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Analysing the Employability of Business and Administration Study Programs in Portugal

Aurora Galego[1], *Margarida Saraiva*[2]

[1] *Universidade de Évora and CEFAGE-UE*
[2] *Universidade de Évora and UNIDE/ISCTE*

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Aurora Galego[1], Margarida Saraiva[2]

[1] *Universidade de Évora and CEFAGE-UE; agalego@uevora.pt*

[2] *Universidade de Évora and UNIDE/ISCTE; msaraiva@uevora.pt*

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Abstract

This paper presents an analysis on the higher education graduates' employability in the field of Business and Administration in Portugal. Using econometric techniques, we consider the impact of several variables in the unemployment "propensity" of the pair study program/institution.

The results show that there are important differences between public and private institutions, between study programs of great and small size, between the several fields of graduation within Business and Administration as well as regional differences.

Key-words: Graduates, Business and Administration Science, Employability, Higher Education, Fractional Models

JEL Classification: J64; I23; C25

I. **Introduction**

Several recent developments have raised interest on the analysis of employability: the rapid expansion of higher education, the increase of labour market competiveness, the demand for new competencies and professional profiles, rising labour market uncertainty and high unemployment rates.

Employability was, alongside entrepreneurship, adaptability and equal opportunities, one of the four 'pillars' of the European Employment Strategy. The improvement of graduate employability is also a key issue for the Bologna Process (see London Communiqué, 2007). Finally, employability has been related to the assessment of the quality or performance of the higher education institutions (HEI) (see for example, d'Hombres *et al.,* 2008, Smith *et al*., 2000 or Stock and Alston, 2000).

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The concept of employability has been changing along the years following society´ transformations. Several authors provide insights on the meaning of employability. For example, employability may be "the capacity of an individual to obtain a satisfactory job, taking into consideration his personal characteristics and the job market conditions" (Grazier, s/d, p.11). For Chiavenato (1997), employability is a set of competences and abilities which are necessary for a professional worker to obtain and to maintain a job. Martinez (2006) considers employability as a way of explaining all things that allow individuals to enter or/and continue in the job market. Therefore, employability refers not only to a person's ability to find a job but also to secure this job, remain in employment, and obtain a new job if required. Ideally, the notion of employability also includes the quality of work or employment.

International data typically show that, in general, higher educated people display a higher probability of finding a job and with better quality (see OECD, 2009). Consequently, one may conclude that obtaining a university degree is a good investment for both the individuals and the society. Nevertheless, official statistics also reveal a growing number of unemployed university graduates in many European countries, and in Portugal in particular. Finding employment has become more difficult than ever and graduate unemployment is rising fast. As we can see in table 1, unemployment rate for

young university graduates in Portugal is now well above the European average. The worsening of the labour market conditions, as a consequence of economic recession, may explain these developments. However, we also have to take into account the rapid expansion of higher education in the last decade in Portugal (see OCDE, 2009).

Table 1 – Youth Unemployment rates (<24 years old) in Portugal and EU (%)

	2005		2008	
	All education levels	**Higher education**	**All education levels**	**Higher education**
Portugal	16.1	24.3	16.4	27.3
European Union	18.5	14.1	15.5	11.6

Source: Eurostat

These recent developments rise doubts relatively to the labour market success of young university graduates and justify the recent academic interest on the analysis of this subject. For example, Martins *et al*., (1998); Gonçalves *et al*, (2006); Alexandre *et al*. (2009) or Galego and Caleiro (2009) refer to several aspects of the Portuguese case. Typically, all studies mainly focus on the individual transition into the labour market and not specifically on the employability of the courses/institutions. The exception is the study of Alexandre *et al*. (2008), who analyse the effects of the entry conditions of courses/institutions in the Portuguese public sector of higher education. However, not much is known about the employability of university graduates in Portugal.

In Portugal, when analysing recent graduates' transition into labour market, it is of interest to consider the field of "Business and Administration". This field has specific characteristics that differentiate it from all the other fields. First, these graduates represent a large number of the unemployed graduates in Portugal (see table 2). However, a high percentage of new graduates in each year come also from "Business and Administration". In fact, this is one the most common fields in higher education institutions. According to the Ministry of Science, Technology and Higher Education there are at the moment about 1357 first degree courses in public institutions and 738 in private institutions (DGES, 2010). Therefore, the unemployment rate is 4.1%, which is below the national average for all fields of study and also most fields in the social sciences area. On the other hand, within this field there are a vast number of different

course programs, much larger than in other fields, which makes it a very heterogeneous area of study.

