Gateways into higher education: the case of the selection process to access the undergraduate level at unam*

Carlota Guzmán Gómez**
and Olga Victoria Serrano Sánchez***

** Researcher at the Regional Center of Multidisciplinary Research of unam, in Cuernavaca, Morelos, Mexico.
E mail: carlota@servidor.unam.mx

*** Researcher at the Regional Center of Multidisciplinary Research of unam, in Cuernavaca, Morelos, Mexico.
E-mail: olgass@servidor.unam.mx

Resumen

Se analizan los factores personales, académicos, socioeconómicos y culturales que inciden en el ingreso al sistema educativo de nivel superior. Se toma el caso del ingreso a la licenciatura de la UNAM, por medio del concurso de selección, en el ciclo escolar 2006-2007. El análisis se basa en la aplicación de modelos de regresión logística. Los resultados muestran que los aspirantes con mayores probabilidades de ingresar son hombres, de mayor edad, de origen socioeconómico medio y alto, que tienen un alto promedio de bachillerato, que estudiaron en escuelas privadas y que tienen acceso a recursos culturales y educativos.

Abstract

Personal, academic, socioeconomic and cultural factors are analyzed regarding their impact in terms of access to the higher education system. Taking the case of the competitive selection process to the undergraduate level at UNAM for the 2006-2007 school cycle. The analysis is based on the application of models of logistical regression. The results show that the applicants with more probabilities of entering are older male students, coming from medium and high income backgrounds, with higher than average marks, that have studied in private schools and that have access to cultural and educational resources.

Palabras clave:
- Desigualdad educativa
- Acceso a la educación superior
- Oportunidades de jóvenes universitarios

Key words:
- Educational inequality
- Access to higher education
- Opportunities for university youth

Introduction

Alarming figures come to light every year about the youths that were not able to enter the undergraduate level at the Universidad Nacional Autónoma de México (UNAM) [Autonomous National University of Mexico]. Some media call them rejected, others call them excluded, but this is the story of young applicants that see their expectations truncated. Some of them manage to later enter UNAM, or change majors or enter other higher education institutions, yet some others stop studying, they start working or devoting their time to other activities. Confronted with this situation, we wondered about what characterizes the youth that are able to enter as well as those who are left outside, that is to say, in sociological terms we want to know what social groups these youths belong to and how the mechanisms of economic, cultural and educational inequality operate in regards to entrance to the higher education level.

The inequality of opportunities to enter higher education has been a problem that many countries have faced for decades. As years go by, far from coming up with satisfactory answers to this problem, it has been getting worse. Nowadays, educational inequality is inserted within an economic, political and social context that is very different from that of four decades ago, thereupon this phenomenon has taken many shades and generated new processes. This debate is also undergoing renewal given the new tools currently at our disposal as well as categories able to encompass more information.

In this context, we approach the educational inequalities departing from the analysis of the socioeconomic and cultural factors that impact Mexican youth's admission to the higher education system. We take the case of the entrance to the undergraduate level at UNAM, by the means of the competitive selection process, since it is one of the institutions that registers more demand and with a higher proportion of rejected applicants and, therefore, the selectivity mechanisms are exacerbated. Starting from this point we look for the factors and the conditions that either open or close the gateways to enter higher education.

In the first part we present the discussion around the limits as well as the reach of the concept of educational inequality as that of inequity. Related to the above mentioned we present the debate regarding the role of the school in connection with these phenomena. Both discussions conform the analysis axes from which obtained results are interpreted in the framework of a new economic and social scenario. Thereafter the employed methodological procedure is presented along with the study universe and the statistical model, to later arrive at the results of the analysis, which are then discussed with the discoveries of other investigations, to finally reach the conclusions.

From equality of entrance opportunities to educational equity

For four decades the phenomenon of educational inequality was attributed to dissimilar access opportunities to education, departing from the notion that the individual's right to having an education had not been fulfilled. From this perspective, investigations documented inequalities in access to different educational levels, while public policy was aimed at expanding the educational system's coverage. Nowadays, the overall balance is not very positive, access to education has been only partially achieved at the elementary level and there are still gaps at the pre-school level. However, in some regions, the problem has been transferred to the higher levels: in the upper secondary as in the post-secondary level, coverage is limited and has not been able to satisfy the demand of youths applying to enter. On the other hand, problems that afflict the system such as grade failure and educational lag as well as low graduation efficiency persist.

At present, the concept of equality of access opportunities to education is considered very limited, since evidence shows it is not sufficient to open more places in the educational system, but rather necessary to guarantee quality education as well as positive academic results. Furthermore, although it is assumed that places in universities are offered to everyone on an equal basis, for equal opportunities sake, there are mechanisms of inequality at work, based on the meritocracy, due to the fact that individuals coming from dissimilar backgrounds, in socio-cultural terms, are subjected to the same set of conditions, (Dubet, 2005; Sen cited by Bolívar, 2005; Roemer cited by Bolívar, 2005).

Diverse proposals converge in the idea of considering that true equality implies weighing other dimensions of the educational process, such as equality of opportunities to study, access, permanency and in the results or benefits (Lemaitre, 2005; Martínez Rizo, 2002: Farell, 1997 and 1999 cited by Bolívar, 2005; Silva, 2010; Latapí, 1993). Along with the previously mentioned dimensions, equality of inputs needs to be added, it considers equal investment and operation expenditures in educational services a central dimension. In this regard, the debate around the equality of opportunities is now being focused on highlighting the necessity to achieve educational equity. Given that the concept of equality rests upon the legal notion that all individuals are equal; the concept of equity refers exactly to the differences among individuals, meaning: human diversity, as it introduces elements of social justice characteristic of the field of philosophy (Rawls, cited by Bolívar, 2005).

