Factors related with the university degree selection in spanish public university system. An structural equation model analysis.

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Students take into account different factors in their choice of university studies and college. In this work we present a partial multivariate model that takes into account the weight of the different variables linked to this decision. We have studied three samples (n=372 from the *Universidad Pablo de Olavide*; n=2244 from the *Universitat Politècnica de València*, and n=543 from the *Universitat de Barcelona*) from several degrees in the 2010-2011 and 2011-2012 academic years. The global effect shows that the structural model fits reasonably well in the three universities studied. However, there are different intensity effects, in the case of UPV and UB, they show higher intensity than in UPO. This makes us think that in most urban universities with a clear and regular offer of degrees, personal and social factors are more important than in the case of universities (UPO) with an offer and dimension not yet completely defined.

Key words: College Selection; Structural Equation Models; University Access; Higher Education Management, Career Choice.

Introduction

There is nothing new in dealing with the elements that make a student (or their family) choose one university or degree over another. Many authors and specialists have stated their view on the matter with more or less structured contributions, as well as with empirical contributions that were more or less assumable to affirm their positions. This matter has been the object of several debates and analyses in Spain. In 2001 the *Universitat Politècnica de Catalunya* organized a seminar under the suggesting title of "Student Demand and Attraction in 21st Century University". Back then, years before implementing the Degrees, it was already understood that strictly marketing-based student attraction strategies would not have a promising future. The competitive, changing conditions of the market made the potential users of our product (students, high schools, families, psychopedagocial support teams, etc.) base their choices on

personal factors (distance, friends, family, etc.) rather than on factors established or fostered by the universities (quality, indicators, rankings, access orientation, activities in high schools, etc.). This situation presented us—and still does—with a paradoxical situation: while on the one hand, universities have been much more active in this aspect in the last ten years, that is, they are much more active and some even have clearly aggressive campaigns, it is still doubtful that these campaigns are effective. Still, few are the students (families, teachers, and tutors, etc.) using this type of information to generate their selection criteria. Instead they make a rather personal analysis and, most of the time; they do not use the references and data issued by the universities themselves.

It is easy to obtain evidence, certainly non-rigorous but recurring, as for the reasons and criteria used to choose a university and, what is worse, a degree. Some of the recurring arguments are: "my friends go there too", "it's close to home", or the popular "they have a low cut-off grade". Papers such as those published by the *Universidad Antonio de Nebrija* (2001) (www.nebrija.com/servicios/publicaciones.php) or the *Universitat Oberta de Catalunya* (2001) (http://elcrps.uoc.edu/ojs/index.php/elcrps) show how most students follow this kind of arguments over those that us academicians would prefer. The *Gabinet d'Orientació Universitària* of the *Universitat de Barcelona* collected in 1999 some monographies on the student attraction strategies current at the time in the Spanish university system. Almost fifteen years after that data, the information of the universities' current information and orientation services tells us those strategies have not changed much; probably they have in their intensity, but not in their design Guerra and Rueda (2005).

In Europe this matter has been addressed in the same way and intensity as it has in Spain. Universities (especially in our close environment) have set forth student

attraction actions with much more will than resources: the European Access Network (EAN) (www.ean-edu.org), for instance, is very active in this respect. As for the United States of America (USA), the tradition is very similar there. There is a "slight" difference though: the recruitment systems are based on a supposedly competitive system, but which, as it is, is based on the future students' purchasing power, or on a scholarship policy clearly different from ours. In our system, scholarships fulfill a social purpose, while in the USA they intend to attract talent, as Murphy and McGarrity (1978) point out in a descriptive study of 350 American colleges. Their conclusions have been replicated by many authors in the sense that, in the USA, that conception of university selection as a key for the students' future has ben kept and increased. The proofs of it are the documents available at the Hispanic Association of Colleges and Universities (www.hacu.net). Their actions to incorporate the Hispanic minorities into the American university system are based on the system's own quality and its value of "trust". We could say that, in addition, quality is a target. The actions described by Murphy and McGarrity match our own currently and, as mentioned above, they have been clearly intensified following schemes of somewhat proven efficacy. Such is the case of engineering studies (Yurtseven 2002), or the case of women in some degrees (Turner and Thompson 1993), or in communities at risk of social exclusion, especially certain ethnical minorities (Ford 2008).

