A DISCRIMINANT ANALYSIS OF ACADEMIC ENTREPRENEURSHIP IN ROMANIAN ECONOMIC AND BUSINESS STUDY PROGRAMS

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Abstract. *The aim of this paper is to present different patterns of academic entrepreneurship in Romanian economic and business study programs. Based on a discriminant analysis, the study advances a classification of those 60 study programs that have reported incomes from commercial activities or contract research with business partners. Groups' characteristics are then compared for their knowledge creation vs. knowledge application orientation, geographical location and study fields.*

Keywords: academic entrepreneurship, discriminant analysis, knowledge transfer determinants, economic and business study programs.

Management & Marketing
Challenges for the Knowledge Society
(2012) Vol. 7, No. 4, pp. 663-682

1. Introduction

The growing need for universities to develop linkages with industry and to serve a 'third-mission' of contributing to local economic development has challenged their traditional missions and opened the way to academic entrepreneurship. Etzkowitz (1983) has coined the phrase entrepreneurial university to describe the series of changes that reflect the more active role universities have taken in promoting direct and active transfer of academic research. Entrepreneurial activities are expected to improve regional or national economic performance, as well as the university's financial advantage and that of its faculty. The possibility of playing such a role does, however, vary by region and country, reflecting differences in the way both the industry and academia have developed over this past century (Etzkowitz et al., 2000). Moreover, the concept is cultural dependent, and understanding it means to consider its social and economic external environment (Brătianu and Stanciu, 2010).

At the policy level, the commercialization of university research has been viewed as a key driver of national competitiveness and been consequently supported by a range of initiatives seeking to promote the links between universities and industry (Henderson et al., 1998): academic technology transfer offices have been created, dedicated employees have been trained and hired, incubators for the launching of new academic ventures have been set up and academic or independent pre-seed investment funds have been found. According to Siegel et al. (2004), to foster a climate of entrepreneurship, university administrators should focus on five organizational and managerial factors: reward systems, staffing practices in the technology transfer office (TTO), flexible university policies and additional resources to facilitate university technology transfer and working to eliminate cultural and informational barriers that impede the transfer process. Debackere and Veugelers (2005) also supports this view: universities should employ incentive structures, decentralized operating structures to provide greater autonomy to research teams and a centralized staff of experienced technology transfer personnel.

The literature on the "entrepreneurial university" has explored this institutionalization of technology transfer activities, including the introduction of management and organizational arrangements around intellectual property exploitation and their interaction (and potential conflict) with traditional academic practices (Uyarra, 2010). Critics have underlined the potentially detrimental effects of entrepreneurial science on the long-term production of scientific knowledge. In their view, entrepreneurial activities have the potential to affect the university system's mission and its traditional focus on academic governance of faculty (Behrens and Gray, 2001; Blumenthal et al., 1996; Slaughter and Leslie, 1997). Geuna and Nesta (2006) fear that an increase in university patenting exacerbates the differences across universities in terms of financial resources and research outcome and could lead to a substitution effect between patenting and publishing. D'Este and Perkman (2011) suggest that the vision of entrepreneurial university fails to neatly capture the complex nature of academic researchers' interactions with industry. Despite these critics, there

are also some arguments for the complimentarily between entrepreneurial orientation of a university and its traditional mission (Agrawal and Henderson, 2002; D'Este and Patel, 2007; Di Gregorio and Shane, 2003; O'Shea et al., 2005; Van Looy et al., 2004). Thus, by actively engaging in technology development, universities are demonstrating *ambidexiterity* in their ability to produce both scientific knowledge and technological outputs (Ambos et al., 2008).

Previous empirical studies have examined a number of determinants hypothesized to be related to the efficiency and effectiveness of entrepreneurial activities (Phan and Siegel, 2006; Rothaermel et al., 2007). We summarised the determinants of entrepreneurial activities in Table 1.

Table 1

Determinants of academic entrepreneurship

Determinants	Descriptors
Characteristics of the university	Size Status: public vs. private Mission: research vs. teaching oriented Policies and strategies (rewards and incentive systems) Location Scientific disciplines
Organizational determinants	Establishment of technology transfer offices (TTOs) TTO age, size etc.
Resources	Research staff (including PhDs) R&D expenditure (including public funding) Research funding from industry sources etc.
Research productivity and quality	Faculty productivity Individual and institutional research quality
Networks	Number of partnerships with private institutions Number of partnerships with other R&D providers Number of networks
External determinants	Governmental policy Industry conditions Regional conditions etc.
Type of outputs	Patents Licenses CDP graduates Spin-offs
INCOMES	Licensing income Spin-off income Contract research income Consultancy income etc.

