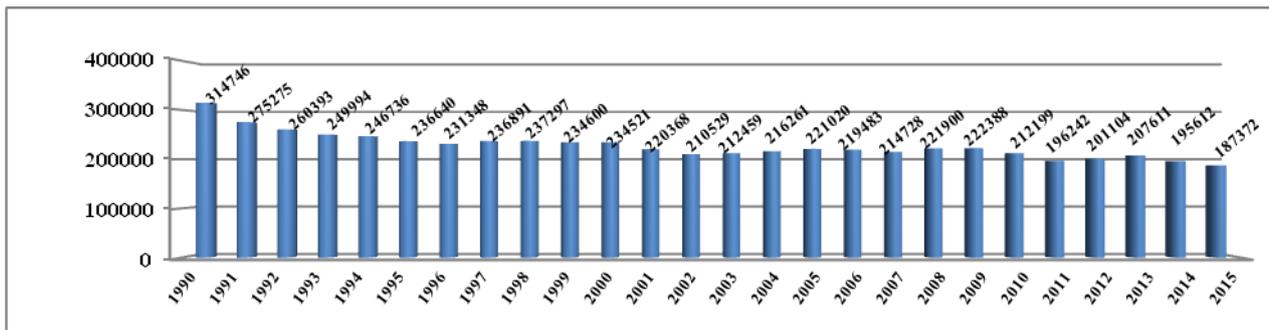


Figure 2. The evolution of newborns in Romania in 1990-2015

Source: National Institute of Statistics

After 1989, the number of newborns in Romania decreased dramatically. Thus, while 25 years ago 314746 children were born annually, two decades later the number was reduced by half. The data from the National Institute of Statistics shows that natality rates dropped from 13.6 newborns per 1000 inhabitants in 1990 to 8.4 newborns per 1000 inhabitants in 2015.

The educational offer of higher education institutions in Romania rose from 48000 in university year 1990/1991 to 62400 in university year 2014/2015.

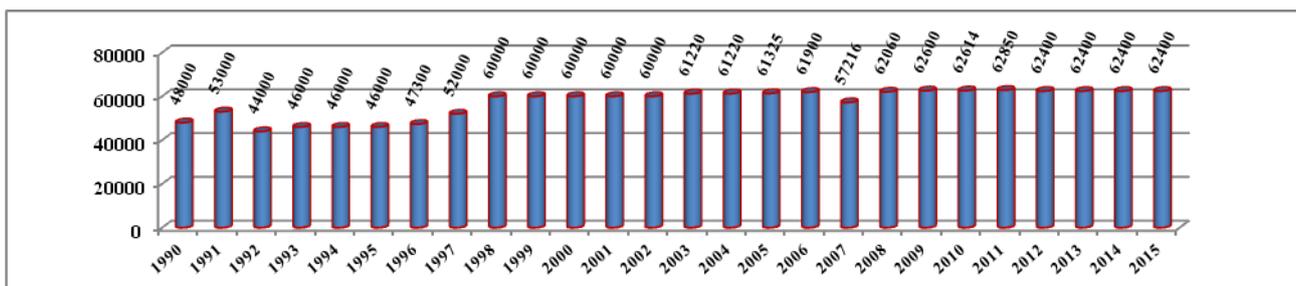


Figure 3. The evolution of the educational offer of higher education institutions in Romania, financed by the state budget, between 1990 and 2015

Source: Romanian Government Decisions, 1990-2015

To establish scholarization figures for all cycles of university education various factors were taken into account: an estimated number of secondary education graduates that also graduated the baccalaurate exam, the necessity for diversification and increase in quality of study programs and the inclusion of graduates in the work market, a response to the economic and social demand for university qualifications.

In the university year 2014/2015 in the higher education national system, three leading university amounted for a total of 10 thousand admission places, 11.7% of the total of state universities pertaining to Babeş-Bolyai University in Cluj-Napoca, followed by the University of Bucharest with only 6.4%. Military institutions amount for 0.35% of the total offer- the Navy Academy and 0.12% for the Air Force Academy. As for private institutions, the highest offer

pertains to Spiru Haret University- 8675 places and Christian University Dimitrie Cantemir with 6330 places (Petrescu, et al., 2015).

