UNIVERSITIES AND ECONOMICALLY DEPRESSED REGIONS
HOW 'ATTRACTIVE' IS THE UNIVERSITY OF ÉVORA?[1]

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Abstract

As it is well known, universities constitute sources of important multiplier effects on the economic activity of the regions where they are located. Plainly, in the case of economically depressed regions, the importance of universities becomes higher. This is certainly the case with the University of Évora as being located in the Alentejo, one of the poorest regions at the European Union level, it have been contributing to the attraction of economic activity.

Besides the direct effect on the economic activity of the Alentejo, the University of Évora also have been exerting demographic effects, on the one hand, by allowing people to become residents on the region and, on the other hand, by attracting students which normally become residents during the period of time required to conclude their academic degrees.

The paper explores this last effect by the analysis of how and why the University of Évora is chosen by students coming from all over the country (and from abroad). This analysis, which is done through the use of econometric techniques, also indicates which are the decisive factors for the attraction exerted by the University of Évora, in general, and by its degree courses, in particular, on the candidate students.

1. Introduction

In the last 30 years, the expansion of higher education has been one of the most important social facts in Portugal. This expansion has come about, basically, in three ways: the creation of public universities, the creation of public polytechnic institutions, and the development of private universities. This evolution has changed, in a substantial way, the panorama of higher education in Portugal: this subsystem, initially elitist, has become an education of the masses; the number of students, academic staff and educational establishments has increased exponentially; these establishments, originally located only in the major cities of the Portuguese coast (Lisbon, Coimbra and Oporto), became also to be part of some cities in the interior, modifying them deeply and allowing access to this degree of education by innumerable students who, otherwise, would not have had the economic conditions to attend it.

In Évora, like in the other small cities of the interior where higher educational institutions have been located, since the establishment of the University in 1979, deep alterations have been made in the profile and the daily rhythms of city life. Let us then briefly present the characteristics that dominated the city until the 1970's.

"The city of Évora was historically affirmed as a pole of administrative functions (district headquarters) and as the main agglomeration of a vast agricultural area marked by great properties (large estates) and by a strong economy centred on three products: wheat, cork-oak and pork. The natural capital of the Alentejo, a region traditionally considered as the granary of Portugal, its history is dominated, up to 1974, by two social groups – landowners and employees of public administration – both particularly averse to innovation" (Ferrão, 1997:33).

The city of Évora, the main urban agglomeration of the Alentejo, with 56,000 inhabitants, is, in our days, "the great node of the services of Alentejo Central, supplying to the population a diversified set of support services. These services evolved in the direction to offer more qualified functions, which it is related with the presence in the city of the University of Évora as well as of other important regional institutions supporting the economic activity and the population. Évora has an economic basis, which without being great, it is relatively more consolidated than the existing in the region. It has, basically, the traditional SMEs but also

great multinationals companies whose effects however, are limited to the income distribution through the generated jobs" (adapted of DGDR, 2000:377).

The Alentejo, with its 535,000 inhabitants, is the least densely populated Portuguese region. The increasingly aged population is basically employed in the tertiary sector, in the activities of the area of the production and creation of the non-tradable goods. The active population of the Alentejo has a low average level of qualifications: in 2001, 35.8% had, as a qualification, only the 1st level of basic education. Only 7.6% of the residents have higher-level education attendance. The regional unemployment, which seems to be of a structural type, is higher than the Portuguese average. The weakness of the entrepreneurial environment with, basically, small and medium size firms in the commerce sector, and all of the economic activity, results in the relatively low level of quality of life of the region inhabitants. In terms of the income of the region and its residents, the available data for GDP per capita points out that the Alentejo is one of the 25 poorest regions of the EU, and is the farther from the national average. Moreover, disposable family income presents values lower than the rest of the country (Portugal) while consumer prices are, on average, higher. The regional purchasing power is only 68% of the national average, this being the worst result presented by all the regions of the country.

From the 1980's, through social and political factors, at the national and the local level, the expansion of the University of Évora (hereafter, UE) has contributed decisively to the modification of the dynamic of the city through the increasingly significant presence of students, many of them coming from regions other than the Alentejo. Currently, the University of Évora is one of the main public institutions in the city. Beyond the importance that it has in terms of the direct creation of jobs, with its about a thousand employees, and while a crucial entity within local economic activity, with an annual global budget of about forty million euros, one should also acknowledge the economic dynamics generated by its students. During the 1990's, the importance of the university students in the city of Évora strongly increased: the 4229 students who, at the beginning of the 1990's represented 7.9% of the resident population in the city, became 7859 students registered in the academic year 1999/00, representing 13.9% of the residents in Évora.[2] Plainly, this expansion has increased the intensity of the relationship between the city and the University.

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[2] It is interesting to note that, for 70% of the undergraduates, Évora is not, indeed, their (family) residence place.