Beside these determinants, many other are possible, including social and institutional factors, but it is not always possible to obtain reliable and complete data or to identify representative proxies (Abramo et al., 2011). This paper aims to bring evidence on academic entrepreneurship in Romania, while highlighting some distinguishable features of entrepreneurial activities in economic and business study programs. Literature has generally paid less attention to social sciences research in the frame of university – industry interactions and those studies dealing explicitly with the entrepreneurial activities of business and economic schools/ study fields are very limited (Birchall and Chanaron, 2006). Gibb (2002) suggests that business schools, in their current form, should not be involved in academic entrepreneurship. Conversely, he proposes that before they can make a meaningful contribution to academic entrepreneurship, they should significantly increase their involvement in cross-disciplinary research and teaching, with faculty from engineering and applied sciences. If patents and licensing are only exceptional cases, business schools are expected to be more involved in activities directly targeted at supporting university spin-offs and new firm creation (Wright et al., 2009). Additionally, they are expected to generate high incomes from contract research, consultancy, continuous professional development courses etc.

2. Research context and method

2.1. Introducing the context: University – Industry links in Romania

Fostering the partnerships between universities, research institutes and economic operators to increase the competitiveness of the Romanian economy is one of the main action lines described by the Romanian National RDI Strategy and Plan for 2007-2013. Additionally, by a series of legislative and financial measures, the state intends to encourage the development of academic entrepreneurship periphery (business incubators, spin-off companies etc.) and to establish a risk capital to finance initiatives of economic valorisation of RDI results. Currently, science – industry links are in their incipient stage and only few universities have consolidated their technology transfer and commercial infrastructure. Similarly, spin-off creation based on recent research results, patents or licenses is a slow process, which has been hindered by the lack of capital and difficult access to bank financing. Inter-sectorial mobility between public and private institutions is also very limited, due to a poor culture of collaboration (Erawatch, 2011).

According to the Global Competitiveness Report 2011-2012, Romania ranks 115th out of 142 participants for *university – industry collaboration for R&D*. By comparison, the Czech Republic, Lithuania, Hungary and Estonia, all belonging to the Central and East European group, are much better positioned: 30th, 31st, 33rd and 34th respectively, indicating that their communist past does not influence current performances in R&D (Schwab, 2011). At the same time, according to the Innovation Union Scoreboard 2011, Romania ranks 26th in the EU for public-private research

linkages and active collaboration between business sector researchers and public sector researchers in academic publication, with only 17 co-publications per million population (Innovation Union Scoreboard, 2012).

At the national level, The Study on Innovation in Industry and Services (2006-2008) published by the Romanian National Institute of Statistics brings additional evidence on the weak cooperation between universities and industry. In line with the results of this study, information in support of innovation is obtained mainly from own staff (44.6%) and from suppliers of equipment, materials, components and software (33.0%) and not from universities (3.9%) or governmental and public research institutions (3.2%). As regards cooperation, only 13.8% of all innovative firms have cooperative arrangements for carrying out innovation. The main cooperation partners are suppliers (10.5%) and customers or buyers (8.2%). 5.1% of the innovative companies have cooperation agreements with universities/higher education institutions and only 3% of them with government institutions or public research institutes.

Table 2

Share of companies cooperating for innovation, by size and partners

Cooperation partners	Total	Small enterprises	Medium enterprise	Large companies
All cooperation partners	13.8	11.1	15.1	27.3
Partners from inside the company	4.6	2.8	5.3	14.2
Suppliers	10.5	8.2	11.5	22.3
Clients/ Buyers	8.2	6.6	9.2	16.0
Competitors	4.8	3.4	5.2	12.3
Consultants	4.4	2.2	6.4	13.5
Universities/ Higher education institutions	5.1	3.5	5.3	14.7
Government institutions/ public research institutes	3.0	1.3	3.8	11.8