Table 2 – Graduate Unemployment by field of study in Portugal

	Number of new Graduates (1997-1998 to 2006-2007)	Number of registered unemployed graduates (1998 to 2008)	Unemployed/ Graduates (%)
	(A)	(B)	(B) / (A)
Teacher Training and Education Science (broad group 1)	99971	3309	3.30%
Humanities and Arts (broad group 2)	53459	2958	5.53%
Science (broad group 4)	37520	1532	4.08%
Agriculture (broad group 6)	12692	654	5.15%
Engineering (broad group 5)	88511	3799	4.29%
Social Sciences (broad group 3)	191549	9706	5.07%
Business and Administration (field 34)	***104674***	***4 289***	***4.10%***
Social and behavioural sciences (field 31)	49160	3571	7.30%
Journalism and information (field 32)	13429	985	7.30%
Law (field 38)	24286	861	3.50%
Health and welfare (broad group 7)	98869	3480	3.52%
Services (broad group 8)	31516	1578	5.01%
TOTAL	614 087	27016	4.4%

Fonte: Authors calculations using data from GPEARI (2009b)

This work aims at improving the understanding of the graduates´ employability in Portugal, specifically in the area of "Business and Administration". We will focus on one single aspect of employability which is the transition into labour market of "Business and Administration" graduates. In particular, we will try to identify several aspects which have influenced the labour market performance of several courses/institutions in the field of "Business and Administration".

We employ an econometric model, considering several indicators as possible explanations for the differences on the unemployment performance of the pair study program/institution. The results show that there are important differences between public and private institutions, between study programs of great and small size, between

the several fields of graduation within Business and Administration as well as regional differences.

The paper is organised as follows. In the next section we present the data used. In section III we present the econometric methodology. Section IV discusses the results and in section V we present some final comments.

II. **Data**

To analyse the Business and Administration study programs employability, we consider an econometric approach using data from the reports published by the Portuguese Ministry of Science, Technology and Higher Education (GPEARI, 2009a and 2009b). The ministry collects individual information in the job centres as well in the HEI. We use data on the number of graduates unemployed per study program and institution to analyse the program/institution employability. The pair program/institution is the unit of analysis. Therefore, we consider a group of 372 bachelors and *licenciatura* study programs[1] by higher education institution, in Business and Administration Sciences. Our variable of interest is an unemployment indicator (probability of unemployment) of the pair institution/study program, constructed using the average of the number of unemployed registered in the job centres, particularly those searching for the first job, by institution/study program, in Business and Administration Sciences, in 2007 and 2008, and of the number of graduates in the years 2002/2003 and 2006/2007 (5 years). As explanatory variables we consider variables that describe the characteristics of the higher education institutions and of the study programs, namely:

1- if the study program belongs to a polytechnic institution (polytechnic=1)

2 - if the study program belongs to a public institution (public=1)

3 - if the study program confers a bachelor's degree (bachelor=1)

[1] Before the full implementation of the Bologha process in 2009, two types of undergraduate degrees existed: the Bachelor degree comprising 3 years of study and the *Licenciatur*a degree comprising 4 or more years of study.

4 - if the size of the study program in each institution is considered of great dimension (size=1). We consider a study program of great dimension if it displays an average of graduates, in the last 5 years, equal or superior to 60.

5 - dummy variables to capture possible regional differences, among the Portuguese Islands (Madeira and Azores) (Islands=1), the North (North=1) and the South of mainland Portugal.

6 - a group of dummies to identify the field of graduation. We considered 10 fields of graduation, namely: course1- Administration and management; course2-Accounting, Fiscal and Auditing; course3-Marketing and Communication; course4-Finances, Banking and Insurance; course5- Human Resources and Public Relations; course6- Public Sector Administration ; course7-Trade and Tourism; course8- Industrial Management; course9-Languages, Secretariat and Advisory Services ; course10-Other fields.