Most authors loosely agree on the list of factors determining a student's choice of university and degree. Some of the aforementioned papers, such as Ford (2008), point out those elements clearly. In fact, they agree with many of the comments and proposals present in forums for a long time. Some have even been incorporated into general documents by the European Students' Union (www.esib.org), establishing, however, more phenomenological asystematic models rather than contrasted ones. In

this sense, the proposals put forward on this matter are generally the same. Firstly, it is considered that the demand for a degree or university is directly related to the students' and their environment's subjective perception of that degree. That generates a factor that is established on indirect indicators, such as the ratio between the first-choice places offered and demanded. There is a certain phenomenon of concentration in those schools and degrees that has become established over the years. In more specific models, the idea of some longitudinal effect is acknowledged, so what happens in that ratio between offer and demand in previous years helps the subjective perception of today.

In the case of the Spanish public university system, university admission adopts a simple form. The students wishing to access the public system are arranged based on their admission grades, highest to lowest. The condition is that there is a minimum grade to access the system. Only those who passed satisfactorily the pre-university phase can access the place allocation process. That pre-university phase takes place over two academic years called *Bachillerato* (High School Degree) and involves a student population between 15 and 18 years old. The students who pass *Bachillerato*, and also a university-coordinated common test called *Prueba de Acceso a la Universidad* (PAU) (Test for University Admission) can apply for a degree and a university within the public system. The students' admission grade is a linear weighed combination of their average grade in *Bachillerato* and their average grade in the PAU. That general average grade is called Admission Grade. Well, that Admission Grade allows us, as we were saying, to arrange all the students applying for a place in the public system from the highest to the lowest grade.That process makes it possible to systematically allocate places to students according to their preferences.

This guarantees that no student can get a place in the public system with a lower admission grade than another student who was not admitted to the same degree. It can

happen that when the time comes to allocate a place to a student, and given their admission grade, there are no vacancies left for the applied degree and school. In that case, their second choice is allocated; students are offered up to 8 to 12 choices according to their autonomous community. If their second choice is unavailable too, the third choice is allocated and so on. However, the data from the last cohorts in Spain shows that over 92% are assigned to their first choice and 98% in their first three. Finally, it is worth mentioning that the last student admitted to a degree establishes what is known as Cut-off Grade, that is, the grade below which no student can be admitted into that degree and school within the public system. Obviously, the number of places available for each degree and university and the demand for them are the mechanisms that define the cut-off grade. Therefore, highly-demanded degrees with few places available entail high Cut-off Grades, whereas degrees with many places available but with a low demand entail low Cut-off Grades. In no case does the Cut-off Grade indicate the subjective degree of difficulty of the studies, nor any other circumstance, other than the strict relationship between the offer and demand of places. Likewise, the amount of first-choice applications for one degree and university is a good indicator of the potential attraction of that degree and university.

On the other hand, some papers (Capilla 2009; Huang and Fang 2013; Raymond 2001 or Veenstra, Dey, and Herrin 2008), also put forward the conception of university demand as the result of a very unspecific assessment of the "social value" attributed to the degree, and to the university, too. That perception, more qualitative or more subjective, is constructed based on some *a priori* parameters, like the absolute value of the cut-off grade in pre-inscription, since it is used socially as a quality indicator in high-demand degrees. Such is not the case of low-demand degrees and with a low cut-off grade. There is no doubt about the difficulty of a university degree like Mathematics,

but few pay attention to the cut-off grade in that degree. Only when the goods (places) are scarce is the cut-off grade used as a quality indicator. The relationship between both factors is clear, and some authors, like the aforementioned Ford (2008), attribute most of the variance to it, focusing on those aspects that involve the perceived usability of the degree. Such a proposal agrees with some context data. For example, the data on usability offered by the *Agència per a la Qualitat del Sistema Universitari a Catalunya* (Agency for the Quality of University System in Catalonia) (www.aqu.cat) indicates that most students and parents attribute usability to degrees which actually lack it (computer science, for instance). That is to say, they seem to have uncontrasted information. Those subjective perceptions are determining, in those authors' opinion—and which we share—, to select a degree and a university. Analogously, some unsystematic data in forums and seminars points toward the obvious presence of personal factors in this process, factors involving aspects derived from geographical matters, commuting, sex, vocation and interest in the degree, etc. These rather personal aspects sometimes agree with aspects of the student's academic record in pre-university phases. It is therefore expectable to find some correlations between those personal factors and their pre-university performance. Finally, all these factors share some concomitance and some links, spurious in some cases, which should be carefully analyzed, thereby generating a genuine complex network of effects that, logically, should be able to explain the variability observed in the selection of studies and university. If we know the weight of each factor, its effect, its intensity and direction, we will be able to plan far better the details of admission orientation campaigns, of strategy generation to promote underrepresented communities in access to university, and finally, we will be much more efficient in the transition between the pre-university phase and the University. Many are the authors already stating that the gap between that