In this paper we assume that the institutions of higher education are promotional agents in the development of the regions where they are located, through their activity and the presence of their students. Clearly, the presence of the students strongly increases the economic and social effects of the UE. After the presentation of the main characteristics of the UE and of its students, we will analyse the factors that reveal to be decisive in the attraction exerted by universities, in general, and by the UE, in particular.

2. Some effects of the universities in the regions

The higher education institutions are considered like development nodes in the sense that they transmit growth impulses to the other economic and social activities, through their performance in the areas of the human resources training, the knowledge diffusion and the innovation. Obviously, the intensity of the diffusion of the growth effects will be greater the more significant is the relationship between higher education institutions and the other activities.

That being said, we assume the theoretical domain of the endogenous development, based at the local resources, carried out by local agents, with capacity to control, at local level, the process of accumulation in the domain of innovation, to react to the exterior pressures and to introduce specific forms of social regulation at local level. The growth factors underlying the endogenous development theories are the knowledge accumulation, the public infrastructures, the human capital and the R&D expenditures (Muet, 1997: 19).

"The human resources are always the more rich and promising part of the endogenous potential, the more rich and promising the more their qualification. In this sense, the education and the training, in general, have a structural function in the development process" (Simões Lopes, 1996: 4). Many documents provided by OECD (1997,1998) show that the development of the countries is directly related with education and R&D levels: the more developed countries are, in general, the higher are the education level and the expenditures with education and R&D. Thus, all the insufficiencies in these areas constitute an obstacle to the development.

Education is a legacy of one generation to the following one, this being its main social function (Thomas, 1995). It is a medium-term investment, made by the society in general and by families in particular to the extent that it is expected that stronger contributions in the future compensate the productive contribution of the young in the present (Lopes, 2001). Parents want their children to receive an education of high quality because they understand that are preparing them to better face the labour market. Moreover, it is acknowledged that, in general, unemployment rates are higher among unqualified, low educational level workers.

An active population with higher education levels will be more flexible and will adapt easier to new procedures and activities, making possible a higher economic growth. The existence of positive externalities can be reflected in the environment where the learning processes are facilitated and the change of ideas is stimulated. Thus, the countries and the regions where human capital is abundant are more attractive.

The qualification of the human resources, oriented to the needs of firms, is a differentiate characteristic to the national environment where the competitiveness and innovation are supported by the educational and training system (Lopes, 2001: 79). The higher education institutions (hereafter, HEI) will then establish relations with the public (local or central) partners and with the firms, thus assuring that their effects will originate higher levels of employment.

The insertion of a HEI in a regional development process can be analysed through its contribution to the education and continuous training, as well as by the creation of jobs, *i.e.*, through the way their outputs have correspondence with the regional specific needs. On the other hand, an analysis of the choice of students with residence in a certain region in relation to the regional firms and institutions demand for graduates originated in the regional HEI can also be considered. These institutions can be linked to the environment in two ways: on the one hand, promoting the retention in the region of the graduates coming from other regions, which have accumulated knowledge by their training, and, on the other hand, widening the local's range of perception, through the daily contact with those graduates. Thus, the HEI can influence the qualification levels of active population, which will be reflected in the set of labour abilities and in the economic productivity and competitiveness.

As it is well-known, one of the basic keys in the economic success of a region gives respect to the extent it can attract or retain graduates, as these citizens generally become more productive. A great part of the economic effect of the HEI depends on the decisions of its graduates not to migrate (Brown and Heaney, 1997). In relation to leaving, we can admit that higher education increases the probability of migration, insofar as graduates are more apt to compete in the national and international labour markets and thus to leave the region where they have studied. Migration decisions are based, basically, on job chances: if a given region does not have a tradition of growth of jobs in certain activity sectors, but has graduates in these areas, then these will be potential emigrants. At the same time, the increase in the knowledge of the HEI can not influence the development of economies if adequate and available jobs for graduates do not exist.

The retention of graduates is one of the main mechanisms that the region can adopt to conserve elements endowed with sensitivity to innovation, to the enterprise spirit and to management capacity. Retention rates show, however, a combination of many factors, namely the capacity of the HEI to offer studies and training that take into account the needs of the regional economy, solidity, the diversity and the importance of the economic regional base, the context of the national economy, the origin of the students, the type of educational establishment and the economic and social context of the students.

An inquiry carried through in 2001 to the graduates by the UE let us to conclude that, after concluding their graduation levels, 39,1% of the graduates have looked for a job in Évora and 37,4% in the Alentejo. Of these, 20,2% obtained a job in Évora and 30,4% in the Alentejo. A major part of these graduates exerts the professional activity in the education sector (41% are teachers of the 2nd and 3rd cycles of secondary education), at the level of intermediate technical functions (27%) and at the level of intellectual and scientific professions (13%). Among the reasons why the graduates do not stay in the city or in the region, the local labour market saturation in their scientific area (42,7%) as well as the desire to come back to the family home (35,3%) are the most important. To sum up, the UE has attracted a great number of students for which, after all, the city and the region do not fit their economic and social convenience, losing their contribution to the improvement of regional competitiveness.