Table 3 Descriptive statistics

Variables	Mean	standard error
Unemp	0.045	0.080
Public	0.554	0.498
Polytechnic	0.629	0.484
Bachelor	0.255	0.437
Size	0.522	0.500
Islands	0.005	0.073
North	0.583	0.494
Course1 (Administration and Management)	0.261	0.439
Course2 (Accounting, Fiscal and Auditing)	0.191	0.394
Course3 (Marketing and Communication)	0.183	0.387
Course4 (Finance, Banking and Insurance)	0.032	0.177
Course5 (Human resources and Public Relations)	0.083	0.277
Course6 (Public Sector Administration)	0.051	0.220
Course7 (Trade and Tourism)	0.062	0.241
Course8 (Industrial Management)	0.016	0.126
Course9 (Languages, Secretariat and Advisory Services)	0.069	0.255
Course10 (Other fields)	0.051	0.220

Table 3 presents some descriptive statistics of our data which gives us a portrait of the Portuguese higher education system, in the business and Administration area, in these years. The average, for 2007 and 2008, unemployment propensity (*unemp*) is of about 4.5% for these courses and institutions. We can see that about 55% of our institution/study programs are located in public institutions and 63% are in polytechnic

schools. The vast majority of the study programs are *licenciatura* degrees, which is expected, considering the nature of the Portuguese higher education sector and the legal changes in the last years, with the beginning of the Bologna process in 2006/2007. About half of the study programs can be considered of large dimension and 58% are located in institutions in the North of the country. Finally, the fields of study where there are more study programs in Portugal are: "Administration and management; "Accounting, Fiscal and Auditing" and "Marketing and Communication". On the contrary, "Industrial Management" is the least popular field of study.

III. **Methodology**

To analyze the factors explaining the differences in the unemployment index of each pair study program/institution in the Business and Administration sciences area, we consider the following regression model:

$$Unemp = \beta_0 + \beta_1 Polytechnic + \beta_2 Public + \beta_3 Bachelor + \beta_5 Size + \beta_6 North + \beta_7 Islands + \delta_{8j} Course_j + u$$

As our dependent variable takes the form of a fraction (with values between 0 and 1), the ordinary least squares method is not the most appropriate. In fact, there is the possibility that our forecasts lye outside the interval 0,1. In alternative, we can consider a fractional model of the type proposed by Papke and Wooldridge(1996):

$$\begin{aligned} E(Unemp \mid x) &= G(x\beta) \\ &= G(\beta_0 + \beta_1 Polytechnic + \beta_2 Public + \beta_3 Bachelor + \beta_5 Size + \beta_6 North + \beta_7 Islands + \delta_{8j} Course_j) \end{aligned}$$

where G (.) is a function satisfying $0 \le G(x\beta) \le 1$. In our case, we will consider a logistic function[2]:

$$G(x\beta) = \frac{\exp(x\beta)}{1 + \exp(x\beta)}$$

[2] In order to check for the robustness of the results we also estimated other specifications, like the probit, log-log and complementary log-log, but the results were not qualitatively different. In fact, the significant variables were the same and the coefficients displayed the same sign.

Papke and Wooldridge(1996) propose a quasi-likelihood method to estimate this type of models. In particular, they consider a Bernoulli log-likelihood function:

$$L_i(\beta) = y_i \log[G(x\beta)] + (1 - y_i) \log[1 - G(x\beta)]$$

where the quasi-maximum likelihood estimator of β is obtained by maximizing $\sum_{1=1}^{N} L_i(\beta)$

The quasi-maximum likelihood estimator (QMLE) of β is consistent but robust standard errors have to be computed in order to take into account heteroscedasticity problems.

IV. **Results**

Table 4 presents the QML coefficient estimates as well as the OLS. As expected, the specification tests, in particular the robust RESET test, reveal that only the fractional model is appropriate for our data. However, the signs and significance of the explanatory variables are similar in the two methods (the main difference is the variable *Islands* which is negative and significant in the QML and positive and not significant by OLS).

Referring to the effect of the explanatory variables we can see that there are significant differences between public and private institutions in terms of the unemployment propensity. In Public institutions unemployment propensity seems to be significantly higher. On the contrary, the results do not reveal important differences between Polytechnics and Universities (since the variable is only significant at 10% level), as well as between Bachelors and *licenciatura* Degree.

Besides, study programs of large size also seem to have higher employability. This conclusion is in line with Alexandre *et al*. (2009) results, who analyze public institutions and all fields of graduation in Portugal (not only business sciences), and conclude that study programs with larger vacancies have larger employability.