transition and the lack of proper planning is greatly responsible for university dropout, absenteeism, and academic failure. But that is a different matter. Finally, we would like to point out that an analysis of the phenomenon at hand is only realistic if conducted in longitudinal terms and with a somewhat long cohort study that not only admits the necessary demographic variations—immigration, for instance—, but that also takes into account the impact of the new degrees and the wide range of degrees (too many perhaps). Actually, the wide range of degrees makes it considerably more difficult for the students and their families to choose, and makes the current state of affairs more complicated than it already is, too much so for a shallow analysis. In view of all this, the main objective of the present project is to verify a multivariate model which, under the assumptions of the structural equation models (SEM), adds the impact of the several variables and factors, the literature related to the choice of studies and university made by the students and their families in the case of several degrees, and the typology of university within the Spanish university system. This approach will take place in the cohorts of students enrolled in the Spanish university system for the first time in the 2010-2011 and 2011-2012 academic years, and it will be a starting point for a wider statistical analysis with other degrees from the several branches of knowledge.

Path Diagram

The structural relationships that we will analyze are based on the structural equation model proposal (SEM) put forward in Guàrdia et al. (2012), wherein they obtained good fits of the structural model presented in Figure 1 by applying it to the Psychology degree. The aforementioned figure thereby represents the model analyzed.

INSERT FIGURE 1

This model obviously involves the simultaneous use of variables that are directly observable without error (represented by rectangles in figure 1) and latent variables (represented by ovals in figure 1). This causes some notation difficulties when translating this proposal into the statistical terms of structural models, shown in figure 2.

INSERT FIGURE 2

Based on figure 2, these are the structural equations that can be specified:

$$Y_1 = \beta_{11}X_1 + \beta_{12}X_2 + \zeta_1$$

$$Y_2 = \beta_{21}Y_1 + \gamma_{21}\xi_1 + \gamma_{22}\xi_2 + \gamma_{23}\xi_3 + \zeta_2.$$

Finally, in order to fit the general precepts and assumptions of Structural Equation Models, the following statistical assumptions are assumed for the quantitative variables: $E(X_i) = E(Y_i) = E(\xi_i) = 0$ *y* $Var(X_i) = Var(Y_i) = Var(\xi_i) = 1$. Accordingly, all the quantitative variables were transformed through reduction and normalization, and also, $E(\varepsilon_i\varepsilon_j) = E(\delta_i\delta_j) = E(\xi\delta) = E(\eta\varepsilon) = E(\zeta_i\zeta_j) = 0$; initially assuming that measurement errors are uncorrelated to one another, and also in relation to the observable and latent variables. In relation to the categorical observable variables (*Bachillerato* admission pathway and Sex), they have been considered as such and have undergone our own estimation process described later on.

We will not be discussing the structures of the exogenous measurement models here (Λ_x) to keep this presentation brief. We would just like to mention that we have assumed the correlations between exogenous variables (both observable and latent) that proved relevant in previous pilot studies. Be that as it may, the exogenous measurement models specified in the model at hand comply with the usual application conditions of

order. Additionally, the proposed model complies with the identification condition, since it presents positive degrees of freedom (degree of freedom *df* = 321).

Method

Participants

We worked with three accidental samples from several degrees from the *Universidad Pablo de Olavide* (UPO) (n=372); from the *Universitat Politècnica de València* (n=2244); and from the *Universitat de Barcelona* (n=543). In all the cases, they were first-year students in the Degrees of those universities in the 2010-2011 and 2011-2012 academic years. These three universities were selected because they represent very adequately the typology of public university in Spain and, in addition, they cover different geographical areas and autonomous communities. Table 1 summarizes these characteristics that identify the type of university in each case.