Although introducing social justice as an element opens a new horizon in the discussion about inequality, Rawls position (Bolívar, 2005) has also generated critics, among these, Latapí (1993) considers that there is some sort of justification for the differences. In this debate an emphasis has also been put on considering the individual's starting point; therefore Roemer

(cited by Bolívar, 2005) proposes to achieve equity "by leveling the play-ing field", which presumes everyone should share the same starting point; furthermore, it emphasizes the necessity to avoid any kind of discrimination due to personal reasons. The consideration of everyone as equals can result in an unequal treatment of those in a situation of disadvantage, to ensure equality of opportunities, the most vulnerable groups most be aided with more resources. This concept of equity has been the educational policy foun-dation since the 1990's, mainly aimed at recognizing the differences, and implemented through the compensatory programs (Miller, 2009).

Along with this, the debate implies to also wonder: equality of what?, since there are those who are focused on the necessity of equating the pos-session of goods and access to services (Rawls cited in Bolívar, 2005) while the position of Amartya Sen conceives equality in terms of each person's capacity to transform resources in capabilities, to transform them and to in-crease their own freedom, to choose the lifestyle that each person considers desirable. From this approach, the most important thing is to have a real opportunity to achieve what one values.

Educational inequalities: where do they come from?

One of the issues that derive from the debate about educational in-equalities is to determine where do they come from and how best to tackle them. On the one hand, there is a group of theories that places the factors that produce the inequality as external to the school, while another group of theories affirms that the school is not outside this context and it can in fact be constituted as a mediator entity.

Theories that hold inequalities present at school have an external origin, and conform a wide spectrum ranging from psychological trends based on the individual's internal factors, such as personality and capabilities. There are also social trends that conceive inequalities as clearly social, cultural and family factors, as well as race, sex and social status that greatly influence the defining of students' educational success or failure.

These social trends tend to come from either the United States of North America or France. In the former they were started by the 1966 Coleman Re-port, which establishes that educational and occupational achievements are an effect of the socioeconomic status and not a product of school. In the case of France, there are the so called reproductionist approaches (Bourdieu and Passeron, Baudelot and Establet, Boudon) that consider school reproduces and maintains social inequalities and thus, it has no possibilities of changing students' predetermined course. These theses have been broadly dissemi-nated and constitute the basis of a great outpouring of investigations in the last several decades, but they have also propitiated, in some cases, demor-alization and demobilization in terms what may be accomplished through schooling.

Beyond the reproductionist theses, in the past few years a tendency can be distinguished which finds that school, far from merely being a reproductive space for social inequalities, may play an important role in solving them. From this perspective, school is conceived as a space of interactions among subjects and thus, the relationships, between teachers and students, among peers, as well as the material conditions and the pedagogic methods, play an important role. (Casassus, 2005). This new conception of school represents a breaking with the reproductionist approach, while at the same time, bestows on school new responsibilities. Departing from this point, since the 1990's, school has been constituted into a strategic policy element aimed at improving teaching conditions. Schools have been endowed with material resources and programs to improve the quality of the teaching-learning process. This debate has taken a particular twist at the higher level, mainly sustained in Vincent Tinto's (1987) and Pascarella and Terenzini's (1991) contributions, who consider the institutional atmosphere, which includes the formal structures as well as the physical socialization and academic spaces, along with the interactions among peers and with professors, as they affect the passage of students through the university, but mainly, they may favor or hinder student integration and the results they obtain. Especially, Tinto sustains, students that are able to integrate have less probabilities of dropping out, moreover those who adjust to the norms and practices have more possibilities of having regular trajectories. From this perspective, family backgrounds and personal attributes interact with the institutional atmosphere and lead to a particular kind of integration. Pascarella and Terenzini (1991) even conclude that the atmosphere created by faculty and students is the decisive factor for school success. In line with the previous theories, French student sociology in the 1990's also leans towards considering factors characteristic of the school, such as study discipline, conditions of facilities and the level of integration of university life as the dimensions that most influence the construction of the student condition (Dubet, 1993; Coulon, 1997 and Felouzis, 2001 cited by Guzmán, 2002).

Educational inequality under a new scenario

Although the problem of inequality of access opportunities is very old, today we are before a new scenario known as the knowledge society, referring to a phase of capitalism in which the economy is basically governed by the intensive production of knowledge and new technologies (Tedesco, 2000). This model has generated an increase in inequality and social polarization based on the possibilities of individuals to access information and knowledge. There are even those who affirm that we are transitioning into a new society based on who is included and excluded (Tedesco, 2000; Rama, 2005). In this context, the access to education especially at the higher level is an important condition that starts differentiating the possibilities of social insertion of individuals to the global knowledge society. In this context, quality is

poised as a requisite for not being excluded from the expanding dynamic of the knowledge society (Rama, 2005). Hence, higher education institutions have become social filters meanwhile they have developed mechanisms to select who will enter.

In Mexico, there are increasingly more youths excluded from entering post-secondary level, this competition is intensified given the growing number of students finishing high school while public higher education institutions are not expanding their supply at the same rate.

During the 1970's there was a clear policy aimed at expanding the higher education level's capacity, with the idea of increasing the opportunities to enter so as to satisfy the demand of a growing middle class; however, this process didn't have the desired effects in terms of democratization and new problems arose derived from the policies' level of improvisation as well as the universities' lack of adaptation to this new scenario. By the mid 1980's a process to control the registration began and it practically allows supply to remain stable until the 1990's, failing to fulfill youths' expectations for the generations that followed. Based on an idea that recognizes the diversity of situations and necessities, since the 1990's institutions were created targeting specific audiences and as a response to regional and local needs. This is the context that led to the creation of the technological and inter-cultural universities. At the same time a rapid expansion of private education took place.

UNAM's case is very clear. The period of registration expansion took place in the 1970's; during the first half of the decade the population increased 109%, followed by 32% in the second half. 1980 saw the largest student population of the period (294,542 students) but from then on registration quickly begins to fall. The 1980's are marked by the fall and then control of the registration. During the first half population drops by 13% to later increase by 9% in the second half. The 1990's begins with another drop in registration and after some changes, characteristic of UNAM's internal conflicts at the end of the decade (Guzmán and Serrano, 2007b), the registration increases and in 2010 reaches 314,557 students. In spite of the new educational options, the demand to enter UNAM continues to grow and it can only accommodate a reduced number of applicants.