Table 4 Regression Model Estimates

VARIABLES	OLS	QMLE
	COEFFICIENTS (ROBUST STANDARD ERROR)	**COEFFICIENTS (ROBUST STANDARD ERROR)**
Polytechnic	-0.013	-0.324*
	(0.009)	(0.194)
Public	0.038***	1.010***
	(0.008)	(0.214)
Bachelor	-0.004	-0.103
	(0.008)	(0.227)
Size	-0.025***	-0.576***
	(0.008)	(0.169)
North	0.025***	0.672***
	(0.008)	(0.225)
Islands	0.0097	-10.640***
	(0.025)	(0.949)
Accounting, Fiscal and Auditing	-0.011	-0.226
	(0.012)	(0.263)
Marketing and Communication	-0.011	-0.244
	(0.013)	(0.328)
Finance, Banking and Insurance	-0.029**	-1.271***
	(0.012)	(0.438)
Human resources and Public Relations	-0.010	-0.194
	(0.014)	(0.332)
Public Sector administration	0.033	0.376
	(0.026)	(0.295)
Trade and Tourism	-0.023*	-0.715**
	(0.013)	(0.365)
Industrial Management	-0.0182	-0.307
	(0.0307)	(0.695)
Languages, Secretariat and Advisory Services	-0.038***	-1.196***
	(0.011)	(0.349)
Others	0.030	0.439
	(0.030)	(0.381)
constant	0.039***	-3.509***
	(0.011)	(0.295)
Log pseudo- Likelihood	---	-50.517
R2	0.1607	------
Test Reset (robust)	10.452***	2.266
n	372	

Notes: Reference categories: University, Private, *Licenciatura*, South and field of study "Administration and Management".
(***) significant at 1%., (**) significant at 5%, (*) significant at 10%

It is also interesting the evidence of differences between programs/institutions located in the North and in the Islands and the ones of the South of the country. In fact, relatively to the South of the Continent, the Islands seem to have a larger success in the job market while the opposite happens in the North. These findings are related with differences in the regional labour markets. In fact, although all institutions receive students originated from all regions in the country, the majority of the students choose

institutions closer to their home. Therefore, it is also natural that after graduation students will primary look for a job in that same region. This is especially true in the case of the Islands.

As to the differences among the several fields of study, in comparison with the "Administration and Management"[3], the fields of "Finance, Banking and Insurance" , of "Trade and Tourism" and of "Languages, Secretariat and Advisory Services" seem to have a smaller unemployment probability. On the contrary, relatively to all the other remaining fields does not seem to exist significant differences in the job market success in these years. Nevertheless, it is interesting to note that the most popular field of study in the Business and Management area – "Administration and Management" – seems to have one of the highest unemployment propensities.

V. **Final Remarks**

This work intended to perform a first analysis on the influence of the characteristics of the higher education institutions and of the program courses in the graduates´ employability, in the field of Business and Administration. We preformed an econometric analysis employing a fractional model, which is appropriate when the dependent variable is a proportion.

The results reveal that there is a higher propensity of unemployment for public institutions and for small size study programs. Moreover, there is evidence that employability is higher for study programs/institutions in the South of the country and in the Islands. Finally, there are significant differences among the several fields of graduation within Business and Administration. Some study fields seem to have lower unemployment probability relatively to the most common field of study - "Administration and Management", namely "Finance, Banking and Insurance", "Trade and Tourism" and "Languages, Secretariat and Advisory Services".

These results by themselves are not sufficient for a profound reflection and to take definite conclusions on possible policy measures towards the area of Business and

[3] As the field of "Administration and Management" is the largest academic subject in the area, we have considered it as the reference category.

Administration. However, these findings may help to promote a serious and necessary analysis about the employability of the graduate study programs in Portugal, particularly in the field of Business and Administration. This is especially important given the debate on the reform of the higher education system in the country. For example, in the area of Business and Administration, policy makers may have to consider whether to stimulate more vocationally oriented courses or to close some specific course programs and/or institutions, or even to impose a higher specialisation in the institutions in terms of fields of study.