INSERT TABLE 1

Based on this qualitative description, table 2 shows the specific distributions of the students assessed:

INSERT TABLE 2

In all the cases, they were first-year students and their ages ranged between 18 and 21 years for all the samples. There was, consequently, a wide homogeneity in the distribution (*M*=18.93; *SD*= 0.44) and they came from all the pre-university *Bachillerato* areas (12% Social Science, 32% Science and Technology; 24% Arts and

Humanities; and 33% Health Science). The admission grades ranged between 5 (minimum for admission) and 13.89 (maximum 14 points), M=8.77 and SD=1.33, though it was a very asymmetrical distribution towards its right tail.

Instruments

Each student was administered the purposefully-generated questionnaire, which had been analyzed in Guàrdia et al. (2012) and showed good values of reliability and validity. This questionnaire of variables related to admission is structured in two second-order factors (Social Factors and Individual Factors) defined by six primary factors: Consideration of the University; Perceived Usability and Social Consideration as a part of the social factors and the Vocational Aspects primary factors; Influence on Close Environment and Geographic Location for the individual factor. The admission pathway, the admission grade, and the sex were included in the latter factor. In the initial study, Cronbach's α values ranged between .84 and .95 for all the factors. Likewise, the factorial validity analyses conducted with Confirmatory Factor Analysis yielded an adequate fit that confirms the described factor structure (χ^2 = 1234.74; p = .18). Finally, we should point out that this questionnaire comprises a total of 25 items defined in an ordinal response scale from 1 (strongly disagree) to 7 (strongly agree), yielding a complementary value for the cases wherein the proposed item is not applied, for example, if the students had missed the open-door sessions or they did not have a counselor, etc.

In addition to the variables involved in the questionnaire, the data from the institutional variables was obtained, that is, cut-off grades, places offered in the academic years at hand, final enrollment for every degree, etc. Despite the fact that some of it was requested to the surveyed students, the data analyzed was obtained from

official sources, that is, from the involved universities themselves and from the official statistical data of the Ministry of Education (www.educacion.es). The data taken from the students themselves was not analyzed since they respond to secondary goals of the global project focused rather on the estimation of the first-year students' real knowledge about the university system.

Procedure

Each university was contacted regarding the selection of all the 2010-2011 and 2011-2012 first-year groups in the degrees selected. The questionnaire was administered in person and virtually so that the total final sample came from an accidental sampling. Once we obtained the results and each student's data, the data was processed according to the statistical analysis prepared that was conducted through SPSS version 21.0 and Amos version 19.0.

Statistical Analysis

In order to fit the general precepts and assumptions of Structural Equation Models, the following statistical assumptions are assumed for the quantitative variables: $E(X_i) = E(Y_i) = E(\xi_i) = 0$ *y* $Var(X_i) = Var(Y_i) = Var(\xi_i) = 1$. Accordingly, all the quantitative variables were transformed through reduction and normalization, and also, $E(\varepsilon_i\varepsilon_j) = E(\delta_i\delta_j) = E(\xi\delta) = E(\eta\varepsilon) = E(\zeta_i\zeta_j) = 0$; assuming initially that measurement errors are intercorrelated to one another, and also in relation to the observable and latent variables. In relation to the categorical observable variables (*Bachillerato* admission pathway and Sex), they have been considered as such and have undergone our own estimation process described later on.

We will not be discussing the structures of the exogenous measurement models here (Λ_x) to keep this presentation brief. We would just like to mention that we have

assumed the correlations between exogenous variables (both observable and latent) that proved relevant in previous pilot studies. Be that as it may, the exogenous measurement models specified in the model at hand comply with the usual application conditions of order. Additionally, the proposed model complies with the identification condition, since it presents positive degrees of freedom (degree of freedom df = 321). Further information on specific data of the model can be found in Guàrdia et al. (2012). In reñlation with the estimation procedure we used, dued to the specific characteristic of the variables a robust procedure based in the assymptotically free distribution (AFD) following the structure proposed by Poon and Lee (1994) for categorical variables, Ory and Mokhtarian (2010) for robust techniques and Palomo, Dunson, and Bollen (2007) for Bayesian estimation.

Results

Firstly, we conducted parametric statistical contrasts to assess whether the several samples at hand presented any significant differences regarding the subjects' sex and the students' admission grades. No relevant difference was obtained and therefore, for later analyses, we discarded the possibility of there being modifying effects depending on marginal distributions. The only exception was the effect linked to the sex variable and UPV, wherein the observed proportion of women was noticeably lower than the other two universities under study ($\chi^2 = 89.43$; $p < .001$, $V = .82$).We analyzed the questionnaire's answers according to the factors described above by comparing the results by university. Despite the fact that many of the items put forth showed no statistically significant effects between universities (except for a few like, for example, item 18, concerning social factors, "Getting a degree from one university or another grants better career chances", with a contrast $F = 128.12$; $p < .001$; $R^2 = .48$ that

indicated that this was an opinion averagely held by more students in UPO or UPV than in UB). The analysis of the three universities was kept separate since, as has been described, their characteristics prevent us from considering this as only one population.