3. Some features about the University of Évora and its students

Since its reopening at the end of the 1970's, the University of Évora has gained dimension and status in the context of Portuguese higher education, where it currently occupies a medium position, gaining successively more students and professors.[3] However, the UE, with about eight thousand students and more than six hundred professors and researchers, is the main higher education institution and, in fact, the only public university in the Alentejo region.

The UE employs about a thousand persons, the majority of them academic staff. In fact, 56% of the professors and researchers possess a Ph.D. title, which show the effort made in the improvement of the teaching and research conditions. The functioning of the UE is assured by an annual budget of around 40 million euros, proceeding mainly from the Government, which is spent to a large extent (about 80% of the Academic Budget) in the payment of wages, which limits the capacity for investment and improvement in the conditions of study and of work.

Being the main institution of R & D located in the Alentejo, the UE has increased responsibilities in the areas of the research and community service. Concerning research, the areas prioritised for development are Natural Sciences, Social and Human Sciences, and Agrarian and Veterinarian Sciences, which reflects the fact that these, indeed, are the areas with more doctorates teaching at the UE. The research is financed, basically, by European programs like PRAXIS and PAMAF, and is developed, predominantly, in studies led by the institution itself, with few cases of partnerships with foreign entities. Concerning the activities of community service, the UE offers services at the level of training and consultancy, or by promoting the insertion of graduates in the regional labour market. It participates in many regional entities, at the level of the respective administrations, it seeks regional partners for the institution through participation in activities of education or research, and it maintains a special relationship with the schools involved in other levels of education. The accomplishment or promotion of cultural and similar activities has been one of the most systematic ways used for involving the city activity.

A characterisation study about the students entered in the UE, in the year 2002/03, carried out by the Pró-Reitoria para a Avaliação Institucional e Política de Qualidade of the UE

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[3] Hereafter, we will use the term 'professor' to designate any scholar teaching at the university, not necessarily being full professor nor even possessing a Ph.D. tittle.

concluded that the students entered were, in majority, women, coming from, basically, the Centre and South Portuguese regions. The majority of these students belong to the middle class families given the parent's professions, their education level as well as the family's level of net income. In the previous education levels, these students had a good performance, with low levels of failure and good academic results. They are pragmatic given their evident concern about their future in professional terms. Although conscientious of their formation necessity, they bet in higher education for believing this to be the way for its professional satisfaction and success. The choice of the UE, influenced by the opinion of family and friends, was not unique. In fact, it was part of a diversified number of options that reflect a clear intention of ingression in higher education, independently of the receiving institution. The choice of the specific university degree also reflects a great pragmatism. Although the vocation has been the reason more mentioned to justify the choice of the course degree, the diversification of preferences allows admitting the hypothesis of attending other less preferred areas. The UE is an institution of which students intend to get the fundamental education and training for their professional life. Moreover, students consider that the existence of a qualified set of professors and the guarantee of professional success are factors of primordial importance in a higher education establishment.

4. Theoretical and methodological framework

The main goal of this paper is to identify the reasons why the students choose the UE to obtain their course degrees. The theoretical studies in this area show, generically, that the migratory process of the students can occur for two basic reasons: on the one hand, to increase the future income, that is higher wages and/or higher chances of employment and, on the other hand, simply to live in a more pleasant city in terms of climate or infrastructures of quality of life. The studies about this problematic are divided in two groups (Sá *et al.*, 2003: 5-7): the first group of studies identifies who are the students which dislocate to study and which are the reasons behind the phenomenon; the second group of studies identifies the determinants of the students' migration rate and obtains the dimension of migration flows. In table 1 we show the main conclusions of some of these studies, many of which have, indeed, concluded that the distance exerts a significant negative effect in the decision of students' migration. For clear evidence that the influence of distance also characterises the way the UE attracts students see figure 1 in the Appendix 1.

Table 1: Some conclusions about the students' migration

1º Group: Who are the students who dislocate themselves and what are their reasons	
Authors	*Main conclusions*
Ono (2001)	The universities with more prestige and quality tend to be situated in the major cities whereas the students dislocate themselves from the regions where the institutions present fewer resources to those that possess more resources.
Ordovensky (1995)	The students that live next to a higher educational establishment are characterised by a higher probability of getting enrolled in this establishment.
Desjardins *et al*. (1999)	It confirms the generally accepted conclusions on the influence of distance and show that the variables related to the educational background of the students are also significant.
McCann e Sheppard (2001)	The students' migration is the first step of a sequential process of decision, being the following step, interrelated with the first one, the migration to get a job.
2º Group: Determinants of rate of migration	
Authors	*Main conclusions*
Mixon (1992)	The effect of the quality of education is significantly positive.
Mixon e Hsing (1994)	The selectivity of the institutions, the success of the sport programs and the availability of cultural alternatives contribute to attract students to the higher education institutions.
Baryla e Dotterweich (2001)	The selectivity of the higher education institutions strongly contributes for attracting students that do not live in the area of the institution.
McHugh e Morgan (1984)	The Euclidean distance has a significant negative effect in the migration; it was not observed a uniform effect of institutional quality in the process of student's migration: while some consider important the prestige and the selectivity of the institutions, others prefer universities less selective.
Ishikwa (1978)	The distance has a negative effect in the flows of students. The measure of accessibility shows that agglomeration forces dominate the process of choice of a university: the probability of a student to choose one given university increases with the proximity between this university and others.