The educational offer for university studies of military institutions increased in the last 10 years from 370 places in 2005/2006 to 1315 in 2014/2015.

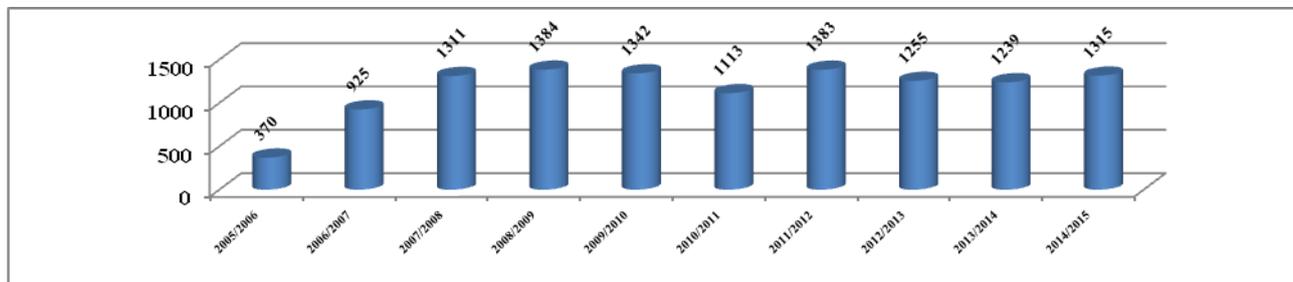


Figure 4. The evolution of the educational offer in higher military education, 2005-2015

Source: Ministry of National Defence

Throughout 1990-2015, according to the National Institute of Statistics, Romania's population dropped by 3336073 individuals, from 23206720 inhabitants to 19870647, 14.37% of the total population registered in 1990, with the average annual rate of variation of -0.59%, meaning that during the 1990-2015 periods, the population dropped by 0.59% per year.

The population aged 15-19 years, potential candidates for the admission in higher education registers a descending trend in the analyzed period.

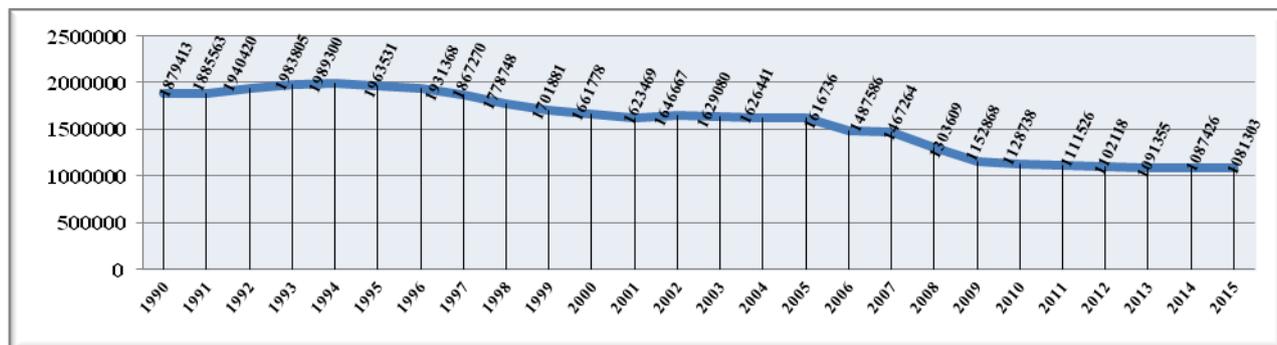


Figure 5. Demographic evolution of Romania, population aged 15-19 years old, 1990-2015

Source: National Institute of Statistics

Analyzing the above mentioned data, a decrease by 798110 individuals aged 15 to 19 can be observed during 1990-2015, the trend remaining constant since 2009.

The number of students registered in Romanian high school education shows a descending trend starting from 1990, with 995689 students, with 687919 in school year 2000/2001, followed by a slight ascending trend in the next years, reaching 773843 registered students in 2004/2005, 888768 in 2011/2012. Starting with 2013, the number of students dropped by 55194 compared to the previous year, the decreasing trend continuing in 2014, when the number dropped by another 49544 students (Figure 6).

