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Analysing the Employability of Business and Administration Study Programs in Portugal

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Abstract

This paper investigates the impact of institutions and study programs´ characteristics on the employability of higher education graduates. We consider the field of Business and Administration in Portugal, and employ an econometric fractional model to analyse the influence of several indicators in the unemployment "propensity" of the pair study program/institution.

The results show important differences between public and private institutions, between study programs of great and small size and among the several fields of graduation within Business and Administration. Moreover, the regional location of the institutions/study programs seems to be important to explain unemployment differences.

Key words: Employability; Higher education; Business and administration science; Fractional models

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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 (London Communiqué, 2007). Finally, employability has been related to the assessment of the quality or performance of the higher education institutions (see for example, van Nijlen and d'Hombres, 2008, Smith et al., 2000, or Stock and Alston, 2000).

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. Finding employment has become

more difficult than ever and graduate unemployment is increasing fast (see Eurostat, 2012).

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. Several studies have analysed the employability of university graduates, mainly focusing on one single aspect of employability which is the transition into labour market in different countries in Europe. Italy seems to be one of the countries where this issue is attracting most interest from the literature: see, for example, the studies of Biggeri *et al.* (2001), Quintano *et al.* (2004) or Pozzoli (2009). Other authors have focused on other countries´ reality: Heijke and Koeslag (1999) and van der Klaauw *et al.* (2005) for Netherlands, Wilton (2008) for UK or Livanos (2009) for Greece. Also, for Portugal, several studies, like Martins *et al*., (1998); Gonçalves *et al*, (2006); Alexandre *et al*. (2009) or Galego and Caleiro (2011) have paid attention to the transition into labour market of recent graduates.

Typically, studies focus on the individual transition into the labour market and do not consider specifically the characteristics of the institutions and of the study programs on the employability of graduates. At most, the authors consider the impact of the field of study on labour market success. One exception is the recent study of Heijke and Meng (2011), who analyse the effects of some higher education courses characteristics on the transition to working life in nine European countries. In particular, they consider the effect of the competencies taught to the students, the internationalisation of the course and the integration of working and learning. Another exception is the work of Alexandre *et al*. (2008), who analyse the effect of the entry conditions of courses/institutions of the Portuguese higher education public sector in the employability of students.

This work aims at improving the understanding of the graduates´ employability, by analysing the effect of the several courses/institutions characteristics on the graduates´ labour market performance. We consider the case of Portugal, where the unemployment rate for young university graduates has been rising very rapidly and is now one of the highest in Europe. According to data from Eurostat (2012), by mid 2011 the unemployment rate for these graduates in Portugal was reaching 30% much higher than the EU average (around 21%). The worsening of the labour market conditions, as a consequence of economic recession, may justify these developments. However, in the case of Portugal, we have to take into account the rapid expansion of higher education in the last decade (see OCDE, 2009). In spite of these developments, not much is known about the employability of university graduates in Portugal.

In Portugal, when analysing recent graduates' transition into the labour market, it is of interest to consider the field of "Business and Administration". This is one of the most common fields in the higher education institutions, both private and public, representing a large number of the university graduates in Portugal. On the other hand, within this field there are a vast number of different course programs which makes it a very heterogeneous area of study. As a consequence, in this work we specifically study the area of "Business and Administration".

We employ an econometric fractional model, considering several indicators as possible explanations for the differences on the unemployment performance of the pair study program/institution. The results suggest that the organization of the higher education system and of the institutions seems to influence the employability of university graduates in this field of study. In fact, besides the existence of regional differences, the results reveal important differences between public and private institutions, between study programs of large and small size and among the several fields of graduation within Business and Administration.

The paper is organised as follows. In the next section we give an overview of the higher education system in Portugal. In section III we describe the data used. In section IV we present the econometric methodology and discuss the results. In section V we present some final remarks.

1. THE HIGHER EDUCATION SYSTEM IN PORTUGAL

The Portuguese higher education system is binary as it includes Universities and Polytechnics, both public and private. The Universities´ aim is to provide general academic education and most research output comes from these institutions. On the other hand, Polytechnics are more oriented to vocational education.

The number of higher education institutions expanded rapidly in the eighties and early nineties, particularly in the private sector, as a response to an increase in student enrolment. Presently, there are more than 150 higher education institutions. The public sector includes 14 universities and a non-integrated university institution, 15 polytechnics and a number of polytechnic schools integrated in universities; 9 non-integrated nursing schools; 4 university-level military schools; and 5 polytechnic military schools. The private sector includes 34 university level institutions and no less than 66 polytechnics. The private sector also includes a Catholic university. However, many higher education institutions are of small size and offer a limiting number of courses (sometimes only one or two courses). This is particularly true for the private system (Crespo, 2006).

Most of the higher education institutions, particularly in the public system, are located in densely populated coastal areas, like Lisbon or Oporto. By contrast, polytechnics are more equally distributed around the country, as they result from a policy of local development promotion.

The expansion process of the higher education system is also apparent in the increasing number of courses and study programs, which have duplicated over the last decade. In 2010, according to DGES (2010), the total number of undergraduate study programs was 1,796, of which 520 were offered by public universities, 560 by public polytechnics, 22 by military schools and 694 by private universities and polytechnics.

Table 1
New Graduates and 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

Source: GPEARI (2009b)

The field of "Business and Administration" is one of the most widespread fields in higher education institutions, both public and private and both Universities and polytechnics. In fact, more than 30% of the enrolments in both public and private polytechnics are concentrated in this field of study. Moreover, according to the Ministry of Science, Technology and Higher Education there are at the moment about 172 first degree courses in public institutions and 130 in private institutions in "Business and Administration" (DGES, 2010). This is a very heterogeneous area of study (much larger than other fields), where a vast number of different course programs coexist. However, while public universities offer a diversified range of study programs all other institutions concentrate their offer in a limited number of courses.