Source: Sá *et al.*, 2003: 5-7.

5. The results

As it is well known, universities constitute sources of important multiplier effects on the economic activity of the regions where they are located. Plainly, in the case of economically depressed regions, the importance of universities becomes higher. This is certainly the case with the UE as being located in the Alentejo, one of the poorest regions at the European Union level, it have been contributing to the attraction of economic activity. Besides the direct effect on the economic activity of the Alentejo, the UE also have been exerting demographic effects, on the one hand, by allowing people to become residents on the region and, on the other hand, by attracting students which normally become residents during the period of time required to conclude their academic degrees.

In order to verify which are the reasons why students, from all over the country, choose the UE and its degree courses to carry out their academic formation, we proceed by presenting the econometric results that were obtained after the estimation of, on the one hand, linear probability models and, on the other hand, discrete choice models such as probit and logit ones. These intend to estimate which are the determinant factors on the attraction exerted by the UE, in general, and by its degree courses, in particular, on the candidate students.[4] In general, the three methodologies give coherent results in identifying those factors.[5]

The first question that we consider to be important is the one concerning the determinant factors for professional success being a criterion to choose the degree course. Plainly, for the generality of the students applying to a university degree, the main purpose (should be) is to engage in a labour activity on the area of their academic formation. The level of income of the family, the prestige of the University as well as, obviously, the guarantee of professional success reveal a significant and positive influence in the probability of the reason 'professional success' to be important when choosing the degree course. Intrinsically, this reason involves a certain expectation of what will be the evolution of the labour market, which seems to be of an optimistic nature for a great part of the students. In fact, for the explanation of a good percentage of job acquisition in the labour market being a decisive criterion when choosing the degree course, only the guarantee of professional success reveals to be significant. Interestingly, this reason, while decisive factor for choice of the university

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[4] The definitions of the variables used in the models as well as the complete econometric results are in Appendix 2 and 3.
[5] Not surprisingly, the probit and logit models identify, in most models, a constant as being significant whereas this is not the case with linear probability models.

establishment is indeed explained, besides the guarantee of professional success, also by a set of other variables as, for example, the level of income of the family unit. See appendix 3.

The second question that it seemed to be of undeniable interest concerns the candidates need to assure their admittance on a university. This is a well-known fact, easily observed when the strategies of appliance by the candidates to the different degree courses are studied. In order to determine the significant factors for the reason 'higher possibilities of admittance' being preponderant for the choice of the degree course, many factors were initially considered. The probability of the variable 'higher possibilities of admittance' to constitute a decisive factor in that choice increases significantly with the order of option of the degree course and diminishes significantly with the distance between the place of residence and the city of Évora. Plainly, linked with this question it is the one concerning the candidates mark being a relevant aspect for the choice of the degree course. This aspect is the more important the higher is the candidates mark, this being obvious, but it also depends positively on the quality attributed to the academic staff by candidates. See appendix 3.

Finally, one third question key in the attraction exerted by the UE concerns its geographic localization. A descriptive statistic analysis clearly shows that as the distance between the UE and candidates' place of residence increases it diminishes the percentage of admitted students. See figure 1 in appendix 1. Such fact is confirmed by the negative influence registered by the variable that measures this distance on the geographic localization while decisive factor in the choice of the UE. Exists, however, a reasonable set of other variables, such as the candidates mark and the infrastructures of sport and leisure, which also exert a significant influence.

6. Conclusions

Such as the theoretical analyses show, and the descriptive statistics analysis already indicated, the students admitted in the UE are pragmatic in their decisions: the reasons that take them, basically, to choose this institution of superior education are the possibility of admittance and the guarantee of professional success. Moreover the distance is a clear factor when explaining the attraction exerted by the UE on the candidates.

Thus, the main role of the UE, while promotional agent of development as exercising an education function, is clearly conditioned by its capacity to attract students to Évora (city) and

to the Alentejo (region). That role will have to be strengthened through the linkage of the institution to its economic partners. The increase on the professional success of its graduates will contribute to increase the levels of qualification of the active population of the city and of the Alentejo if, indeed, graduates transform a temporary residence, while students, into a permanent residence, as workers.