Admission mechanisms for UNAM

To enter the undergraduate level at UNAM, whether the distance learning or the traditional system, there are two possible ways. Youths can enter through what is called regulated passage for students that have completed their high school within UNAM's own system, either at the National High School [Escuela Nacional Preparatoria] or at the School of Sciences and Humanities [Colegio de Ciencias y Humanidades], and that also fulfill the established requirements, such as minimum average marks of 7 (70%) and a four year

maximum stay starting from the time of entrance[1]. The other way is the competitive selection process that opens twice a year: in February and June. Youths are eligible to present it if they are graduates from any high school - whether public or private - and have obtained minimum average marks of seven in the last completed level of studies. This exam consists of 120 questions that refer to the different areas of knowledge. Applicants are given the option to choose the program they wish to study as well as the facility they would like to attend. A place is assigned to applicants that obtain an established minimum score that is different for each program, notwithstanding place of residence[2].

It is important to clarify that most of the places are occupied by graduates from UNAM's own high school (64%) and the remaining 36% is open for the competitive selection process[3].

Study universe

The population that conforms our object of study are students that aspire to fill a place by means of the competitive selection process in some of the university's undergraduate programs, for the school cycle 2006-2007, that corresponds to a total of 106,106 applicants, of which only 11,439 (10.8%) were selected by UNAM to be awarded admission[4]. The information source is the *Applicant and awarded students profile for the undergraduate level*, provided by UNAM's General Regency of University Planning [Dirección General de Planeación Universitaria], which is generated from the statistical data forms that students provide via the internet when they fill out the application for the exam.

Results and statistical method

The results that we present are part of a second investigation stage based on the application of models of logistical multivaried regression. The first stage consisted of a model of logistical bivaried regression that provided the clues for selecting the variables to conform the multivaried model, taking as criteria that these were theoretically relevant, statistically significant and that

[1] Students that obtained average marks of nine or higher and completed high school within a three year period, are entitled to choose their preferred program and school, others have to adjust to demand or, choose a second option.

[2] All applicants coming from any school, whether public or private or from UNAM's own High School System, are required to obtain marks with an average minimum of seven (70%). The scores required vary considerably and depend on the places that each program and facility has available, as well as on the demand, as such places are granted to the highest scores. The programs requiring the highest scores for the school cycle were mechanic-electronic engineering which required 103 points (out of 120) and medicine with 102; the former registered a demand of 58.6 students for each place and the latter 40. The programs requiring the lowest scores were agricultural development planning that only required 57 points and, nursing and obstetrics with 59; with a demand of 3.4 students per place for the first and seven for the second.

[3] Some programs call for additional requirements, such as those imparted at the National Music School, the programs of modern literature and foreign languages teaching, engineering in telecommunications, computer science, basic biomedical and genomic sciences.

[4] The total of applicants includes the candidates that took the selection exam in February and in June of 2006.

they didn't present a multicolineal effect. Furthermore, the bivaried analysis was an important basis for generating the research questions and to identify the importance, magnitude and direction of the effects of each of the independent variables in the access to the university (Guzmán and Serrano, 2007a). We decided to undertake a second investigation stage, because we considered that there are not variables that determine the admission to the university by themselves and, therefore, it is necessary to analyze the variables as a whole.

We chose to base the analysis on a model of multivariate logistic regression, because it allowed identifying the effect of an independent variable on a dependent dichotomous variable, in the presence of others. For this, we calculated the adjusted odds ratios (AOR), as these reasons or probabilities are conditioned or determined by the values of other independent variables in the model, so they are called control variables or covariates. By analyzing these probabilities and adjusted odds ratios, we refer to the net influence of each particular independent variable on the dependent variable, holding constant or controlling other explanatory variables.

The dependent variable takes value zero when the student is not accepted and value one when he or she is. The independent variables of the model refer to four central dimensions in the processes of social and educational inequality: 1) personal characteristics, 2) educational precedents, 3) socioeconomic aspects and 4) cultural resources. In accordance with the results generated by the model of multivariate logistic regression that are presented in chart 1, being accepted at UNAM is explained by all the variables included in the model[5].

The processing and analysis of the information was carried out with the help of the Statistical Package for the Social Sciences (SPSS) version 14.

Who are the applicants?: main characteristics

The population of applicants is composed almost equally of men and women, with a slightly larger proportion of women than men: 56% and 44%, respectively. We can affirm that it is youths that have continuous educational trajectories, that are single and do not have children, for the most part, and they are economically sustained by their parents. In regard to their schooling backgrounds, the youths basically come from public schools; they carried out their most recent studies in the Federal District and in the State of Mexico (Mexico City's Metropolitan Area), in schools mainly incorporated in the Secretary of Public Education (SEP) (41.1%), Colegio de Bachilleres (23.4%) and UNAM (21.1%).

---

[5] Variables are the following: Personal characteristics: Sex and Age. Socioeconomic aspects: Family monthly income in minimum wages. Educational antecedents: Type of school of origin, Character of the school of origin and Average marks obtained in high school. Educational and cultural resources: The mother's academic level, Access to cultural resources: consultation materials available at home: text books, cultural magazines, encyclopedias, newspapers, atlas, internet, others. This information was used to calculate an index that classifies the students' access to cultural resources as low (reference category), medium or high. Although we considered that the applicant chosen program could be an outstanding variable in the construction of the model, it could not be incorporated because this information was only available for accepted applicants.

As for the applicants' academic characteristics, most of them completed their high school within the established three year period and they did not have to repeat any subject; a little more than half of them obtained lower average marks than 8 and only 11% higher than 9.

Taking into consideration the applicants' family characteristics and particularly their fathers' educational level, we find that a little less than half reported that their parents had completed only secondary (junior high school) or less; 54% had continued their education, of these 25% completed high school and only 29% had completed a degree or more. As for the mothers' educational level, they were at a disadvantage compared to the fathers, given that only 17% had completed a degree or more, and 53% dropped their studies after secondary school or earlier.