Therefore, we calculated Pearson's correlation matrix for each of the subsamples between all the variables involved in the analysis. We took into consideration that, in the pairs where the sex variable intervened, it was estimated through biserial correlations; in the case of *Bachillerato*, it was estimated through polychoric correlations. With these results, we estimated the different parameters of the model through the asymptotically free distribution method (AFD), given that many of the variables involved presented high asymmetry values which, though they did not affect the estimation of the correlations, they could indeed affect the value of the estimations of structural parameters due to the large size of the sample. All these analyses were conducted, as has been mentioned, through SPSS and Amos. The following tables show the solutions obtained both for the global fit for each university (Table 3) and for each of the subsamples at each university (Table 4). A quick review of the values shows a reasonable fit in every case, except for the χ^2 statistic of fit, which is statistically significant in every case. However, the values of the reasons of χ^2's estimated value between the degrees of freedom are adequate (between 3 and 5).

INSERT TABLES 3 & 4

Likewise, we studied the structural parameters derived from each of the seven models described in table 4 so that it was feasible to analyze the parameters between the effects put forth in the general model. We distinguished between universities and

between types of degrees. Tables 5a, 5b, and 5c summarize the values of the estimations of each standardized structural parameter.

INSERT TABLES 5a, 5b & 5c

Conclusions

The first matter we would like to highlight is the fit values of the different models analyzed. Although the fits of the χ^2 statistic were not particularly good, we can put forth that this is a good general model to explain the students' first-choice demand of university studies in the Spanish public system. Both in the global fit of each university and in the fit of the different specialties according to the university, the fit indices are good. The values of the indices GFI, AGFI, BBNFI, BBNNFI or CFI are over .90, over .95 in some cases; the values of SRMR are below .011; and those of SRMSE are below .005 (as proposed by Hu and Bentler 1999). These indices are acceptable when they are over .90 (GFI, AGFI, BBNFI, BBNNFI and CFI), for SRMR ≤ .05; and RMSEA ≤ .06. The χ^2/df ratio < 2 also indicates an excellent fit, χ^2/df < 3 a good fit, and χ^2/df < 5 an acceptable fit (Hu and Bentler 1999). In our case, for all the models fitted, these ratios are below 3. These results match the model fit proposed by Guàrdia et al. (2012) in the first version of the present model.

We would also like to point out that, generally, the hypothesized parameters in the model are statistically significant in all the cases, which is considered as another argument for the proposed model's adequacy to explain the first-choice demand of university studies. All the estimated values are statistically significant with a level of trust of 95% at least. However, those values show some differences that should be discussed. In tables 5a, 5b, and 5c, the value of the estimated parameter is very different

through the specialty analized according to the university. Standardized estimations facilitate a simple descriptive analysis. Accordingly, in the case of UB, regardless of the specialty, the final endogenous variable to be explained, first-choice demand (Y_2), yields parameter values as impact of the exogenous variables (ξ_1, ξ_2 y ξ_3) with higher values (in most cases γ_{ij} .70 or higher). As for the specialties of the other two universities under study (UPV and UPO), the value of these parameters is not as high. In some cases the value is below .30, as is the case of UPO, regardless of the type of degree: Social Science, or Experimental Science and Health. The reason for this could be that the *Universitat de Barcelona* (UB) assumes a higher offer of degrees than the other two and it is therefore possible that the social and individual factors are more associated to the demand. It is the only university out of the three analyzed that is clearly large and strictly urban. Therefore, since the size of its population of potential students is the largest of the three, that pressure of higher-density demand might translate into a clearer relation between social and individual factors and demand. This happens both with social degrees and with experimental and health degrees.