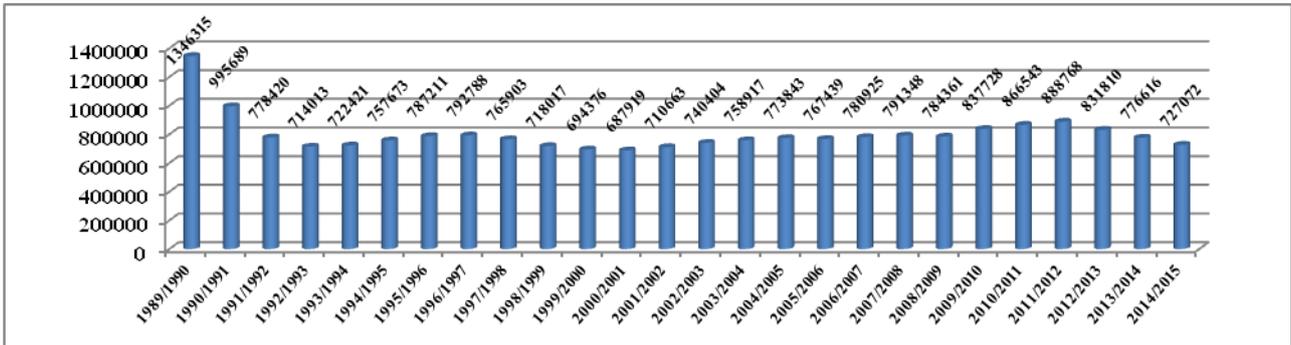


Figure 6. The evolution of highschool students in Romania, 1989-2015

Source: National Institute of Statistics

The military high school system registered a descending trend in the number of registered students, from 2531 in 1990/1991 to 1337 in 2012/2015.

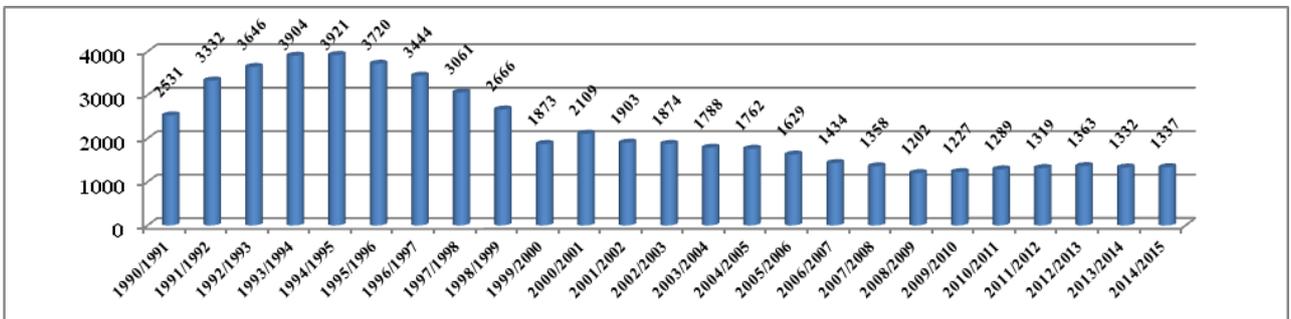


Figure 7. The evolution of students registered in military high school education, 1990-2015

Source: National Institute of Statistics

It can be observed that in the beginning of the analyzed interval the number of students enrolled in military high school education showed an increasing trend, in the first years after 1990 new school units being open, which led to the increase in the number of students up to 3921, followed by a drop by 47% since 1998/1999.

In higher education, the period after 1990 is characterized by an accelerated evolution in the number of universities and faculties, private universities absorbing a large part of the demand for higher education, being able to finance themselves and constituting in a serious competition, not a threat, but rather an opportunity to the state system (Analiza Funcțională a Sectorului Învățământ Superior în România, 2011).