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Appendix 1 –
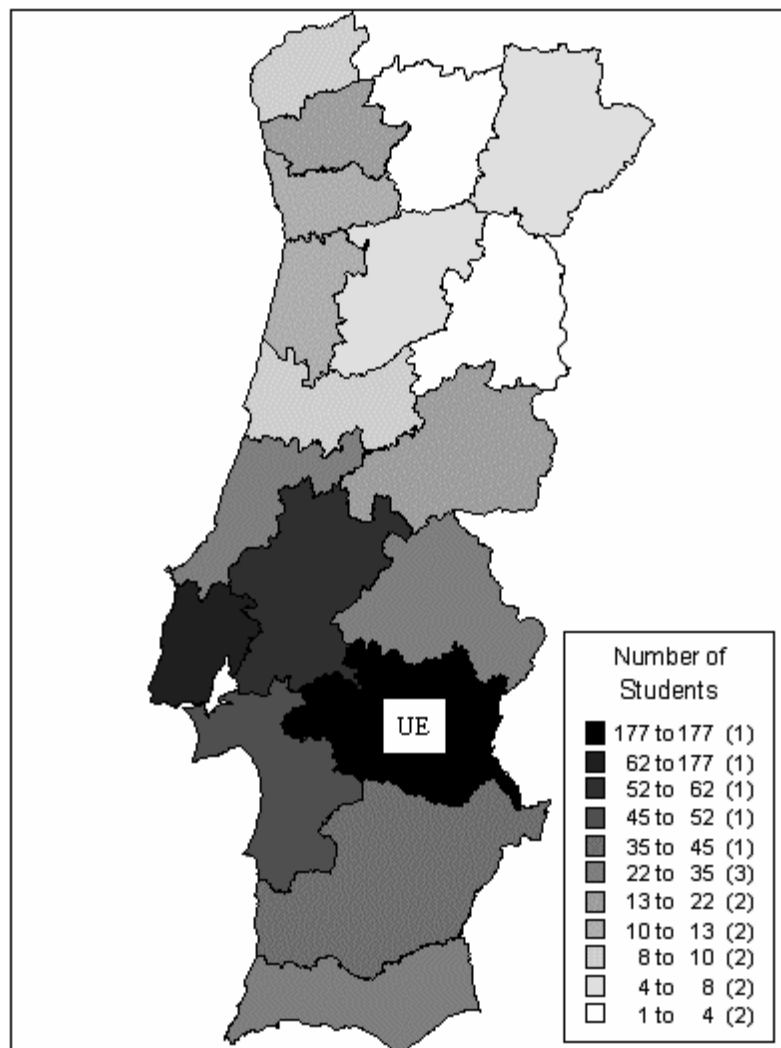
Figure 1 -- The attraction of the UE (number of students in the inquiry admitted in 2002/03)

Appendix 2 – The definition of the variables

For **Var 2 - Scholar level/father and Var 3 – Scholar level/mother** the options were:

1	Not able to read or to write
2	Able to read, without possessing a primary school level (4years)
3	4 years of school
4	6 years of school
5	9 years of school
6	Secondary level
7	Medium level
8	First-degree university level
9	Master
10	Doctor
0	NA

For **Var 4 – Place of residence – transformed in distance to the UE** the options were:

01	Aveiro
02	Beja
03	Braga
04	Bragança
05	Castelo Branco
06	Coimbra
07	Évora
08	Faro
09	Guarda
10	Leiria
11	Lisboa
12	Portalegre
13	Porto
14	Santarém
15	Setúbal
16	Viana do Castelo
17	Vila real
18	Viseu

For **Var 5 – Order of choice of the UE** the options were:

1	1st
2	2nd
3	3rd
4	4th
5	5th
6	6th
0	NA

The **Var 6 – Candidate mark/classification** corresponded to the classification of admittance.

For **Var 7 – Average Income level of family** the options were:

1	Less than 75 000$
2	From 75 000$ to 150 000$

3	From 150 000$ to 225 000$
4	From 225 000$ to 300 000$
5	More than 300 000$

For **Var 8 – Important Aspects/Good professors, Var 9 – Important Aspects/Institution prestige, Var 10 – Important Aspects/Good infra-structures, Var 11 – Important Aspects/Good library, Var 12 – Important Aspects/Good informatic support, Var 13 – Important Aspects/Localisation, Var 14 – Important Aspects/Professional success guarantees, Var 15 – Important Aspects/High admittance marks, Var 16 – Important Aspects/High academic success in the institution, Var 17 – Important Aspects/Curricula quality, Var 18 – Important Aspects/Scientific research activities, Var. 19 – Important Aspects/ Extra-curricular activities, Var. 20 – Important Aspects/General organization, Var. 21 – Important Aspects/Sports and Leisure infra-structures, Var. 22 – Important Aspects/Meal quality, Var. 23 – Important Aspects/Socio-Medical support, Var. 24 – Important Aspects/Administrative support, Var. 25 – Important Aspects/Possibility of interchange with other universities, and Var. 26 – Important Aspects – Good Students Representatives** the options were:

1	less important
2	weak importance
3	fair importance
4	high importance
5	most important
0	NA