Source: http://www.insse.ro/cms/rw/pages/comunicate/inov_ind.ro.do

Similar to other Central and Eastern European countries, the lack of knowledge flows between universities and enterprises in Romania has at least two explanations: on the one hand, there is a low innovation literacy of business, which cannot formulate its own ideas or find sophisticated partners and is not open to cooperation; on the other hand, one has to recognize the unsatisfactory business literacy level of academic society, with its accompanying inability and unwillingness to offer cooperation (Formica, 2008). To these we can add the risk of increasing dependence on public R&D funding, the emphasis put on fundamental research in detriment of applied research, the lack of adequate intermediary structures and a very poor innovation culture, both in the business and academic environment (Şerbănică, 2011) or the low level of complementarity between R&D projects in various sectors or between research groups in different universities/ HEIs. Moreover, at the moment, there are some important barriers in implementing innovation and knowledge management in the Romanian economy that could also explain the weak R&D cooperation. Of these, the linearity barrier, emerging from the education system, is the

most important one and it will be overcome only if managers become conscious of the nonlinear dimension of the environment complexity (Brătianu, 2011). Policy makers in charge with activating the triple helix of university – industry – government should thus go deeper and consider the historical inheritance, but also some challenging transformations, such as the deindustrialization of the economy after 1990 (Herman, 2011), the privatization of state companies and the setting up of a sector of new private businesses mainly through foreign direct investments, the appearance and development of private universities or the restructuring of the system of research organizations (Miron, 2008).

Romanian universities have been traditionally focused on the teaching mission, but the increasing investment in academic research infrastructure since 1997, as well as the compulsoriness of research activity for university accreditation since 2006 speeded up the development of research mission (Erawatch, 2011). Moreover, the assessment and ranking exercise introduced by the new Law of Education is expected to foster universities' research capacities. As regarding the third mission – contribution to the local or regional wealth and economic development – it is in a very incipient stage, with only few universities consolidating their technology transfer and commercial infrastructure and personnel, mostly leading academic centres in Bucharest, Cluj, Timişoara, Iaşi, Braşov etc. (Erawatch, 2011). In their turn, concepts like the "entrepreneurial university" or "university-industry consortia" have only recently emerged in the public debate and some support measures have been adopted, but their impact is still minor (Ranga, 2010). Not at least, entrepreneurship education in universities is poorly represented and is not an already embedded explicitly in national framework curricula (European Commission, 2007). In what it concerns Romanian Economic and Business study programs, they still need a fresh look in many respects, especially at the curriculum level that must be restructured in a market driven approach (Brătianu and Shook, 2006).

Despite these evidences, Romania has made some important steps towards fostering R&D cooperation and has introduced specific steering mechanisms, schemes and support measures for the promotion of knowledge transfer. As a result, universities have already accessed some specific funds for R&D cooperation from the Romanian RDI Programme or from various Structural Operational Programs. Cooperative research in the socio-economic field was well represented at the national level, thus demonstrating that knowledge circulation cannot be restrained to technical or technology-based study fields. Given these considerations, the aim of this study is to present different patterns of academic entrepreneurship in Romanian economic and business study programs.

2.2. Research methods

Data for the analysis was made publicly available by the Romanian Ministry of Education, Research, Youth and Sports in 2011, following the first National Assessment Exercise for the Classification and Ranking of Romanian universities and Study

programs. In total, there were 226 programs in economics and business in eight fields of study (Economics, Business Administration, Cybernetics and Informatics, Accounting, Finance and Banking, Management, Marketing, International economic relations) that were considered for this study. To explore different patterns of academic entrepreneurship, we have used the discriminant analysis, due to its advantages in both synthesizing a set of variables and expressing the relationships between them. The variables available for this study are presented and described in Table 3.

Table 3

Variables used in the study

Variabile	Description	Abbrev.
R&D human resources (control variable)	Total number of full and associate staff	-
R&D financial resources Public funding (from the National Plan for RDI) Structural funds Private funds	Total monetary value, expressed in lei, from projects/ grants /research contracts/ obtained through competitions organized in Romania, as a direct beneficiary or principal partner	 Public_funds Structural_funds Private_funds
Income from R&D contracts with business partners	Total income, expressed in lei, from R&D projects contracted to a private beneficiary, usually a private commercial enterprise, that was not obtained through competitions	Contract_income
Income from new products and services developed by the university	Total income, expressed in lei, from services and innovative products, including development, implementation and/or evaluation of public policies by the full and associated staff	Commercial_income

As suggested in the literature, for producing comparable indicators, the great challenge is to find a relevant denominator to scale or to normalize the data from institutions that vary enormously in size (European Commission, 2009). Therefore, in the data preparation phase, we removed the size differences by controlling all the variables for the total number of full and associate staff. Moreover, using the Schweinle formula (2.5 standard deviation from mean), we identified univariate outliers and transformed them to the next highest non-outlier value. Finally, we have removed from the analysis those study programs that did not report contract or commercial income and were supposed not to be engaged in academic entrepreneurship. In this way, 60 study programs were classified as entrepreneurial and were subjected to statistical analysis (Annex 1).