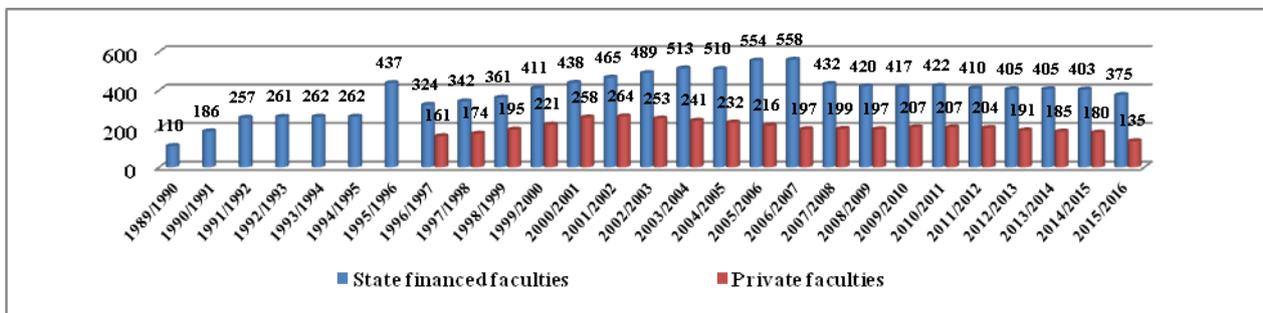


Figure 8. Evolution of faculties in the Romanian university education, 1989-2015

Source: National Institute of Statistics

Regarding didactic personnel, the number evolved from 13927 professors in 1990/1991 to 31964 in 2007/2008, constantly decreasing since, reaching 27772 professors in 2014/2015, this indicator showing a 100% increase compared to the beginning of the analyzed interval (Figure 9).

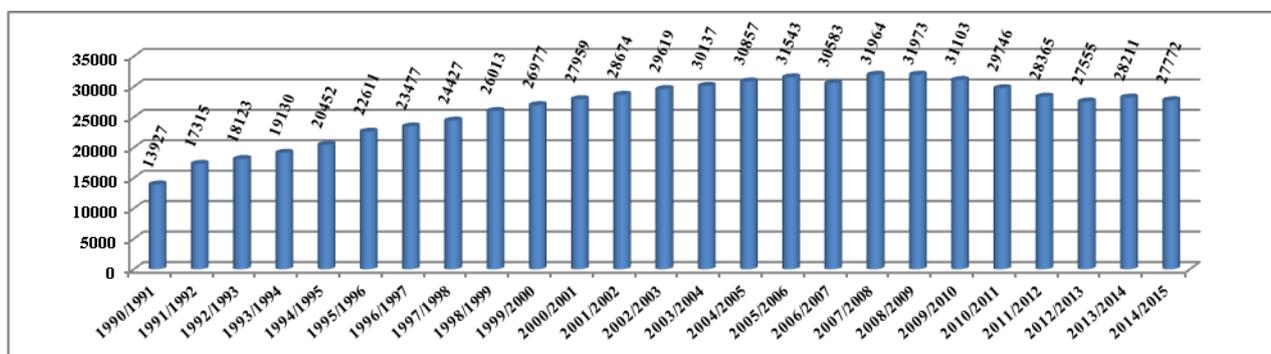


Figure 9. The evolution of didactic personnel in the Romanian university system, 1990-2015

Source: National Institute of Statistics

In secondary education, the number of teachers registered an increase of approximately 30% in the first 10 years after 1990, from 51731 in 1990/1991 to 67239 in 1999/2000. In the following interval this number decreased, never dropping below 60000. However, in 2010, due to the budget cuts imposed by the national economic context, this number decreased even further, reaching a total of 55913 teachers in 2014/2015.

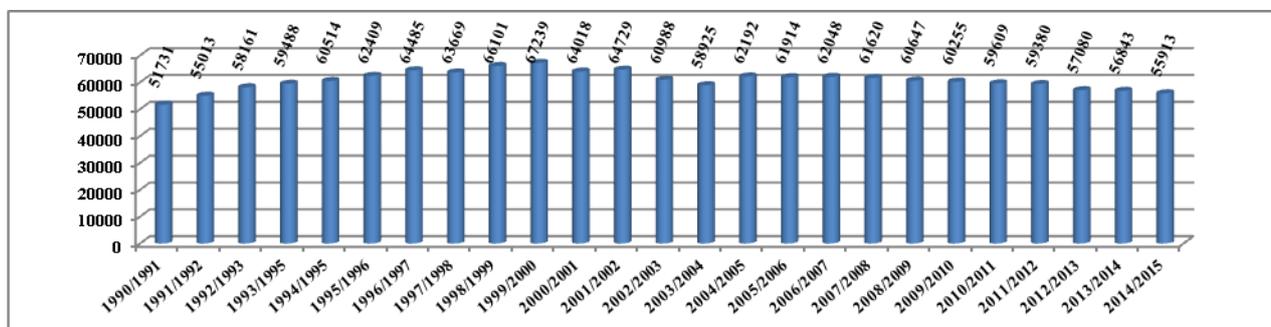


Figure 10. The evolution of didactic personnel in the Romanian secondary education system, 1990-2015