For **Var. 27 - Degree choice/Professional success, Var. 28 – Degree choice/Higher possibility of Admittance, Var 29 – Degree Choice/Good Percentage of Job Acquisition, Var 30. – UE Choice/Localisation, and Var. 31 – UE choice/Appliance mark** the options were:

1	Yes
0	No

Appendix 3 – The econometric results

o Econometric Estimation Results for **Choice of Degree Course/Professional Success**

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                         Modelling Var27 by OLS

Variable     Coefficient    Std.Error   t-value   t-prob  PartR^2
Var7          0.036783      0.015102     2.436    0.0152   0.0109
Var9          0.040486      0.018835     2.149    0.0320   0.0085
Var11        -0.048611      0.019790    -2.456    0.0144   0.0111
Var14         0.058822      0.019184     3.066    0.0023   0.0172

R^2 = 0.348471  \sigma = 0.465151  DW = 1.63
RSS = 115.9721286 for 4 variables and 540 observations

                Logit Maximum Likelihood Estimation
            The estimation method converged after 4 iterations
*******************************************************************
 Dependent variable is VAR27
 540 observations used for estimation from   1 to  540
*******************************************************************
 Regressor              Coefficient      Standard Error     T-Ratio[Prob]
 CONSTANT                  -1.2885            .53529          -2.4071[.016]
 VAR9                      .15866            .095220           1.6662[.096]
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VAR11                        -.27678              .10212           -2.7104[.007]
VAR14                         .24673              .10609            2.3256[.020]
*******************************************************************************
 Factor for the calculation of marginal effects =   .21932
 Maximized value of the log-likelihood function =-335.4371
 Akaike Information Criterion =-339.4371
 Schwarz Bayesian Criterion =-348.0202
 Hannan-Quinn Criterion =-342.7939
 Mean of VAR27 =   .32963
 Mean of fitted VAR27 = .0092593
 Goodness of fit =   .66481
 Pesaran-Timmermann test statistic =-171.8659[.000]
 Pseudo-R-Squared =  .020091
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                    Probit Maximum Likelihood Estimation
              The estimation method converged after 4 iterations
*******************************************************************************
 Dependent variable is VAR27
 540 observations used for estimation from    1 to   540
*******************************************************************************
 Regressor                 Coefficient        Standard Error        T-Ratio[Prob]
 CONSTANT                    -1.0817              .36952           -2.9274[.004]
 VAR7                        .081668             .048815            1.6730[.095]
 VAR9                        .098706             .057344            1.7213[.086]
 VAR11                       -.16286             .062030           -2.6254[.009]
 VAR14                       .14949              .063182            2.3661[.018]
*******************************************************************************
 Factor for the calculation of marginal effects =   .35992
 Maximized value of the log-likelihood function =-334.0373
 Akaike Information Criterion =-339.0373
 Schwarz Bayesian Criterion =-349.7662
 Hannan-Quinn Criterion =-343.2334
 Mean of VAR27 =   .32963
 Mean of fitted VAR27 =  .012963
 Goodness of fit =   .66111
 Pesaran-Timmermann test statistic =-145.2494[.000]
 Pseudo-R-Squared =  .024181
■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■
```

o Econometric Estimation Results for **Choice of Degree Course/Higher Possiblity of Admittance**

```
                        Modelling Var28 by OLS

Variable    Coefficient    Std.Error   t-value   t-prob PartR^2
Var4        -0.00048135   0.00012529   -3.842   0.0001  0.0268
Var5         0.038746     0.010390      3.729   0.0002  0.0252
Var10        0.033271     0.0067249     4.947   0.0000  0.0436

R^2 = 0.192655  \sigma = 0.355371  DW = 2.02
RSS = 67.81694517 for 3 variables and 540 observations

                    Logit Maximum Likelihood Estimation
              The estimation method converged after 5 iterations
*******************************************************************************
 Dependent variable is VAR28
 540 observations used for estimation from    1 to   540
*******************************************************************************
 Regressor                 Coefficient        Standard Error        T-Ratio[Prob]
 CONSTANT                    -1.8273              .22698           -8.0507[.000]
 VAR4                        -.0047145            .0012948         -3.6410[.000]
 VAR5                        .27970               .079318           3.5263[.000]
*******************************************************************************
 Factor for the calculation of marginal effects =   .12029
 Maximized value of the log-likelihood function =-222.0607
 Akaike Information Criterion =-225.0607
 Schwarz Bayesian Criterion =-231.4981
```

```
 Hannan-Quinn Criterion =-227.5783
 Mean of VAR28 =   .15556
 Mean of fitted VAR28 =     0.00
 Goodness of fit =   .84444
 Pesaran-Timmermann test statistic =   *NONE*
 Pseudo-R-Squared =  .048591
```
■■