Due to the large number of enrolments in "Business and Administration", a high percentage of new graduates in each year originate from this field. As expected, these graduates represent a large number of the unemployed graduates in Portugal (see table 1). Nevertheless, the unemployment rate was 4.1% in 2009, which was below the national average and also below most fields in the social sciences area.

Therefore, the specific conditions of the field "Business and Administration" in the Portuguese higher education system, makes it a very interesting case study to analyse the impact of the pair course/institution characteristics in the employability of new graduates.

2. DATA

To analyse the Business and Administration study programs employability, we consider data from the reports published by the Portuguese Ministry of Science, Technology and Higher Education (GPEARI, 2008a, 2008b, 2009a, 2009b and 2009c). The ministry collects information about the higher education institutions as well individual information in the job centres. 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 bachelor 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:

• If the study program belongs to a polytechnic institution (polytechnic=1)

• If the study program belongs to a public institution (public=1)

• If the study program confers a bachelor's degree (bachelor=1)

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

• If the size of the study program in each institution is considered of large dimension (size=1). We consider a study program of large dimension if it displays an average of graduates, in the last 5 years, equal or superior to 60[2].

• 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.

• A group of dummies to identify the field of graduation. We considered 10 fields of graduation, namely: Administration and management; Accounting, Fiscal and Auditing; Marketing and Communication; Finances, Banking and Insurance; Human Resources and Public Relations; Public Sector Administration; Trade and Tourism; Industrial Management; Languages, Secretariat and Advisory Services ; Other fields.

The students´ quality in each higher education institution may be another important factor to influence the propensity to unemployment. As we are using data for course/institution pairs we could use as a measure of student's quality the average admission grade of the courses for each institution. Previous study by Alexandre et al. (2009) have analysed this issue for the public sector and concluded that the entry grade is indeed a significant factor. However, that information is not available for private institutions and therefore we could not use it in this study.

Table 2 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.

Table 2
Sample Averages

Variables	Mean
Unemp	0.045
Public	0.554
Polytechnic	0.629
Bachelor	0.255
Size	0.522
Islands	0.005
North	0.583
Administration and Management	0.261
Accounting, Fiscal and Auditing	0.191
Marketing and Communication	0.183
Finance, Banking and Insurance	0.032
Human resources and Public Relations	0.083
Public Sector Administration	0.051
Trade and Tourism	0.062
Industrial Management	0.016
Languages, Secretariat and Advisory Services	0.069
Other fields	0.051

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.

3. METHODOLOGY AND RESULTS

To analyse the factors explaining the differences in the unemployment index of each pair study program/institution in the business and administration sciences field, we consider the following regression model:

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

where *coursej*, refers to the 10 dummy variables identifying the study programs.

As our dependent variable takes the form of a fraction (with values between 0 and 1), the ordinary 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 fractional model of the type proposed by Papke and Wooldridge (1996):

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

where G (.) is a function satisfying $0 \le G(x\beta) \le 1$. In our case we will consider a logistic function[3]:

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

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 $\sum_{I=1}^{N} L_i(\beta)$

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.

Table 3 presents the QML coefficient estimates as well as the OLS. As expected, the specification tests, in

[2] For Portuguese standards a study program with more than 60 graduates is usually considered to be of large dimension.
[3] 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

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).

Table 3
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)
Other Fields	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%

Referring to the effect of the explanatory variables we conclude that there are significant differences between public and private institutions. In public institutions unemployment propensity seems to be significantly higher. On the contrary, the differences between Polytechnics and Universities, do not seem to be significant, as the variable *Polytechnic* is only significant at 10% level for the QML estimates. Nevertheless, although only marginally, course programs from Polytechnics seem to more successful in the labour market. This may indicate that the more professional and vocational character of these institutions pays off in the labour market. In addition, the results do not reveal important differences between Bachelor's and *licenciatura's* Degree.

Another important conclusion is that study programs of large size reveal higher employability. This result is in line with Alexandre et al. (2009) which concentrate their analysis on public institutions in all fields of graduation in Portugal (and not only business sciences), and conclude that study programs with larger vacancies (and therefore with larger number of students enrolled) display larger employability.

It is also interesting the evidence of differences between programs/institutions located in the south of the country and the ones located in the other regions (north and islands) In fact, the islands seem to have a larger success in the job market than the south of the continent, while the north seems to present the lowest employability. 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 expected 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"[4], 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 display one of the highest unemployment propensities.

4. FINAL REMARKS

In this work we analyse 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 in Portugal. We performed an econometric analysis employing a fractional model, considering as dependent variable the unemployment propensity of the pair study program/institution.

The results suggest that that some characteristics influence the employability of university graduates in this field of study. Namely, our findings suggest that public institutions and small size study programs present a higher unemployment propensity. Moreover, 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". Finally, there is evidence that employability is higher for study programs/institutions in the south of the country and in the islands, which reflects different labour market conditions.

These results by themselves are not sufficient to take definite conclusions on possible policy measures towards higher education systems in general and for Portugal in particular. In what concerns the area of Business and Administration in Portugal, future research should consider better measures of students´ quality as well as University quality, whenever suitable data is available for all institutions and courses. Moreover, other information about the courses programs should be analysed, like curriculum differences. However, this work suggests that the characteristics of the Higher Education Institutions and the organization of the higher education system should be taken into account when considering the employability of university graduates.

In the case of Portugal, these findings may help to promote a serious and necessary analysis about the employability of the graduate study programs, 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.

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

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