Source: National Institute of Statistics

The number of students per teacher went from 14 students per teacher in 1990/1991, a number similar to the one observed in prestigious universities (11 students per teacher in Cambridge University, 13 students per teacher in Oxford university), to 23 students per teacher in 2005/2006, which may suggest a decrease by half in the quality of the educational process (Dragomirescu, 2007). In the context of the demographic evolution, educational offers from education institutions, the number of said institutions, the number professors, the number of registered students, the number of high school graduates first showed an increasing trend, from 188732 in 1990/1991 to 217743 in 1991/1992, the number oscillating in the interval 1992-2015, reaching a peak of 218205 in 2007/2008, this number decreasing to 189900 in 2014/2015 (Figure 11).



Figure 11. The evolution of high school graduates in Romania, 1990-2015

Source: National Institute of Statistics

In the military education system, the number of graduates from military high schools decreased from 720 in 1990/1991 to 317 in 2014/2015, the peak of this period being observed in 1996/1997 when 1078 students graduated, this increase being due to the fact that, as from 1991/1992 until 1997/1998 the number of military high schools increased from 5 to 8, this types of school units appearing in the context of public order structures.

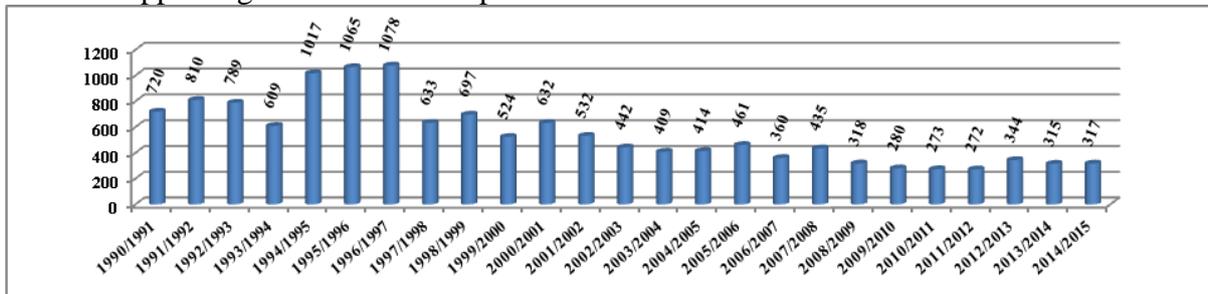


Figure 12. The evolution of military high school graduates in Romania, 1990-2015

Source: National Institute of Statistics

In the 2004-2015 period, the maximum number of graduates was registered in the year of integration in the North Atlantic Alliance, 2004/2005, when 461 students graduated from military high schools (Figure 12). The number of high school graduates that pass the baccalaureate exam is an important factor that influences the decision concerning the educational offer of higher education military institutions for the needs of potential consumers. Throughout 1989-2015 a trend in the number of students passing the baccalaureate exam is observed, from 188123 in 1989, to 119840 in 2015 (Figure 13).

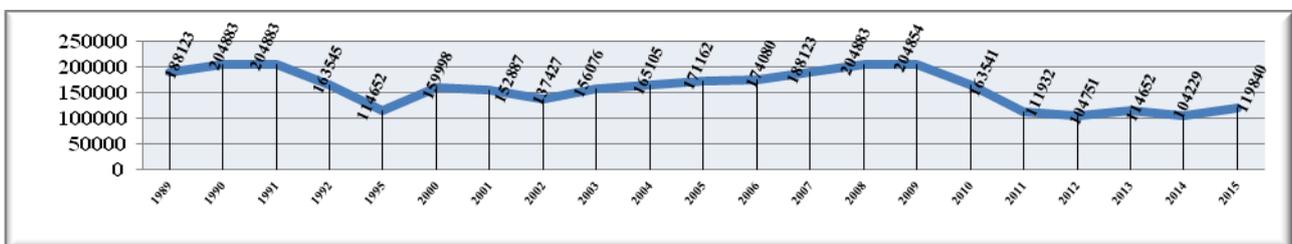


Figure 13. The evolution of highschool graduates in Romania that passed the baccalaureate exam, 1989-2015