The sample's parents main occupation shows most of the students are employees' children, trade workers and merchants (35.4%, 14.9% and 13.4% respectively). In this bracket, a smaller representation of children of business people, managers or officials may be observed (2% and 2.7%). Among the students' mothers, their main occupation is employee (22%), then merchant (11%) and domestic worker in third place (10.4%). The children of women managers and officials are a small minority: (0.7% and 1.3% respectively). It is important to highlight that out of the total group of students a little more than a third declared that their mothers do not work.

Regarding the young applicants' family income a disparate situation was found, in that more than half of the applicants live under very precarious socioeconomic conditions. Only 26.5% reported higher family incomes of more than six minimum wages.

Why more men than women?

According to the results obtained in the survey, we found that men enter UNAM twice as frequently as women. Confronted with this situation, is it necessary to enquire why is it that men have much more probabilities of entering UNAM?

First, we need to mention that there is a wide range of investigations concerned with analyzing the differences between men and women in relation to their performance, achievements and educational results (Mingo, 2006). On the one hand, it has been documented that styles differed in connection with knowledge and with the educational goals; in general, women are better students than men, in terms of having better performance and educational results. Positive reports by teachers and educational administrators portraying women as more reliable, persevering, committed and attentive students are common (Silva, cited in Mingo, 2006).

This same tendency is present in the case of the undergraduate level at UNAM: women have on average higher marks than men (women: 8.2 and men: 7.8); they study and they pass more subjects than men (women: 2 subjects failed, men: 6) (Millán, 2006). Mingo's results (2006) are also similar, she finds that 63.1% of women compared to 53.3% of men did not have to

retake any subject. Also, women show higher perseverance than men, since eight out of every ten women graduate from UNAM, while only six out of every ten men do (Millán, 2006). In addition, more women than men finish within the regular program duration (Bartolucci, 1994). It is important to clarify that the sex variable has a different effect when it is associated with the socioeconomic domain, hence these factors have a significant impact and may end up erasing the differences among sexes (Mingo, 2007).

It is also documented that learning styles and abilities are usually different among men and women. It is recognized that, in general, women lean more toward the field of language, understanding, and analysis in context, while men show greater abilities in regard to logical and formal thought and are more inclined to abstraction and generalization (Collins, cited by Mingo, 2006). These differences are usually expressed in men's higher performance in the areas of mathematics and exact sciences[6].

The answer to the question of why is it that men have more probabilities of entering higher education might be found in the mechanisms used to select the student population and, concretely, in the type of admission exam. Accordingly, in spite of women's better performance at school, in the admission tests womens' scores are, as a general rule, lower than that of men. Data from the National Evaluation Center (CENEVAL) [Centro Nacional de Evaluación] shows that has been the case for admission to the senior high school level in the metropolitan area of Mexico City for the last ten years (Escamilla, 2006). In this test, the National Admission Exam for Senior High School (EXANI II) [Examen Nacional de Ingreso a la Educación Superior] 2002, it was observed that in 31 federative entities women's results were inferior to that of men (Mingo, 2006). It has been considered that this is related to the type of exams that are administered. According to Collins (cited by Mingo, 2006) the evaluation is influenced by work and communication styles, that is why it is necessary to consider the communication style of both sexes. It has been observed that women are better on the exercises that require extensive writing. Conversely, men stand out in tasks that require short answers and multiple choice (Mingo, 2006). That is the modality used in UNAM's admission tests. Additionally, exams may have an additional bias when assigning more weight to mathematical abilities and formal thought that usually presents itself in men in higher proportion.

Beyond different styles and abilities, learning styles and results, there are social and cultural patterns under which men and women have been educated differently, by promoting and repressing certain behaviors that in the end also lead to differentiated affinities and choices. On the other hand, these patterns don't exempt the fact that men and women can escape these tendencies. As we will see later on, the social origin also marks differences, that add up to the existent differences between men and women, and that interact with each other.

---

[6] Mingo (2006) documents the discoveries of UNESCO's World Education Report and Cassasus, (2005), in a study on basic education in Latin America finding that girls have higher scores in language and lower scores in mathematics.

Age: how important is it?

According to the survey, we found that being accepted into UNAM's undergraduate level is associated with older youths: the odds ratio presents a directly proportional relationship with age, which as it increases, its impact is more relevant in entering the university. The frequency for a 20 year-old student to enter UNAM is 1.5 times higher than those 17 or younger. The biggest impact of age is presented in those students that are 30 years old or older, since these are accepted 3.4 times more than students 17 years old or less, controlling the rest of the variables.

At first glance this result contradicts the idea that youths with continuous educational trajectories and therefore, younger, would have more probabilities of entering UNAM since it is inferred that they have had the material conditions and the necessary support to study with less obstacles (Guzmán, 2005). Research on students has also documented that in the public higher education institutions students with continuous trajectories and, therefore younger prevail (Guzmán, 2005). So there is the necessity of explaining this discovery.

Firstly, it is important to clarify that the results from the logistical regression model are only concerned with the population surveyed: the students that applied for a place in the university, that is to say, it is a select population and this does not apply to everyone in this age group.

The opposite tendency leads us to consider that the population applying to enter UNAM is heterogeneous and has different academic as well as labor trajectories. On the one hand, there is the case of applicants that have not been accepted in one year's competitive selection process, they make another attempt, they prepare themselves and acquire more experience than students that have recently graduated high school. On the other hand, there are those who already have a degree and they hope to study another major, so a 30 year-old applicant has a discontinuous trajectory, but not necessarily because of falling behind, but rather because they have studied another major or have more labor experience (Rama, 2005). This gives them an edge when competing with younger applicants. In addition to the above mentioned, older applicants are usually more mature and in most cases they have completed their transition into adulthood.

It is interesting to wonder if, in the case of Mexico, we are transitioning towards the scenario that Rama (2005) finds in several countries: diversification of the student clientele, change in the demographic composition of institutions and permanent growth of university access for those older than 25.

The inexorable weight of academic history

According to the applied pattern, the academic precedents hold great weight in the probability of entering UNAM, particularly the type of school students come from, as well as the average marks obtained in high school.