As shown in the Table 4, entrepreneurial study programs in economics and business have attracted important R&D resources from structural funds and less from private sources. The total income from services and innovative products, including development, implementation and/or evaluation of public policies is the second most important source of income, with a mean value of 5935 lei/ staff.

Table 4

Descriptive statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Public_funds	60	.00	14824.05	2385.6680	4008.14110
Structural_funds	60	.00	165251.65	37810.7114	53803.05920
Private_funds	60	.00	1580.62	283.7549	539.87455
Contract_income	60	.00	6533.04	1847.6437	2284.09004
Commercial_income	60	.00	26190.48	5934.1522	9015.42785
Valid N (listwise)	60				

Given these differences, we have standardised the variables with the Z-score technique. The correlations presented in the Table 5 are not very strong, but they give at least some tendencies.

Table 5

Correlations

		Zscore (Public funds)	Zscore (Structural funds)	Zscore (Private funds)	Zscore (Contract income)	Zscore (Commercial income)
Zscore Public_funds	Pearson Correlation	1				
	Sig. (1-tailed)					
	N	60				
Zscore Structural_funds	Pearson Correlation	.040	1			
	Sig. (1-tailed)	.381				
	N	60	60			
Zscore Private_funds	Pearson Correlation	-.025	.363**	1		
	Sig. (1-tailed)	.424	.002			
	N	60	60	60		
Zscore Contract_income	Pearson Correlation	.069	-.222*	-.339**	1	
	Sig. (1-tailed)	.299	.044	.004		
	N	60	60	60	60	
Zscore Commercial_income	Pearson Correlation	-.227*	.131	-.184	-.177	1
	Sig. (1-tailed)	.041	.160	.079	.089	
	N	60	60	60	60	60

* Correlation is significant at the 0.05 level (1-tailed).

** Correlation is significant at the 0.01 level (1-tailed).

There is only one statistically significant positive correlation that can be observed in the Correlation matrix between structural and private funds, indicating a competition-based orientation in attracting additional resources, outside the national RDI programme. On the contrary, the negative correlations between structural and private funds obtained through competitions and contract research obtained through other agreements signal the presence of an overlapping agenda: universities that have managed to attract funds through competition no longer focus on other types of contracts with private partners. Finally, public funds obtained from the national RDI budget are negatively correlated with the income obtained through commercial activities, thus reflecting two different orientations, towards basic research vs. applied research.

A discriminant analysis was further carried out to develop a typology of entrepreneurial study programs and to identify those variables contributing most to groups' separation. According to Burns and Burns (2008), discriminant analysis involves the determination of a linear equation like regression that will predict which group the case belongs to. The application of the discriminant analysis implies checking up hypotheses regarding the normality of multivariate distributions in the predictor variables, the absence of multi-colinearity and the homogeneity of variances within each group. At the same time, group sizes of the dependent variable should not be grossly different.

The discriminant variable by which we divided the 60 study programs in three equal groups was the total income attracted from business partners (private funds + contract research + commercial income), with the third group being the most performant one. We firstly examine whether there are significant differences between the three groups on each of the independent variables using ANOVA results data (Table 6). The test F for Wilks's Lambda was significant for all the variables (sig. smaller than 0.05), with public funds and structural funds producing very high value F's. These results indicate significant group differences and justify further analysis.

Table 6

Tests of equality of group means

	Wilks' Lambda	F	df1	df2	Sig.
Zscore(Public_funds)	.373	47.877	2	57	.000
Zscore(Structural_funds)	.651	15.267	2	57	.000
Zscore(Private_funds)	.847	5.162	2	57	.009
Zscore(Contract_income)	.898	3.253	2	57	.046
Zscore(Commercial_income)	.867	4.384	2	57	.017

3. Research results: estimation of the discriminant function

As resulted from our SPSS 17 computation, the highest eigenvalue corresponds to the first discriminant function (2.291) that accounts in a ratio of 72.1% for the dispersion of the group means, as compared to the second function that accounts for only 27.9% of dispersion. The canonical correlation coefficient, measuring the relation between the discriminant and the grouping variable, shows that 834 of the total variance accounts for the differences among the three groups through the first discriminant function (Table 7). At the same time, Wilks' lambda indicates that both discriminant functions are significant (.001 and .014) and that groups means appear to differ (Table 8).