Source: Ministry of National Education and Scientific Research, National Institute of Statistics

The indicator public expenses for education, as a percentage from the GDP is the proportion from the national financial income allocated for educational services in a fiscal year. In 2008, the amount of public expenses for education, as a percentage from the GDP, slowed its rhythm of

growth observed in previous years. The educational level for which a significant growth in allocated budgets was observed is university education. Thus, the amount of expenses for higher education represented in 2007 and 2008, approximately a third of the total expenses for education, compared to approximately 22% in 2006 (Raport asupra stării sistemului național de învățământ, 2009).

During 2004-2015, the amount of expenses for defence as a percentage from the GDP evolved from 2% in 2004 to 1.54% in 2015.

The integration of Romania in euro-atlantic structures in 2004 constituted a primary objective of external politics and in order to achieve this objective an allocation of an annually increasing amount of resources was necessary, thus, the expenses for defence raised from 30 billion lei in 1990 to 36537 billion lei in 2003 (Florișteanu, 2003).

Since 2004 a decrease in the amount of expenses for defence could be observed, from 2% to 1.5% in 2008 and, starting with 2009, this declining trend was constant, only after 2014 slightly increasing, due to the political, military and security context in the region (Table 1).

Table 1

The evolution of public expenses in Romania, 2004-2015

Indicators/timeframe	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Percentage education expenditure of GDP	3.3	3.5	4.3	5.5	6.0	4.24	3.53	4.13	3.5	3.6	3.7	3.5
Percentage defence expenditure of GDP	2.0	2.0	1.8	1.5	1.5	1.4	1.3	1.3	1.4	1.3	1.35	1.45

Source: National Institute of Statistics, NATO Press release 2016

Regarding the impact of technological factors, the necessity for information led to the development of an impressive informational industry. In the context of a more generous educational offer, both quantitatively and qualitatively, it is obviously understandable that the coordinates of competition are constantly changing. The competition between offerers manifests itself not only in quality and prices, but also in marketing activities (Urban, 2004).

Thus, during 2004-2015, the access to information, represented by the number of Internet broadband connections, evolved from 0,38 million connections in 2003 to 4,3 million connections in 2015 (Table 2).

Table 2

Evolution of the number of INTERNET connections, 2004-2015

Indicators/timeframe	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Number of broadband INTERNET connections (million connections)	0,38	0,75	1,09	1,95	2,51	2,82	3,0	3,3	3,5	3,8	4,0	4,3

Source: National Institute of Statistics

New technologies, such as the Internet, ensure an easy access to massive amounts of information, consumers taking advantage of this in order to become more intelligent users. A great advantage of the Web is that it reduces search costs, ensuring a rapid and easy way to access information, furthermore, digital technologies such as the Internet facilitate communication between consumers of educational services, giving the people a chance to share information about the experiences in regard to educational products and services delivered by universities. Clients can access from anywhere, regardless of the physical location, the websites of educational institutions, the Internet simplifying the direct connection with the providers of educational services (Urban, 2004; 2005).

Regarding the impact of political factors, we state that the favorable political environment that arose from the Law of national education, by promoting the principles of university autonomy and academic freedom, and also from the politico-military context in the Romanian area, increase the importance of military professions, especially technical engineering ones and predict a growth in the educational offer of higher education military institutions in the following years.

Marketing decisions are heavily influenced by the evolution of the political environments, such as laws, governmental structures that may influence and sometimes limit, at a certain level, the actions of higher education military institutions, but, at the same time, some situations may exist when normative acts create favorable occasions, not only limit the possibilities of action for an advantageous placement of the offer on the educational market (Kotler and Keller, 2008).

For an analysis interval of 5 years, the correlations between the dependent variable and the independent variables show that the evolution of the ratio of education expenditure from the GDP and the evolution of the ratio of defence expenditure from the GDP influence up to 88%, respectively 54% the evolution of the educational offer of the military higher education institutions.