As for the type of school applicants studied at, it was found that once controlling the youths' remaining characteristics, a stronger effect is noticed when students attended elementary and junior high school at private schools, which surpasses 50% frequency of accepted students compared to those that come from public schools. The odds ratio although it falls slightly, remains highly significant when youths studied primary and secondary in private schools (1.4). In contrast, in the case of having only studied high school in private schools, a negative association is made evident since the frequency of accepted students is diminished by 35%, compared to those that come from public schools. It is important to highlight the weight that basic education has on the educational trajectory, since it is at this stage where youth develop the basis of learning that will allow them to give continuity, facilitate or obstruct later stages. Interestingly, studying in a private high school only shows a negative impact, which can be due to the fact that many youths that cannot either enter the school they want, due to their low marks or because they didn't reach the required score, end up going to private institutions of dubious quality that evidently do not prepare them appropriately to enter to the post-secondary level.

The results obtained lead us, on the one hand, to the debate between the quality of private and public schools and on the other, to the way the school type impacts the educational results. In the first place, the fact that the results of tests like Enlace (link), Excale and PISA, among others, show better results for students coming from private schools cannot be ignored (Sánchez Pérez, 2006; Cassasus, 2005; Backhoff *et al*, 2006).[7]

Such tendencies have found two explanations. The first one argues that the best results of private schools are related to the internal factors of the school, that is, the type of teaching provided and the resources that they have, better infrastructure, reduced groups, qualified personnel (Casassus, 2005), which can be translated as a better academic level. The second explanation is based on factors external to the school, that is, the type of students that attend private schools, as it is known, are children of families with more resources, medium and high income who can afford a private school and, therefore, it is probable that they are better fed, that they have counted with greater access to educational and cultural resources and that their parents have a higher educational level. From this perspective, having favorable economic and cultural conditions rather than simply a better education is what benefits these students (Mingo, 2006; Casassus, 2005; Guzmán and Serrano, 2007).

Or, we could outline a third explanation, the interaction of internal school factors plus economic and cultural factors.

---

[7] Sánchez Pérez (2006) builds on the results in Spanish and mathematics of the Pisa test (Student Evaluation International Program, administered by the Organization for Economic Cooperation and Development) and Excale (Educational Quality and Achievement Exam, administered by the National Evaluation Institute), it is important to point out that he also finds great heterogeneity among the private schools.

Continuing on the importance of the type of school candidates attended, high school plays an important role. It appears that the biggest impact is presented when applicants come from the Vocacional [Politechnical Institute's High School], since they enter UNAM at twice the frequency of students coming from Colegio de Bachilleres. The odds ratio of those coming from schools incorporated to UNAM turned out to be a little lower, but still highly significant: 1.7 compared to the reference category. The incidence of the type of high school is related to how similar or diverging the curricula of the different schools is. Given that the admission test presumes the command of certain types of knowledge that are covered by UNAM's high school program. Hence graduates from the system affiliated with UNAM have higher chances of entering, or as is the case for Vocacional graduates that show more proficiency in the type of mathematical skills included in the admission test. Conversely, it confirms that since the exam has an academic content, the success or failure in the obtained result largely rests on the type of high school students attended.

Access to the university is also related to high school performance: the higher the average marks, the higher the frequency at which youths are accepted. This is especially true when average marks in high school surpass 9, since the odd ratio increases between 3.4 and 5 times more compared to students with marks between 7 and 7.5. These results show that performance in high school translates into opportunities to enter UNAM and that this marks concentrate the achievements obtained along the whole educational history.

The results obtained in this study fully coincide with those of other investigations, whether in the case of entrance, permanency or achievements (Millán, 2006; Mingo, 2006; Kisilevsky and Veleda, 2002; Sánchez, 2010). We can affirm that there is consensus regarding the great importance average marks obtained in high school have for entering the post-secondary level, as well, as a predictor for academic performance (Bobadilla *et al*, 2007; De Garay, 2005; Romo *et al*, 2007; Chain, 2007; Cu Balan *et al* 2004 2007 - cited in Sánchez, 2010 -; Sánchez, 2010). This has become such a strong indicator that there are higher education institutions that take the obtained average marks into account as selection criteria or admission requisites, (Sánchez, 2010, Bobadilla *et al*, 2007). Therefore, it appears this is a glimpse of a future scenario in which the educational fate is cast from the beginning of schooling and outlines a path that cannot be reversed. Achievements and failures are carried along regardless; at each step or stage, there are repercussions to subsequent stages that make it difficult to break away from the path that has already been traced.

Socioeconomic factors taken to debate again

As we previously mentioned, one of the central issues in the debate around educational inequalities is the weight of the individuals' social extraction in accessing education. This fact, as was mentioned at the beginning, consti-

tutes one of the central arguments of the reproductionist approach and the underlying assumption is that the differential access to material and cultural resources directly impacts the educational opportunities and, therefore, the school becomes an instance of reproduction of social inequalities. In this debate the socioeconomic aspects have been considered as external factors to the school, that act in a differentiated fashion influencing the possibilities of entering the chosen institution, as well as school performance, failings, lagging, permanency or graduating.

To get a closer look at the socioeconomic level of the applicants we took the students family's income as a base, as a direct indicator of their economic situation; the mother's level of studies, as it has been documented to be crucial in terms of the level of continued support and interest as well as in the type of trajectories that children develop; in the third place, we took into account the applicant's family access to cultural resources, what in Pierre Bourdieu terms would correspond to the objetified cultural capital, such as books, encyclopedias and access to the internet.

The results show that there is an enormous gap of access opportunities to the university between students of lower and higher incomes: the odds ratio of entering the university among students with an income higher than 10 minimum wages is 100% higher than those that perceive less than two minimum wages. It is also important to highlight that the relationship between the family income and being accepted at UNAM is clearly lineal, since as it increases, the frequency of students being accepted also increases. These results make evident the great weight that socioeconomic extraction has in youths entering higher education. Although this may fade during their time at the University, it plays a very important role in the admission process.