References

ALEXANDRE, F., PORTELA, M. & SÁ, C. (2009) Admission conditions and graduates employability, *Studies in Higher Education*, Vol. 34, 7, pp 795 – 805

BUENO, J. H. (1996). *Autodesenvolvimento para a empregabilidade: sobrevivendo e prosperando numa sociedade sem empregos*. Editora LTr, São Paulo, Brasil

CHIAVENATO, I. (1997) *A Corrida para o Emprego*, Makron Books Editora, São Paulo, Brasil

DGES (2010) Bolonha: Grandes Números. Estudo 2 – Distribuição por áreas cientificas e distritos (FEV2010), in http://www.dges.mctes.pt/NR/rdonlyres/99CEE606-990E-4CB4-A8AC-ACFAF7AAD58B/4167/BolonhaGNEstudo2Areas.pdf (accessed in 19 September 2010).

D'HOMBRES, B., TORANTOLA, S. & VAN NIJLEN,D. (2008) Labour market performance of university graduates: Evidence from Italy , JRC Scientific and Technical Reports, 40877, European Commission, Luxembourg.

GALEGO, A. & CALEIRO, A. (2009), Understanding the transition to work for first degree university graduates in Portugal: The case of the University of Évora, Documento de Trabalho nº 2009/06, Universidade de Évora, Departamento de Economia.

GAZIER, B., (s/d), *Assurance chômage, employabilité et marchés traditionels du travail*. Paris: Université Paris 1/Matisse

GONÇALVES, F. R., CARREIRA, T., VALADAS, S. & SEQUEIRA, B. (2006) Percursos de empregabilidade dos licenciados: Perspectivas europeias e nacional. *Análise Psicológica*, 1 (XXIV), pp. 99-114

GPEARI (2008a) Relatório II: A procura de emprego dos Diplomados com habilitação superior – Dezembro 2007, in http://www.estatisticas.gpeari.mctes.pt/archive/doc/v02mar08 empregodiplomados_0.pdf, (accessed in 31 January 2010)

GPEARI (2008b) Relatório III: A procura de emprego dos Diplomados com habilitação superior, in http://www.gpeari.mctes.pt/archive/doc/emprego_dos_diplomados_2008_iii_0.pdf, (accessed in 31 January 2010)

GPEARI (2009a) Número de diplomados no Ensino Superior: 1997-1998 a 2005-2006, in http://www.gpeari.mctes.pt/archive/doc/Diplomados_versaoactualizada15jan2009.pdf, (accessed in 31 January 2010)

GPEARI (2009b) Relatório IV: A procura de emprego dos Diplomados com habilitação superior – Dezembro 2008, in http://www.gpeari.mctes.pt/archive/doc/EmpDiplomadosFev09_4R.pdf, (accessed in 31 January 2010)

GPEARI (2009c) Relatório V: A procura de emprego dos diplomados com habilitação superior – 2009, in http://www.gpeari.mctes.pt/archive/doc/relat_ermpregodiplomados_191009_0.pdf, (accessed in 31 January 2010)

LONDON COMMUNIQUÉ (2007) Towards the European Higher Education Area: responding to challenges in a globalised world, in http://www.ond.vlaanderen.be/hogeronderwijs/bologna/documents/MDC/London_Communique18May2007.pdf

MARTINEZ, A. E., (2006), Perez, E.R., Estratégias de Aprendizaje para la Empleabilidad en el Mercado de Trabajo para los Recién Egresados, *Univ. Psychol. Bogotá*, Vol. 6, nº 1, 89-103, Enero/Abril, in http://sparta.javeriana.edu.co/psicologia/publicaciones/actualizarrevista/archivos/V6N108.pdf (accessed in 13 July 2008)

MARTINS, A., DORES, A. P. & CENTENO, L. (coord.) (1998) *Diplomados Desempregados - Determinantes da Procura de Ensino e da Oferta de Qualificações*, Porto: Fundação da Juventude.

OECD (2009), *Education at a Glance 2009: OECD Indicators*, OECD

PAPKE, L. E & WOOLDRIDGE, J. M, (1996) Econometric Methods for Fractional Response Variables with an Application to 401(K) Plan Participation Rates. *Journal of Applied Econometrics,* 11(6), 619-632.

SMITH J., NAYLOR, R. & MCKNIGHT, A. (2000) Graduate Employment Outcomes and University Performances Measures. *Economic Journal*, 110 (464), 382-411.

STOCK, W.A., & ALSTON, R.M. (2000) Effect of Graduate-Program Rank on Success in the Job Market. *Journal of Economic Education*, 3(4), 389-401.