A more ample analysis observed in extending the time interval to 10 years, the data from Table 3 showing that in most cases the connections between variables have low or medium intensity, relevant influences manifesting the number of students enrolled in military high schools, the number of faculties and the number of military personnel, which can determine up to 81%, 75%, respectively 67% the evolution of the educational offer, represented by the number of admission places in the military higher education.

Table 3

Connections between the number of admission places in military higher education institutions and demographic, economic, technological, cultural, political factors

Variables	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Correlation coefficient R
Number of admission places in military higher education institutions (dependent variable)	370	925	1311	1384	1342	1113	1383	1255	1239	1315	
Romanian population aged 15-19	1487586	1467264	1303609	1152868	1128738	1111526	1102118	1091355	1087426	1081303	-0.790
Number newborns	219483	214728	221900	222388	212199	196242	201104	207611	195612	187372	-0.283
Number of military high school graduates	461	360	435	318	280	273	272	344	315	317	-0.648
Number of high school graduates	177576	185255	187576	218205	204863	202160	187521	200004	172613	189900	0.466
Number of high school students in Romania	767439	780925	791348	784361	837728	866543	888768	831810	776616	727072	0.278
Number of military high school students	1629	1434	1358	1202	1227	1289	1319	1363	1332	1337	-0.900
Number of university didactic personnel in Romania	31543	30583	31964	31973	31103	29746	28365	27555	28211	27772	-0.297
Number of secondary education didactic personnel	61914	62048	61620	60647	60255	59609	59380	57080	56843	55913	-0.452
High school graduates who passed the baccalaureate exam	174080	188123	204883	204854	163541	111932	104751	114652	104229	119840	-0.210
Educational offer of university system	61900	57216	62060	62600	62614	62850	62400	62400	62400	62400	0.352
Number of high schools	1410	1421	1426	1444	1638	1643	1615	1606	1605	1576	0.497
Number of universities in Romania	107	104	106	106	108	108	108	107	103	101	-0.076
Number of faculties	770	755	631	617	624	629	614	596	590	583	-0.868
Ratio of education expenditure of the GDP	4.3	5.5	6.0	4.24	3.53	4.13	3.50	3.60	3.70	3.50	-0.236
Broadband INTERNET connections (mil.)	1.09	1.95	2.51	2.82	3.0	3.3	3.5	3.8	4.0	4.3	0.759
Ratio of defence expenditure of the GDP	1.8	1.5	1.5	1.4	1.3	1,3	1.4	1.3	1.35	1.45	-0.811
Number of military personnel (thousands)	75	75	68	67	67	66	66	66	65	64	-0.819

Using the multiple regression model in SPSS, Backward method, we observed that part of the independent variables used in the analysis were eliminated as having weak intensity connections with the dependent variable, such as: number of universities, number of military high school graduates, number of faculties, population aged 15-19 years old, number of high school graduates who passed the baccalaureate exam, number of broadband internet connections, number of military personnel, university didactic personnel.

After utilizing multiple regression, with the help of SPSS, we created a regression model containing a dependent variable and nine independent variables, whose parameters are presented in the table below:

Table 4

Parameters of the regression model

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	9368,749	,000		.	.
	High school graduates	-,001	,000	-,022	.	.
	Number of high schools	3,270	,000	1,042	.	.
	Ratio education expenditure of GDP	306,073	,000	,864	.	.
	Ratio defence expenditure of GDP	4056,202	,000	1,966	.	.
	Number high school students	,004	,000	,597	.	.
	Number military high school students	-5,122	,000	-1,952	.	.
	Educational offer of universities	-,099	,000	-,527	.	.
	Number of newborns	,023	,000	,888	.	.
	Pre-university didactic personnel	-,250	,000	-1,784	.	.
a. Dependent Variable: Number admission places military higher education institutions						

To estimate the evolution of the educational offer in the military higher education, expressed through the number of places for the admission contests organized by the military higher education institutions, we determined the average evolution indices for the independent variable in the time period 2016-2020, using the model:

$$Y = 9368.749 - 0,001 * X1 + 3,270 * X2 + 306.073 * X3 + 4056.202 * X4 + 0.004 * X5 - 5.122 * X6 - 0,099 * X7 + 0.0223 * X8 - 0.250 * X9, \text{ where:}$$

Y – the educational offer in higher military education, expressed by the number of admission places for higher education military institutions