Meanwhile, the results highlight the impact that the applicants mother's educational level has in their access to UNAM. Students accepted with higher frequency are those whose mother reached at least high school. So, these students were accepted 1.1 times more often than those whose mother reached only the elementary school level. Entrance frequency goes up to 1.3 times when the mother reached the undergraduate level or more. These results show, first that the mothers with more studies are also those that have a higher socioeconomic level and, second that a mother with high educational levels has the resources to support her children materially, to guide them and support them in the day to day educational tasks. The weight of the mother's education coincides with what Mingo (2006) found in the case of academic performance which increases as the mother's educational level increases, especially when the mother has a higher degree. This shows that the support of an educated mother, throughout the educational trajectory, is of great importance as it translates into support and monitoring of the children's educational sphere.

Finally, another factor that influences being accepted at UNAM is the cultural environment in which youths are immersed, very frequently referred to as cultural capital, based on Pierre Bourdieu's approach. It is objectivized through books, encyclopedias and access to the internet. These resources, on

the one hand, support the educational endeavors, and on the other they are a sign of the economic possibility of having these resources. For these factors we consider three levels according to the access to cultural resources, that are expressed through an index. Applicants that have access to high cultural resources enter UNAM more frequently than those who come from a lower cultural environment: once controlling other variables, the opportunity for students to be accepted when they come from the bracket with medium and high access to culture grows by 1.3 and 1.6 times more than those that have fewer material resources for consultation. These students with access to high cultural resources also belong to families with a higher socioeconomic level.

Specifically regarding entry opportunities to higher education, diverse studies in different countries have shown differential access of youths, according to their socioeconomic level (Rama, 2006 in the case of Uruguay; Kisilevsky and Veleda, 2002, for Argentina), this fully coincides with the study's results.

While in the case of the opportunities for entering higher education, the weight of socioeconomic factors is conclusive, this is not so in the later stages, such as school performance, failing and educational lag. Based on a study about UNAM, Mingo (2006 and 2007) finds evidence on the importance of differed social extraction in academic performance and in the graduation rates, so while the socioeconomic level is increased indicators improve, such as the average marks, concluding studies on time, presenting less extraordinary exams and retaking subjects. However, she recognizes that social background influences vary according to the area of knowledge, in the exact and natural sciences high socioeconomic groups are over-represented, whereas lower socioeconomic groups are over-represented in education and humanities. She also points out that for the UNAM's case, sex has a greater impact than social origin. Contrary to these findings, diverse investigations coincide, according to their own evidence, that socioeconomic background does not have any direct influence over school performance, nor achievements and results, neither on failure, backlog, permanency, nor graduation rates. In one of the pioneer works about academic trajectories in the UNAM, Bartolucci (1994) analyzes the generation that entered UNAM in 1982 and he finds that students' socioeconomic level is not a factor that impacts trajectories, nor in educational achievement, but rather he considers that it is an interaction of such variables as gender, social origin and school precedents.

Millán (2006), based in a case, also about UNAM, using logistical regression analysis, rejects the hypothesis that better socioeconomic conditions reduce dropouts and increase graduation. She believes that her results may be due to the population entering UNAM being selective, or because UNAM meets the social mission of higher education institutions to address socioeconomic inequalities present at the time of entrance to the university over the course of students' education, to place them in equal conditions. Sánchez (2010) finds a similar case at UAM-Azcapotzalco. In the same vein, and based also in the case of UAM-Azcapotzalco, De Garay (2005) found that father's education is not a factor in the type of trajectory, continuous, discontinuous or lag.

Romo (2007), based on a study in five universities in the country, also agrees that coming from low-income families does not predict a poor performance in college. While Acosta (2008), agrees that students' origin conditions do not determine school dropout or academic lag, he recognizes that these in some way influence such factors given that low-income students struggle to cover school related expenses such as books, photocopies, transportation and meals.

We may conclude that although the effect socioeconomic factors have on educational performance, achievement and completion rates is controversial, they are not during the admission process by competition, as these factors contribute directly and without ballast.

Once clear on how the effects of socioeconomic factors come to play in the entry to UNAM through competitive selection, it is important to compare the characteristics of students that enter through this route with those students that enter by means of regulated passage, in order to provide an overview of new students and the entrance mechanisms to the university. Taking as a base socioeconomic indicators previously used: family income, mother's academic level and access to cultural resources, we can see that those entering by means of competitive selection are notably from a higher socioeconomic level than those coming in through regulated passage. These differences are consistent across the three indicators used and show how each of the modalities of admission favors a different type of population.[8]

Frame 1
Multivariate Logistical Regression

Variables	Significance level	Adjusted Odds Ratio (AOR)	Trust Intervals	
			Inferior	Superior
Sex				
Male	0.00	1.81	1.72	1.89
Female*		1		
Age				
17 or less*	0.00	1.0		
18	0.04	1.17	1.01	1.36
19	0.00	1.38	1.19	1.60
20	0.00	1.54	1.32	1.80

[8] The analysis of the socioeconomic data of the total of youths that enter UNAM shows important and significant differences (chi-square test with p <0) according to the type of entrance modality: regulated passage and selection competition. Family income among UNAM's high school students is lower than that of applicants to the competitive selection process. Thus, half of the students with regulated passage have a family income of less than four minimum wages per month, whereas only 38% of competitive selection process are in the same condition. In contrast, in the range of higher incomes (more than eight times the minimum wage), the proportion of candidates through competitive selection (25%) is significantly higher than the proportion of regulated passage (12%). The proportion of students in which the mother has a bachelor's degree or more is 27% for those entering through competition, while for students with regulated passage this situation occurs only in 17% of cases. The number of students entering by competitive selection with medium and high access to cultural resources, accounts for 54%, and is higher than for the students entering by regulated passage (43%).