Also worth mentioning is the case of UPV, where the cut-off grade has a great influence on the perceived offer/demand ratio in the admission year, especially for the Social Science degrees (γ_{23} = .852), and the Experimental Science and Health degrees (γ_{23} = .823). This effect is not as important in the case of UB, though the difference is practically double when comparing the Experimental Science and Health degrees (γ_{23} = 0.673) to the Social Science degrees (γ_{23} =.353). This is in agreement with our previous point, since UB's offer of Engineering studies is not particularly large and, therefore, UPV's behavior is oriented toward aspects regarding the cut-off grade that grants access to their degrees.

We could say that UB's configuration is oriented toward student-related factors, whereas UPV focuses on the "cost" of the cut-off grade involved in studying Engineering in the city of Valencia. Additionally, there is little competence for UPV on Engineering in their close environment.

Finally, we would like to comment on the case of UPO. Regardless of the specialty analyzed, be it Experimental Science and Health or Social Science, the values of the estimated parameters generally tend to be of low intensity despite being statistically significant ($p < .05$). Seldom are they over .40, and their values are generally around .20. Consequently, effects of a somewhat lower impact than those of UPV or UB are to be expected. One reason for such a differential behavior in relation to the other two universities under study could be the sample size used in this case, which is noticeably smaller. Likewise, that university's own characteristics could account for the behavior of the parameters. This is still a very young university, with an everchanging offer of degrees, so, in some cases, its offer and scope of action are not stable yet.

Our work presents some limitations that ought to be considered, too. They focus mainly on two questions. The first one is the size of such asymmetrical samples as we have analyzed, which has caused some estimations to be somewhat biased by that effect. The use of standardized estimations facilitates their presentation and study, but does not completely solve the difficulty of the sampling we took. The second one stems from the fact that we did not conduct strict statistical contrasts between the different parameters by using the usual mechanisms (LM Test or Wald's Test). We decided not to present that analysis to keep the results presentation simple. There are a large number of parameters and models and it would only make it more difficult to read the paper

while not contributing any relevant information. Likewise, we did not include global fit values based on Akaika' Criterion (AIC) or the Bayesian ones (BIC).

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Table 1. General characteristics of the selected universities.

University	Autonomous Community	Description
Universidad Pablo de Olavide (UPO)	Andalusia	Located in Seville, this is a recent university, founded in 1997, intending to be an agile, dynamic university, with a strong progress in research and with an innovative offer of degrees. Data 2012 Number of Students: 11958 Number of Degrees: 30 Number of Schools: 7 Number of Teachers: 1042 Administrative Staff: 349
Universitat Politècnica de València (UPV)	Valencian Community	Located in Valencia, this is a technological university, focused on the transfer and offer of engineering studies. Highly specialized, and with some incursions in the field of Social Science and even Humanities, it is still a middle-sized university as regards its number of students, and it is focused on the latest technologies. Data 2012 Number of Students: 36855 Number of Degrees: 74 Number of Schools: 13 Number of Teachers: 2764 Administrative Staff: 2617

University	Autonomous Community	Description
Universitat de Barcelona (UB)	Catalonia	One of Spain's oldest universities, it is located in several campuses in the city of Barcelona and its surroundings. It is a large university as regards its number of students, teachers, and degrees, and it involves the most traditional aspect of university offer. It has a great research potential and offers degrees in almost every branch of knowledge. Data 2012 Number of Students: 87486 Number of Degrees: 65 Number of Schools: 19 Number of Teachers: 5247 Administrative Staff: 2294

Table 2. Description of the samples of students.

Universities	Sex	Groups of degrees			Cohorts	
		Social Science	Experimental Science and Health(*)	Engineering Studies	2010-2011	2011-2012
Universidad Pablo de Olavide	261 48% women 282 52% men	241 44%	202 56%	No data	103 38%	167 62%
Universitat Politècnica de València	696 31% women 1548 69% men	265 12%	189 8%	1790 80%	920 41%	1324 59%
Universitat de Barcelona	167 62% women 103 38% men	288 53%	255 47%	No data	250 46%	293 54%
Total		3057	646 21%	2411 79%	1273 42%	1784 58%

(*)Health only for the UPO and UB. No offer in this field in UPV.

Table 3. Global fits for the different structural models with indication of reliability (estimation of Satorra-Bentler's α).

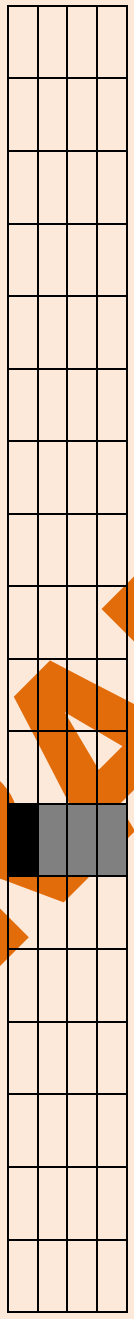

Table 4. Global fits of each specialty by analyzed university.