X1 – the number of high school graduates in Romania

X2 – the number of high schools in Romania

X3 – the ratio of education expenses from the GDP

X4 – the ratio of defense expenses from the GDP

X5 – the number of high school students

X6 – the number of military high school students

X6 – the educational offer of the university system

X7 – the number of newborns

X8 – the number of school didactic personnel

Table 5

Estimation of the evolution of determinant factors of the educational offer of the military higher education institutions in the 2016-2020 timeframe

Independent variable	Average evolution index	Estimation 2016	Estimation 2017	Estimation 2018	Estimation 2019	Estimation 2020
High school graduates	1.0074	191321	192736	194179	195632	197096
Number high schools	1.0124	1596	1615	1636	1656	1677
Ratio education expenditure of GDP	0.9773	3.42	3.34	3.26	3.19	3.12
Ratio defence expenditure of GDP	0.9762	1.42	1.38	1.35	1.32	1.29
Number high school students	0.9940	722720	718394	714094	709819	705571

Number military high school students	0.9782	1308	1280	1252	1225	1198
Educational offer university system	1.0008	62456	62512	62568	62624	62680
Number newborns	0.9825	184108	180900	177749	174652	171609
Number pre-university didactic personnel	0.9887	55283	54661	54045	53436	52834

Using this regression model, in the conditions of maintaining the dynamics of secondary education graduates, the number of high school graduates, expenditure for education and defence from the GDP, the number of students enrolled in high schools and military high schools, the number of didactic personnel, the levels of the educational offer of the military higher education institutions were estimated to 1605 places for the 2016-2017 university year, 1714 places for the 2017-2018 university year, 1823 places for the 2018-2019 university year, 1933 places for the 2019-2020 university year and 2044 places for the 2020-2021 university year.

We observe that by anticipating from a strictly mathematical point of view, the evolution of the educational offer of military higher education institutions presents an upward trend, the estimated scholarisation figure growing annually.

Conclusions

In the last 25 years, a severe demographic decline is observed, Romania's population dropping from approximately 23202000 inhabitants in 1990 to approximately 19870000 inhabitants in 2015. Immediately after 1990 this trend became apparent, intensified by massive emigration rates registered since 2000, largely due to economic reasons. Given this tendency, it is estimated that the number of students in the school system will drop by 40% until 20125, which will lead to drastic changes in higher education. A reduced active population and a decrease in the number of students in higher education will generate immediate and long term implications for human capital in Romania, and also for the degree of workforce and for economic growth (Egron-Polak, et al., 2015).

Factors that have a significant influence on the offer of higher education military institutions include the number of high school graduates in Romania, the number of high schools, the amount from the Gross Domestic Product spent on education and defence, the number of university places financed from the state budget, the number of newborns and the number of teachers in school education.

This study intends to establish the coordinates of the educational offer of higher education military institutions, to define the variables that influence the evolution and to propose hypotheses that can be used in further research, a situation in which the results will point to a favorable conjuncture, implying the execution of more ample and detailed researches.

Markets cannot exist in isolation from environmental factors, demographic evolution, economic growth, law or other social factors that influence education. Consumers experience differently the existing offer in the educational market, they establish and also follow market tendencies, react to social change and technological development- some of them being willing to adopt new ideas, while others being more conservative and needing some time to adapt to the offer, The study of clients' behavior is crucial to marketing studies, focused on knowing the needs, the demand, consuming behavior, according to their status, the nature of demand for educational products/ services, the number of admission places offered by higher education military institutions (Epure, 2007).

Educational marketing strategies are focused on the cyclic process of permanent innovation, restructuration and actualization of educational programs, taking into account the feedback from the market, education institutions implementing specific activities of educational marketing to explore the possibilities of satisfying the consumers' cultural and educational needs. Education is based on values tied to human needs. As a marketing approach, the main interest is focused on offering educational products and services conform to the demands of consumers, which are constantly changing in the turbulent context of today's economic realities (Birău, 2014)

Although through the statistical analysis of the dependence between the variables considered to have significant influence on the educational offer of military higher education institutions, a possible ascendent evolution of the offer resulted, we appreciate that certain determinants depend on the evolutions of the global and regional political-military context, as well as of decisions which can not be influenced by the military higher education system.

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