Table 7

Eigenvalues

Function	Eigenvalue	% of Variance	Cumulative %	Canonical Correlation
1	2.291[a]	72.1	72.1	.834
2	.888[a]	27.9	100.0	.686

a. First 2 canonical discriminant functions were used in the analysis.

Table 8

Wilks' Lambda

Test of Function(s)	Wilks' Lambda	Chi-square	Df	Sig.
1 through 2	.161	100.459	10	.000
2	.530	34.945	4	.000

Pearson coefficients (determinant loadings) are presented in the Structure matrix in Table 9 and they should be interpreted like factor loadings in factor analysis. By identifying the largest loadings for each discriminate function the researcher gains insight into how to name each function (Burns and Burns, 2008). Public funds have the highest discriminaning loading and are correlated with the first discriminant function, while the other four variables are correlated with the second one, with different signs.

The unstandardized coefficients help creating the discriminant equations. For the first function that explains 72% of the total variance, the discriminant equation is presented below:

D1 = (1.650 x public funds) + (-.499 x structural funds) + (-.202 x private funds) + (-.086 x contract income) + (-.269 x commercial income)

Table 9

Structure matrix

	Function	
	1	2
Zscore(Public_funds)	.841*	-.263
Zscore(Structural_funds)	-.178	-.722*
Zscore(Private_funds)	-.125	-.405*
Zscore(Contract_income)	.070	.340*
Zscore(Commercial_income)	-.185	.291*

* Largest absolute correlation between each variable and any discriminant function.

Finally, the cross validated classification shows that 95% of the original grouped cases were correctly classified, that means they were included in the group to which they actually belongs. For all the three groups the prediction is highly accurate, indicating that entrepreneurial study programs differ in their approach to R&D resource attraction and knowledge transfer issues.

Groups' values for the two discriminant functions based on the total income generate from business partners are presented below. As it can be seen in Figure 1, the first group is the one that scores high for the first discriminant function, while the third one is the most performant on the second function.

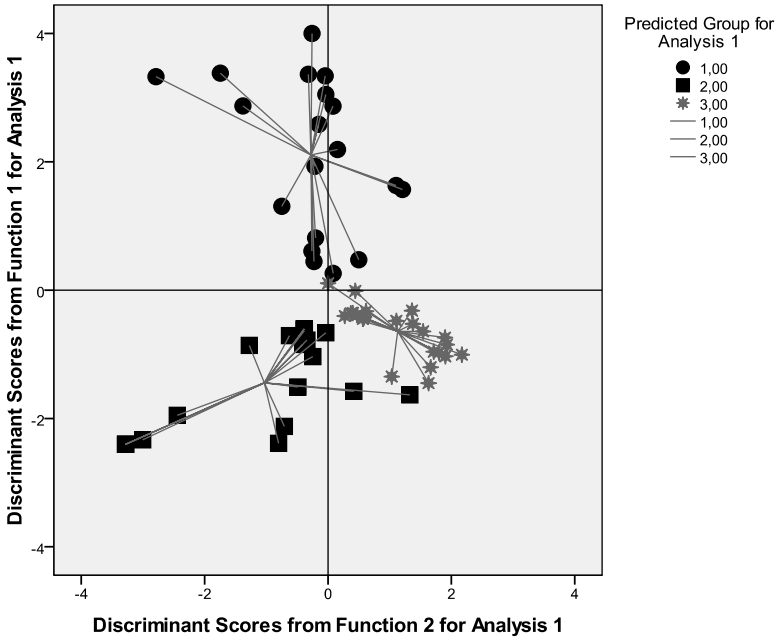


Figure 1. **Classification results by groups**

In order to gain a better understanding of the discriminant analysis' results, we represented the variables in Figure 2. As the first function is significantly influenced by public R&D funds that go usually on fundamental research, we name it *knowledge creation*. The second function is negatively correlated with structural funds (placed on the left side of the axis) and positively associated with contract and commercial income (on the right side of the axis). Given the outputs and the outcomes resulted from these types of funding, we decided to call the second function *knowledge application.* Additionally, we extended the analysis by presenting groups' results by development regions (Bucharest Ilfov – BI, North East – NE, North West – NW), Centre – C, South East – SE, South – S, South West – SW and West – W) and by fields of study (Economics – ECON, Business Administration – BA, Cybernetics and Informatics – CYB, Accounting – ACC, Finance and Banking – FIN, Management – MG, Marketing – MK, International economic relations – IER) (Figure 3).