21	0.00	1.51	1.28	1.78
22	0.00	1.73	1.46	2.06
23	0.00	1.68	1.40	2.01
24	0.00	1.78	1.46	2.16
25	0.00	1.82	1.48	2.25
26 a 30	0.00	2.09	1.76	2.50
Más de 30	0.00	3.39	2.84	4.05
Type of school				
All prívate	0.00	1.51	1.40	1.63
Only Elementary	0.04	1.14	1.00	1.29
Only Secondary (junior HS)	0.14	1.17	0.95	1.43
Only Senior High School	0.00	0.65	0.59	0.71
Elementary & Secondary	0.00	1.41	1.25	1.60
Elementary & Senior HS	0.06	0.84	0.71	1.00
Junior & Senior High School	0.08	1.13	0.98	1.31
All Public*		1		
Character of School of Origin				
Affiliated with UNAM	0.00	1.74	1.60	1.88
Affiliated with SEP	0.62	1.02	0.95	1.09
Colegio de Bachilleres*	1	1		
State or municipal school	0.00	1.53	1.40	1.67
Vocacional	0.00	2.11	1.86	2.38
Normal superior	0.00	1.41	1.12	1.76
Average High School Marks				
7 to 7.5*		1		
7.6 to 8	0.00	1.17	1.09	1.25
8.1 to 8.5	0.00	1.56	1.46	1.67
8.6 to 9	0.00	2.13	1.97	2.30
9.1 to 9.5	0.00	3.38	3.11	3.68
9.6 to 10	0.00	5.03	4.50	5.64
Mother's academic level				
Elementary or less*		1		
Junior High School	0.84	1.01	0.94	1.08
Senior High School	0.00	1.10	1.03	1.17
Bachelor's Degree or more	0.00	1.28	1.18	1.38
Monthly Income				
Less than 2*	0.00	1		
From 2 to 4	0.00	1.31	1.20	1.42
From 4 to 6	0.00	1.41	1.29	1.55
From 6 to 8	0.00	1.59	1.44	1.75
From 8 to 10	0.00	1.64	1.47	1.83
More than 10	0.00	1.91	1.72	2.13

Access to cultural resources				
Low*		1		
Medium	0.00	1.34	1.27	1.41
High	0.00	1.56	1.47	1.65
* Reference Category				

Taking into account that 64% of new students enter by means of regulated passage, this indicates that lower income students are able to enter through this modality thus comprising an important share of total new student population. These results also show that, as entrance mechanisms become more competitive, as in the case of competitive selection, students with greater economic resources are being awarded the places leaving lower income students out.

As closure...

From these results, we believe that the debate about educational inequality and inequity remains relevant as thousands of young people do not find a place or the option they want in the education system. It is worth mentioning that this study analyzes only issues related to entrance opportunities to higher education by means of competitive selection, and in this sense, covers only a part of a complex problem that includes, referring to income, but also permanency, the obtained results, and as well, benefits derived. We can conclude that socioeconomic factors clearly influence higher education entry opportunities by means of the competitive selection process, contrary to the way these factors impact other processes such as performance, failure, lagging, permanency and graduation, as documented by some research. We can venture to think that candidates, to gain entry to college, passed through a filter that makes them a select population. Once inside the University they will bring into play other factors, such as skills and any factors characteristic of the social environment.

It was also noted that women are less likely to enter the University, although it is documented that they tend to have better performance. To explain the inequities of the educational system a consensus appears to be emerging. It might be limited to only consider aspects external to the school, such as sex, age and socioeconomic status, since the school space is conceived today as a key mediator that can help resolve social differences between students. From this perspective, it is of particular importance to consider factors such as school organization, peer relationships, services provided by the institution, student monitoring, as well as subjective experiences and individual expectations.

One of the most important results of this survey is that school history, and particularly high school average marks, and the type of school applicants studied at, whether public or private, holds great weight for the admission

through a competitive selection to UNAM's undergraduate level. While these factors are educational, we consider that especially the kind of school applicants were previously enrolled in contains a strong social correlation, which is tracing a path that can rarely be reversed later on.

In regard to the entrance examination we found that although it is an apparently neutral instrument, given that it is based on academic approaches and concretely evaluates acquired knowledge; however, throughout the competitive selection process all applicants are evaluated equally, regardless of the major economic and cultural differences that separate them. Also, this exam shows some underlying biases, in that it may favor men due to certain abilities they present more frequently than women. In addition, when evaluating knowledge, it is brought into play the kind of trajectories followed by the candidates, thus, those who studied in private schools are favored over those who come from public schools. Since the important weight of average high school marks has been documented to be a predictor of retention and performance throughout the program's duration, some scholars are pondering if to include it as an additional criterion to the admission test. This with the purpose of valuing the effort made during the entire formative years and not "to play" the entrance in a single exam, as indicated by Bobadilla *et al*, 2007. Beyond these recommendations that we consider valid, the central issue from our point of view, is to recognize that these exams are producing a filtering process based on income. Returning to Lemaitre (2005), there would be equality of opportunities only when the availability of economic resources were not a factor of exclusion in higher education.

We may conclude that, from the perspective of this debate, the admission process at UNAM's undergraduate level is inequitable because the procedures of academic selection put into play mechanisms of social selection. This is sustained by the fact that students who have better material conditions, family support and a favorable cultural environment, manage to pass the exam and enter this level. And as such, a selective process that leaves disadvantaged students out is taking shape. In this sense, UNAM, unintentionally through the entrance exams, is becoming a social filter that opens or closes doors according to social status. Therefore, the defense of public universities of which UNAM participates and the struggle for a bigger budget that may allow a more broadened coverage, is more relevant than ever.

References

Backhoff, E., Andere, E., Poen, M. y Sánchez A. (2006). *El aprendizaje del español y las matemáticas en educación básica en México: sexto de primaria y tercero de secundaria.* México, Instituto Nacional de Evaluación Educativa.

Bartolucci, Jorge (1994) *Desigualdad social, educación superior y sociología en México.* México, Centro de Estudios Sobre la Universidad México-unam/Editorial Porrúa.

Bobadilla, Jorge; Ma. Guadalupe Huerta y Mario Larqué (2007). *El ingreso a la Universidad: ¿Azar o mérito?* ix Congreso de Investigación Educativa. Mérida, Yucatán.

Bolivar, Antonio (2005). Equidad educativa y teorías de la justicia. *Revista Electrónica Iberoamericana sobre Calidad, Eficiencia y Cambio en Educación.* Vol.3, núm. 2. http://redalyc.uaemex.mx/src/inicio/ArtPdfRed.jsp?iCve=55103205

Casassus, Juan (2005). *La escuela y la (des)igualdad.* México, Castillo.