```
                    Probit Maximum Likelihood Estimation
               The estimation method converged after 5 iterations
*******************************************************************************
 Dependent variable is VAR28
 540 observations used for estimation from   1 to  540
*******************************************************************************
 Regressor              Coefficient        Standard Error        T-Ratio[Prob]
 CONSTANT                  -.81838              .20211            -4.0493[.000]
 VAR3                     -.056821             .033726            -1.6848[.093]
 VAR4                    -.0024003             .6592E-3           -3.6415[.000]
 VAR5                       .15594             .045420             3.4332[.001]
*******************************************************************************
 Factor for the calculation of marginal effects =   .22479
 Maximized value of the log-likelihood function =-221.0653
 Akaike Information Criterion =-225.0653
 Schwarz Bayesian Criterion =-233.6485
 Hannan-Quinn Criterion =-228.4222
 Mean of VAR28 =   .15556
 Mean of fitted VAR28 =     0.00
 Goodness of fit =   .84444
 Pesaran-Timmermann test statistic =   *NONE*
 Pseudo-R-Squared =  .052856
```
■■

o Econometric Estimation Results for **Choice of Degree Course/Good percentage of job acquisition in the labour market**

```
                         Modelling Var29 by OLS

 Variable      Coefficient    Std.Error   t-value   t-prob PartR^2
 Var14          0.027878      0.0031704    8.793    0.0000  0.1254

 R^2 = 0.12545  \sigma = 0.317171  DW = 2.06
 RSS = 54.2221223 for 1 variables and 540 observations
```

```
                    Logit Maximum Likelihood Estimation
               The estimation method converged after 6 iterations
*******************************************************************************
 Dependent variable is VAR29
 540 observations used for estimation from   1 to  540
*******************************************************************************
 Regressor              Coefficient        Standard Error        T-Ratio[Prob]
 CONSTANT                  -3.9903              .79149            -5.0416[.000]
 VAR14                      .44872              .17430             2.5744[.010]
*******************************************************************************
 Factor for the calculation of marginal effects =  .096385
 Maximized value of the log-likelihood function =-188.5224
 Akaike Information Criterion =-190.5224
 Schwarz Bayesian Criterion =-194.8140
 Hannan-Quinn Criterion =-192.2008
 Mean of VAR29 =   .11481
 Mean of fitted VAR29 =     0.00
 Goodness of fit =   .88519
 Pesaran-Timmermann test statistic =   *NONE*
 Pseudo-R-Squared =  .020617
```
■■

```
                    Probit Maximum Likelihood Estimation
               The estimation method converged after 6 iterations
*******************************************************************************
 Dependent variable is VAR29
```

```
540 observations used for estimation from    1 to  540
*************************************************************************
Regressor              Coefficient          Standard Error        T-Ratio[Prob]
CONSTANT                 -2.2147                 .45654          -4.8511[.000]
VAR14                     .23277                 .087755          2.6525[.008]
VAR18                     .13222                 .079245          1.6685[.096]
VAR22                    -.13021                 .077854         -1.6725[.095]
*************************************************************************
Factor for the calculation of marginal effects =   .18439
Maximized value of the log-likelihood function =-186.5100
Akaike Information Criterion =-190.5100
Schwarz Bayesian Criterion =-199.0931
Hannan-Quinn Criterion =-193.8668
Mean of VAR29 =   .11481
Mean of fitted VAR29 =      0.00
Goodness of fit =   .88519
Pesaran-Timmermann test statistic =   *NONE*
Pseudo-R-Squared =  .031072
```
■■■

o Econometric Estimation Results for **Choice of the UE/localisation**

```
                        Modelling Var30 by OLS

Variable      Coefficient     Std.Error   t-value   t-prob PartR^2
Constant        0.70813        0.16562      4.276   0.0000  0.0333
Var4          -0.0018259    0.00015266    -11.960   0.0000  0.2125
Var5           -0.050195      0.012606     -3.982   0.0001  0.0290
Var6          0.00015057   8.9684e-005      1.679   0.0938  0.0053
Var11           0.049623      0.020194      2.457   0.0143  0.0113
Var13           0.037297      0.016590      2.248   0.0250  0.0094
Var16          -0.037632      0.018564     -2.027   0.0431  0.0077
Var19          -0.036164      0.021465     -1.685   0.0926  0.0053
Var21           0.037991      0.021004      1.809   0.0711  0.0061
Var26          -0.048131      0.020566     -2.340   0.0196  0.0102


R^2 = 0.317568  \sigma = 0.411352  DW = 1.91
RSS = 89.68174021 for 10 variables and 540 observations