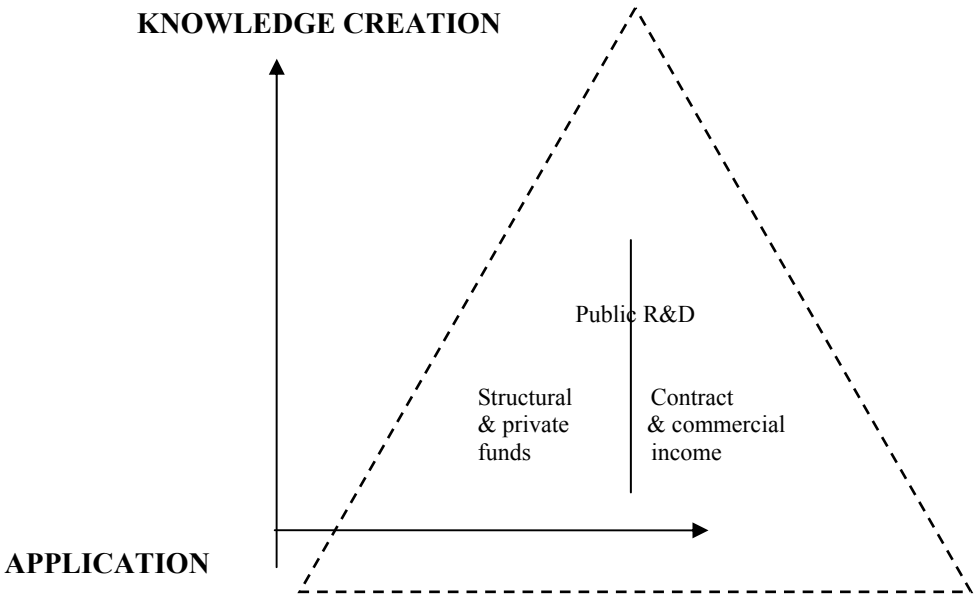


Figure 2. **Classification results by R&D resources and incomes**

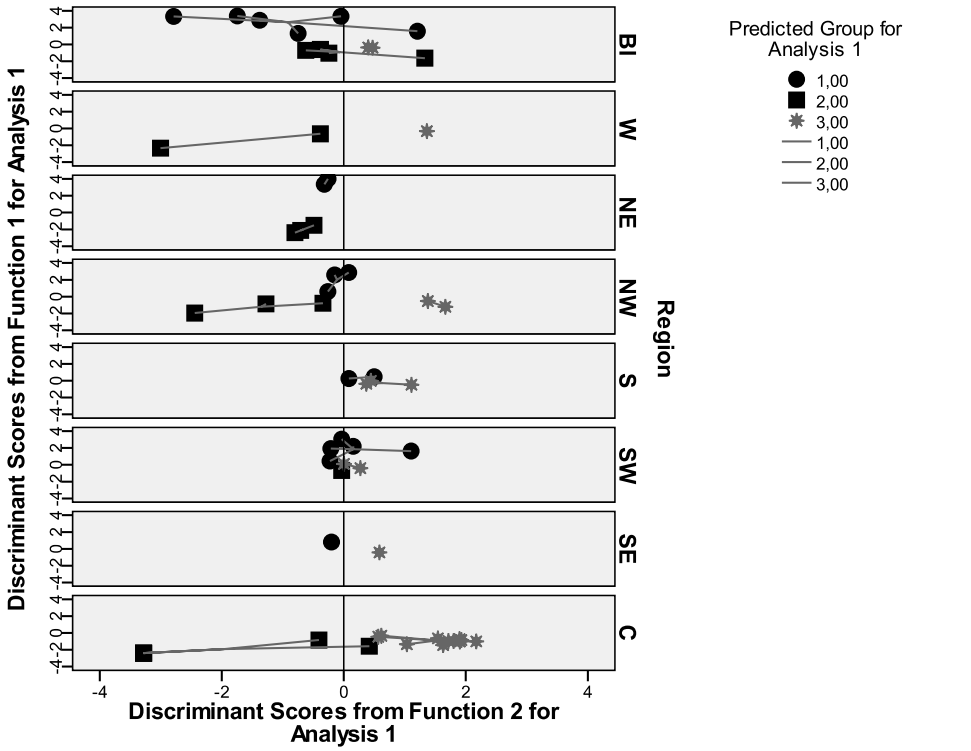


Figure 3A. **Discriminant analysis by regions**

The first group is by far the one with the best performance on knowledge creation, but also with the worst entrepreneurial performance. The conclusion here is that the R&D focus (supported by high public R&D funds) hinders the focus on links with business partners. Group's centroid is slightly left-oriented, even if there are few study programs that cross the knowledge application axis and go towards higher income generated from business contracts. Study programs in this group come especially from Bucharest – Ilfov, North East, North West and South West, namely from those regions that host the most important university centres in Romania (Bucharest, Iaşi, Cluj, Craiova). At the same time, these study programs are mainly based in Economics, thus explaining their very high potential in knowledge creation in detriment of knowledge application.

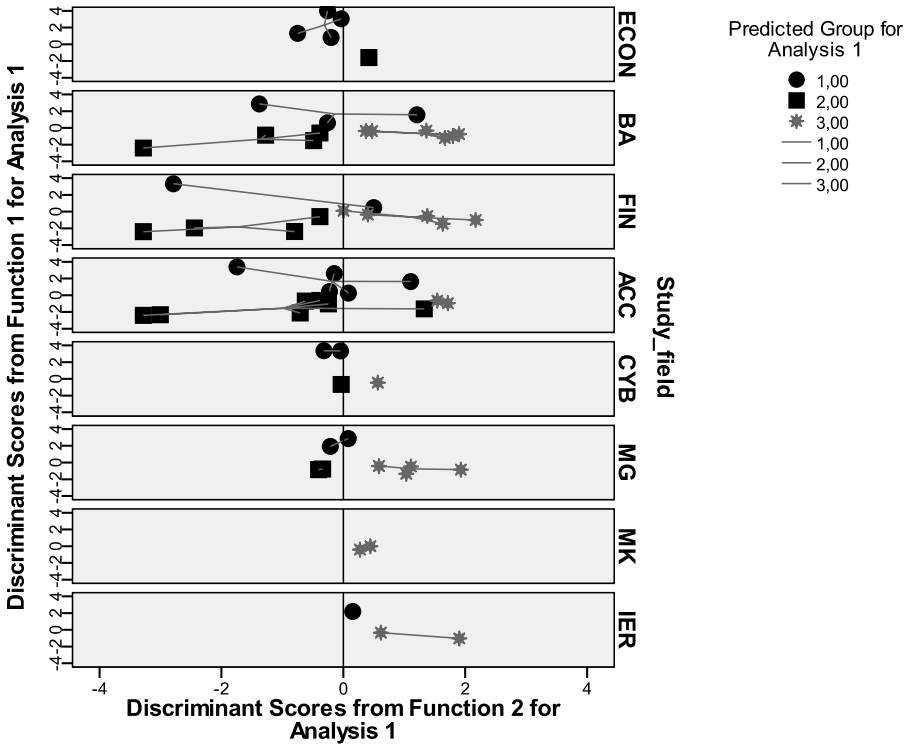


Figure 3B. **Discriminant analysis by study fields**

The second group has the centroid on the left side of the knowledge application axis (being highly correlated with structural funds) and has the lowest performance in attracting public R&D funds. Study programs in this group are partially equally distributed across the regions, given the equalitarian purposes of the regional policy. Nonetheless, the South and South East regions are lagging well behind, especially due to the low number of Economic and Business programs they host. By study fields, Accounting, Finances and Business Administration have the highest performance in attracting structural funds and the explanation lies in their high potential to serve current business needs - that are often addressed by structural funding policies.

Finally, *the third group* – classified as the most entrepreneurial one - succeeds in attracting most of its resources from contract research or commercial activities with business partners. We should emphasis a substitution effect, as study programs in this group do not cross the axis nor towards structural funds, nor towards public R&D funds, even if the group is much better positioned on the Knowledge creation axis as compared to the second group. As a consequence, further studies should investigate whether failure in attracting public and structural funds – that are significantly higher

than those obtained through business contracts – are some of the main factors that explain the entrepreneurial behaviour in Romanian Economic and Business studies, as we suppose here. By far, this group is the most homogeneous one, as it covers almost all study fields (except for Economics) and is very active in the industrial part of Romania – the Centre region, but at the same time it is under-represented in the North East, which is one of the poorest Romanian regions.