Chain, Ragueb y Nancy Jacome (2007). *Perfil de ingreso y trayectoria escolar en la Universidad.* Veracruz, Universidad Veracruzana.

De Garay, Adrián (2001). *Los actores desconocidos. Una aproximación al conocimiento de los estudiantes.* anuies, México (Colección Biblioteca de la Educación Superior).

De Garay, Adrián (2005). *En el camino de la universidad. Las diversas formas de transitar que los alumnos emplean en el primer año de estudios en la universidad.* México, Ediciones Éon-México.

Dubet, Francois (2005). *La escuela de las oportunidades. ¿Qué es una escuela justa?* Barcelona, Gedisa.

Escamilla, Guadalupe (2006). Los resultados del concurso de ingreso a bachillerato 2005 en la zmcm. *Revista Mexicana de Orientación Educativa.* núm. 7.

Guzmán, Carlota y Olga V. Serrano (2007a). Detrás del concurso de selección: un análisis de los factores que inciden en el ingreso a la licenciatura de la unam. Ponencia presentada en el ix Congreso Nacional de Investigación Educativa. Mérida Yucatán.

Guzmán, Carlota y Olga V. Serrano (2007b). Los cambios en la composición social de los estudiantes de la unam (1985-2003), en Mingo, Araceli (coord.). *Estudiantes universitarios: cinco acercamientos.* México, Instituto de Investigaciones sobre la Universidad y la Educación. iisue-unam. pp. 164-208.

Guzmán, Carlota (2005). "Características socioeconómicas, familiares y académicas de los alumnos", en Carlota Guzmán y Claudia Saucedo (coords.). *La investigación sobre alumnos en México: recuento de una década (1992-2002).* México, Consejo Mexicano de Investigación Educativa A.C. pp. 669-692.

Guzmán, Carlota (2002). "Reflexiones en torno a la condición estudiantil en los noventa: los aportes de la sociología estudiantil francesa", en *Perfiles Educativos*, núm. 97-98. pp. 38-56.

Hosmer, David y Stanley Lemeshow (1989). *Applied Logistic Regression.* Nueva York, Edit. John Wiley.

Jovell, A. J. (2005). *Análisis de regresión logística.* Madrid, Centro de Investigaciones Sociológicas. (Cuadernos metodológicos).

Kisilevsky, Marta y Cecilia Veleda (2002). *Dos estudios sobre el acceso a la educación superior en Argentina.* Buenos Aires, Instituto Internacional de Planeamiento de la Educación- unesco.

Latapí, Pablo (1993). "Reflexiones sobre la justicia en la educación", *Revista Latinoamericana de Estudios Educativos*, 23.2, pp. 9-41.

Lemaitre, María de José (2005). "Equidad en la educación superior: un concepto complejo", en *Revista Electrónica Iberoamericana sobre Calidad, Eficiencia y Cambio en Educación.* Vol. 3, núm. 2. http://redalyc.uaemex.mx/redalyc/pdf/551/55103206.pdf

Manzano, Vicente (1997). *Inferencia Estadística.* México, Grupo editor Alfaomega.

Martínez Rizo, Felipe (2002). "Nueva visita al país de la desigualdad. La distribución de la escolaridad en México, 1970-2000", en *Revista Mexicana de Investigación Educativa.* Vol. 7, núm. 16, pp. 415-443.

Millán Ríos, Valeria (2006). *Trayectoria académica de licenciaturas de la Universidad Nacional Autónoma de México: egreso y abandono, un análisis de cohorte*. Tesis de maestría en demografía. México, El Colegio de México.

Miller, Dinorah (2009). *La equidad en la Universidad. El Programa Nacional de Becas (PRONABES) y la condición de juventud de los estudiantes. Una mirada desde la UAM*. México, ANUIES.

Mingo, Araceli (2006). *¿Quién mordió la manzana? Sexo, origen social y desempeño en la Universidad*. México, UNAM- Fondo de Cultura Económica.

Mingo, Araceli (2007). "La conclusión de los estudios universitarios y su relación con el sexo y origen social del alumnado", en Mingo, Araceli (coord.). *Estudiantes universitarios: cinco acercamientos*, México: Instituto de Investigaciones sobre la Universidad y la Educación. pp. 209-279.

Pascarella, Ernest T. Terenzini, Patrick T. (1991a). *How college affects students*. Jossey-bass Publishers. San Francisco.

Rama, Claudio (2005). *La tercera reforma de la educación superior en América Latina*. IESALC-UNESCO/ IPASME.

Romo, A (2007). *Retención y deserción en un grupo de instituciones mexicanas de educación superior,* México, ANUIES. Serie Estudios.

Silva, Marisol (2010). *Dificultades de los alumnos de primer ingreso a la educación superior y los mecanismos institucionales de apoyo,* México: INIDE-UIA. (Material de trabajo).

Tedesco, Juan Carlos (2000). *Educar en la sociedad del conocimiento*, Buenos Aires, Fondo de Cultura Económica de Argentina.

Tinto, Vincent (1987). *El abandono de los estudios superiores: una nueva perspectiva de las causas del abandono y su tratamiento*, México, UNAM-ANUIES.

Sánchez Pérez, Hidalia (2006). "Consideraciones sobre las diferencias en el logro educativo entre los sectores público y privado: resultados de PISA 2003 y EXCALE 2005", en *2001 Educación*. XII: 139. pp. 28-34.

Sánchez, Roberto Leonardo (2010). *El efecto del ambiente institucional y organizacional en las trayectorias escolares en el primer año de estudios. El caso UAM-Azcapotzalco*. Tesis de maestría en sociología. Universidad Autónoma Metropolitana.

Universidad Nacional Autónoma de México (2007). *Perfil de Aspirantes y Asignados a bachillerato, técnico en enfermería y licenciatura de la UNAM 2006-2007*, Secretaría de Planeación y Reforma Universitaria. Dirección General de Planeación. Cuadernos de Planeación Universitaria.

Universidad Nacional Autónoma de México. *Agenda Estadística*. México: UNAM 2007.