                   Logit Maximum Likelihood Estimation
            The estimation method converged after 5 iterations
*************************************************************************
 Dependent variable is VAR30
 540 observations used for estimation from    1 to   540
*************************************************************************
Regressor              Coefficient          Standard Error        T-Ratio[Prob]
VAR4                    -.011251               .0012617          -8.9175[.000]
VAR5                    -.26171                .073398           -3.5656[.000]
VAR6                    .0014853               .3817E-3           3.8915[.000]
VAR11                    .34181                .12166             2.8095[.005]
VAR13                    .22817                .099296            2.2979[.022]
VAR16                   -.21940                .11308            -1.9403[.053]
VAR19                   -.23253                .12736            -1.8258[.068]
VAR21                    .26810                .12616             2.1250[.034]
VAR26                   -.28899                .12089            -2.3905[.017]
*************************************************************************
 Factor for the calculation of marginal effects =   .24200
 Maximized value of the log-likelihood function =-266.0369
 Akaike Information Criterion =-275.0369
 Schwarz Bayesian Criterion =-294.3490
 Hannan-Quinn Criterion =-282.5898
 Mean of VAR30 =   .58148
 Mean of fitted VAR30 =   .63519
 Goodness of fit =   .75741
 Pesaran-Timmermann test statistic =  -1.7137[.087]
 Pseudo-R-Squared =   .28924
```
■■■

```
                    Probit Maximum Likelihood Estimation
                The estimation method converged after 5 iterations
******************************************************************************
 Dependent variable is VAR30
 540 observations used for estimation from    1 to  540
******************************************************************************
 Regressor              Coefficient        Standard Error        T-Ratio[Prob]
 VAR4                   -.0062246            .6571E-3             -9.4726[.000]
 VAR5                   -.15109              .042822              -3.5284[.000]
 VAR6                    .8470E-3            .2184E-3              3.8785[.000]
 VAR11                   .19770              .070462              2.8058[.005]
 VAR13                   .12831              .057583              2.2282[.026]
 VAR16                  -.12959              .065413              -1.9810[.048]
 VAR19                  -.13141              .074442              -1.7653[.078]
 VAR21                   .14677              .073427              1.9989[.046]
 VAR26                  -.15458              .069984              -2.2087[.028]
******************************************************************************
 Factor for the calculation of marginal effects =   .38787
 Maximized value of the log-likelihood function =-267.9790
 Akaike Information Criterion =-276.9790
 Schwarz Bayesian Criterion =-296.2911
 Hannan-Quinn Criterion =-284.5319
 Mean of VAR30 =   .58148
 Mean of fitted VAR30 =   .65000
 Goodness of fit =   .75000
 Pesaran-Timmermann test statistic =  -1.6658[.096]
 Pseudo-R-Squared =   .28405
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o Econometric Estimation Results for **Choice of Degree Course/Application mark**

```
                            Modelling Var31 by OLS


 Variable      Coefficient    Std.Error   t-value   t-prob  PartR^2
 Var6          0.00030054   5.6974e-005    5.275    0.0000  0.0492
 Var8          0.038148       0.017488     2.181    0.0296  0.0088


 R^2 = 0.579571  \sigma = 0.491399  DW = 1.95
 RSS = 129.9126823 for 2 variables and 540 observations



                    Logit Maximum Likelihood Estimation
                The estimation method converged after 4 iterations
******************************************************************************
 Dependent variable is VAR31
 540 observations used for estimation from    1 to  540
******************************************************************************
 Regressor              Coefficient        Standard Error        T-Ratio[Prob]
 CONSTANT               -1.4772              .74211               -1.9905[.047]
 VAR6                    .0012088            .4474E-3             2.7018[.007]
 VAR8                    .16480              .086475              1.9057[.057]
 VAR18                  -.16501              .091916              -1.7952[.073]
******************************************************************************
 Factor for the calculation of marginal effects =   .24454
 Maximized value of the log-likelihood function =-362.2766
 Akaike Information Criterion =-366.2766
 Schwarz Bayesian Criterion =-374.8598
 Hannan-Quinn Criterion =-369.6335
 Mean of VAR31 =   .57222
 Mean of fitted VAR31 =   .84074
 Goodness of fit =   .59444
 Pesaran-Timmermann test statistic =  -2.9238[.003]
 Pseudo-R-Squared =   .017279
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```

```
                    Probit Maximum Likelihood Estimation
                 The estimation method converged after 4 iterations
******************************************************************************
 Dependent variable is VAR31
 540 observations used for estimation from    1 to  540
******************************************************************************
 Regressor              Coefficient        Standard Error        T-Ratio[Prob]
 CONSTANT                  -.90586              .45829           -1.9766[.049]
 VAR6                     .7435E-3             .2750E-3           2.7040[.007]
 VAR8                      .10263              .053740            1.9098[.057]
 VAR18                    -.10301              .056936           -1.8092[.071]
******************************************************************************
 Factor for the calculation of marginal effects =   .39210
 Maximized value of the log-likelihood function =-362.2758
 Akaike Information Criterion =-366.2758
 Schwarz Bayesian Criterion =-374.8589
 Hannan-Quinn Criterion =-369.6326
 Mean of VAR31 =   .57222
 Mean of fitted VAR31 =   .84074
 Goodness of fit =   .59444
 Pesaran-Timmermann test statistic =  -2.9238[.003]
 Pseudo-R-Squared =  .017281
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