4. Conclusions and discussions

This analysis only represents a first step in the attempt to create a comprehensive entrepreneurial profile of Romanian economic and business study programs. At this point of research, some remarks should be emphasized. First, despite some important steps towards promoting R&D cooperation, academic entrepreneurship is still in its very incipient stage. We should restate the fact that only 60 out of the total 226 study programs in Economics and Business have reported incomes from business partnerships, while the rest have no proof of academic entrepreneurship. Second, we should also pay attention to the fact that incomes from contract research or commercial activities are incomparably lower than the sums obtained from structural funds and that, on the long term, the substitution effect could have adverse consequences. Finally, we have to mention the very poor overall performance in other entrepreneurship – related areas such as spin-off creation, support for new firm incubation or provision of continuous professional courses specially targeted at the business community.

The main conclusion of this paper is that those Economic and Business study programs that receive significant public R&D and structural funds do not have a similarly higher entrepreneurial performance. The explanation lies in an overlapping agenda: having accessed the public and structural funds, academics do not focus on contract – based interactions with business partners, as they lack time, while public and structural funds offer significantly higher financial incentives.

The paper has also shown a clear division of Economic and Business study programs across the regions and study fields: the most entrepreneurial programs can be found in the Centre region – that is widely acknowledged as Romania's industrial region, thus facilitating university – industry links. At the same time, except for the Economics, all the other study fields have potential for entrepreneurial actions, with Business Administration, Finances and Management on the top.

Further research will aim at expanding and enriching the entrepreneurial profile with qualitative evidence, as current quantitative approaches do not capture the types of interactions, nor the effects on business competitiveness. Given the fact that the consolidation of university cooperation and the development of university networks is one of the most important challenges that shape the higher education landscape in Romania (Roşca et al., 2010), further studies should also be devoted to answering a recurrent question in the academic entrepreneurship literature: whether the academics have or not the capacity to focus simultaneously, with the same attention paid to quality, on both knowledge creation and application.

Acknowledgement

This work was co financed through the European Social Fund through The Sectorial Operational Programme Human Resources Development 2007-2013; project number POSDRU/1.5/S/59184 „Performance and excellence in postdoctoral research in Romanian economic science domain"

Notes

*** Some ideas from this study were presented in the Second Postdoctoral Conference: "Provocările crizei si raspunsurile stiintei economice", hosted by the Academy of Economic Studies in Bucharest in March 16-17, 2012.

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Annex 1

Economic and Business Study Programs in the analysis

University	Study program	Region
Academia de Studii Economice din Bucureşti	ECON	BI
	BA	
	FIN	
	ACC	
Universitatea 1 Decembrie Alba Iulia	BA	W
Universitatea Al. I. Cuza din Iaşi	ECON	NE
	CYB	
Universitatea Babeş-Bolyai din Cluj Napoca	BA	NW
	FIN	
	ACC	
	MG	
Universitatea Constantin Brâncoveanu din Piteşti	FIN	S
	ACC	
	MK	
Universitatea Constantin Brâncuşi din Târgu Jiu	ACC	SW
	MG	
Universitatea Dunărea de Jos din Galați	ECON	SE
	MG	
Universitatea Lucian Blaga din Sibiu	ECON	C
	BA	
	FIN	
	ACC	
	IER	
	MG	
Universitatea Petre Andrei din Iaşi	BA	NE
	FIN	
	ACC	
Universitatea Transilvania din Braşov	BA	C
	FIN	
	CYB	
	ACC	
	IER	
	MG	
Universitatea Creştină Dimitrie Cantemir din Bucureşti	BA	BI
Universitatea Creştină Partium din Oradea	BA	NW
Universitatea de Nord din Baia Mare	BA	NW
	MG	
Universitatea de Vest din Timişoara	ACC	W
Universitatea Dimitrie Cantemir din Târgu Mureş	BA	C

University	Study program	Region
	FIN	
	ACC	
Universitatea din Craiova	ECON	SW
	FIN	
	CYB	
	ACC	
	IER	
	MK	
Universitatea din Oradea	FIN	NW
Universitatea din Piteşti	MG	S
Universitatea Financiar-Bancară Bucureşti	FIN	BI
Universitatea Petrol Gaze din Ploieşti	BA	S
Universitatea Româno-Americană din Bucureşti	BA	BI
	CYB	
Universitatea Româno-Germană din Sibiu	MG	C
Universitatea Spiru Haret din Bucureşti	ACC	BI
Universitatea Titu Maiorescu	BA	BI
	FIN	
	ACC	
Universitatea Athenaeum din Bucureşti	ACC	BI
Universitatea Tibiscus din Timişoara	ACC	W