	Universidad Oablo de Olavide (UPO)		Universitat Politècnica de València (UPV)			Universitat de Barcelona (UB)	
INDICATOR	Social Science	Experimental Science and Health	Social Science	Experimental Science	Engineering Studies	Social Science	Experimental Science and Health
GIF	.911	.899	.899	.943	.955	.903	.921
AGIF	.901	.876	.887	.944	.966	.905	.923
BBNFI	.902	.922	.885	.901	.949	.901	.922
BBNNFI	.900	.814	.884	.903	.949	.918	.912
CFI	.903	.891	.891	.899	.944	.911	.910
R^2	.388	.232	.287	.294	.488	.581	.592
RMSE	.006	.009	.011	.009	.007	.006	.005
SRMSE	.002	.005	.004	.003	.002	.002	.002
χ^2(df=321)	892.38 $p < .05$	571.38 $p < .05$)	1001.52 $p < .05$	959,79 $p < .05$	966,21 $p < .05$	715.83 $p < .05$	821.76 $p < .05$
χ^2 / df	2.78	1.78	3.12	2.99	3.01	2.23	2.56

Table 5a. Estimation of each standardized structural parameter for the *Universidad Pablo de Olavide* and its branches of degrees.

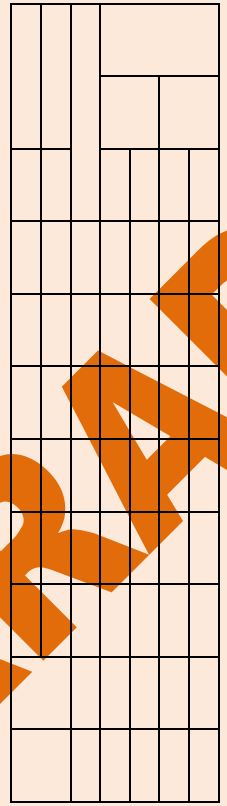

Table 5b. Estimation of each standardized structural parameter for the *Universitat Politècnica de València* and its branches of degrees.

ONSET OF THE	END OF THE	PARAMETER	Universitat Politècnica de València

EFFECT ACCORDING TO THE MODEL IN FIGURE 1	EFFECT ACCORDING TO THE MODEL IN FIGURE 1		Social Science		Experimental Science and Health		Engineering Studies	
EFFECT FROM	EFFECT TO		ESTIMATION	SIGNIFICATION	ESTIMATION	SIGNIFICATION	ESTIMATION	SIGNIFICATION
Perceived Offer/Demand admission year	First-choice demand admission year	γ_{23}						
Enrollment previous year	Offer of places admission year	β_{11}						
Offer of places previous year	Offer of places admission year	β_{12}						
Offer of places admission year	First-choice demand admission year	β_{21}						
Social Factors	First-choice demand	γ_{21}						

	admission year							
Individual Factors	First-choice demand admission year	γ_{22}						
Correlation between Social and Individual Factors		φ_{21}						
Correlation between perceived offer and demand of first-choice place in previous year to study with the Individual Factors		φ_{32}						

Tabla 5c. Estimation of each standardized structural parameter for the *Universitat de Barcelona* and its branches of degrees.

ONSET OF THE EFFECT ACCORDING TO THE MODEL IN FIGURE 1	END OF THE EFFECT ACCORDING TO THE MODEL IN FIGURE 1	PARAMETER	Universitat de Barcelona			
			Social Science		Experimental Science and Health	
EFFECT FROM	EFFECT TO		ESTIMATION	SIGNIFICATION	ESTIMATION	SIGNIFICATION

Perceived Offer/Demand admission year	First-choice demand admission year	γ_{23}				
Enrollment previous year	Offer of places admission year	β_{11}				
Offer of places previous year	Offer of places admission year	β_{12}				
Offer of places admission year	First-choice demand admission year	β_{21}				
Social Factors	First-choice demand admission year	γ_{21}				
Individual Factors	First-choice demand admission year	γ_{22}				
Correlation between Social and Individual Factors						
Correlation between perceived offer and demand of first-choice place in previous year to study with the Individual Factors						