

## EXPLORING ACADEMICS' INTENTIONS FOR DOING RESEARCH AND PUBLISHING

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**Abstract.** *The aim of this study is to identify the main factors associated with the intention of academics to get involved in research and subsequently publishing activities. Using a logistic regression analysis on an extensive sample of academics in economic and business administration field in Romania, we explore the association between the intention to conduct research and to publish and a large range set of independent variables. We analyze two streams of research – one based on the Technology Acceptance Model and its different applications, the other based on motivational theories about human behavior. In addition, this study provides predictions for a representative Romanian academic in economics and business administration field for different values of independently analyzed variables. For example, the predicted probability for the representative Romanian academic in economics and business administration to conduct research and/or to publish for different levels of its perceived self-efficacy, in order to identify the latter's impact. The results of the study provide support for managers at local, national and international bodies in three directions: understanding and acting on motivations for research and publishing; predicting the evolution of research activities and academic productivity for the existing personnel; helping universities to hire new people, based on their research predicted potential.*

**Keywords:** *research; publishing; motivational factors; academic productivity; intention to do research; intention to publish.*

## Introduction

Academic research has always been highly appreciated and it becomes even more important nowadays for universities' evaluation and competitiveness. All university classification systems are based on the main visible research results, namely articles and citations. National academic promotion systems also place a lot of weight on the number of articles published in journals with high impact factors and on their citations load. All these evolutions require an intensification of specialists' efforts to find the most appropriate solutions for increasing research publications and citations. However, in order to reach this goal, namely a high productive staff (i.e. compartmental changes), it is important to identify what factor influence their willingness to be involved in research and consequently to publish (i.e. attitudinal changes). Therefore, the aim of this study is to identify the main factors associated with the intention of academics to get involved in research and publishing activities. For doing so, we analyze here two streams of research. Firstly, we analyzed the Technology Acceptance Model, its different applications and its similarities with research and publishing activities acceptance. Secondly, we analyzed the motivational theories about human behavior that apply to academics behavior towards researching and publishing. We also included in our analysis socio-economic variables that were found as influencing the academic productivity (the desired behavior).

To commence, therefore, a brief review of the Technology Acceptance Model and its application as well as the motivational theories about human behavior will be provided. Secondly, for evaluating which factors are associated with academics intention to be involved in research and/or to publish, a survey conducted at the national level in 2014 will be outlined, and thirdly, we reported the results. The final section provides some insights about implications of the findings.

## Technology Acceptance Model (TAM), motivation and research productivity

Research activities share large similarities with technology using activities, for which the Technology Acceptance Model (TAM) theories were developed. The aim of TAM theories is to predict the acceptability of a certain technology and to identify the necessary changes in order to make a certain system acceptable for its final users. The model postulates that the acceptability of a technological system is determined by two factors: the perceived utility and the perceived ease of use (Davis, 1989; Davis, Bagozzi & Warshaw, 1989). TAM model was highly used to explain people's behavior towards software use (Sharp et al., 2009), online education (Sørebø et al., 2009; Gibson, Harris & Colaric, 2008), blogging (Hsu & Lin, 2008). Theories and models based on TAM were continuously refined, revisited, improved or unified (Venkatesh et al., 2003; Wu, Chen & Lin, 2007).

The idea of using TAM in order to explain academic intention to conduct research and to publish is motivated by previous studies on the motivation for research in the academic environment (Zait, 2011; Zait, 2009) and by managerial aims - the quest for possible solutions in order to increase the number of publications in highly ranked scholarly journals. Having TAM as a starting point, we analyze here the academics' perceived research utility and the perceived difficulties for being published in highly ranked journals.

TAM, proposed by Davis (1989) was based on the theory of Reasoned Action developed by Fishbein and Ajzen in 1975 (Ajzen, 1991; Davis, Bagozzi & Warshaw, 1989). According to this theory, a person's attitude towards certain behavior is determined by his or her beliefs about the possible consequences of that behavior and by the evaluation of those consequences. In addition, the intention to follow a certain behavior is influenced, besides attitude, by the subjective norms of the individual. The Theory of Reasoned Action was improved through an extension suggested by Ajzen (1991), the theory of the planned behavior by adding the perceived control over a certain behavior. This perceived control comes closer to another motivational theory, that of Bandura's self-efficacy theory (Bandura, 1982). Self-efficacy is defined as the conviction of an individual that he has the ability to organize and realize the necessary activities in order to accomplish a specific task (Bandura, 1982). When certain activities are perceived as difficult and dangerous, people have the tendency to avoid them – and this could be the case for research and publishing activities, as well. Kominis and Emmanuel (2007) suggested another interesting theory, concerning managerial motivation explained by the expectancy – valence theory.

A model explaining the research involvement of clinical psychologists was proposed by Holttum and Goble (2006), including variables such as: research environment and context, existence of mentoring for research, vocational preferences, attitudes as expected results of the research, perceived control (self- efficacy and external constraints), subjective norms and personal factors – professional identity and sex role identity (Holttum & Goble, 2006). The introduction of mentoring into the model is interesting, especially because another study suggests that articles publishing could increase if people would receive seminars for developing their abilities (Ferguson & Tudiver, 2008).

Wu, Chen and Lin (2007) suggested an interesting model for the acceptance of using a computer, based on TAM and enriched by a theory of compatibility between tasks and technology, by subjective norms, network externalities, self-efficacy, and pleasure. They use variables previously defined by Davis (1989) for perceived utility and ease of use, as well as those of Fishbein and Ajzen (1975), Venkatesh and Davis (2000), Katz and Shapiro (1985) for network externalities and Goodhue (1998) for task-technology fit model (in Wu, Chen & Lin, 2007).

Based on the arguments from the previous section, in order to explain the intention of academics to get involved in research and publishing activities, we defined and analyzed the following variables:

- *perceived ease of doing research and publishing*- the degree to which a professor ("professor" meaning any academic, in general) believes it is easy for him to get involved in research and publishing activities, decomposed into the two main components, doing the research through specific methodologies and publishing the results in highly ranked journals;
- *perceived research and publishing utility* – the degree to which a university professor thinks that by doing research and publishing articles will be better appreciated at the institutional level, as professional performance;
- *methodological auto-efficacy*- professors' perceptions concerning their research methodology knowledge and abilities;
- *enjoyment to do research* – intrinsic motivation, the joy of being involved in research and publication;

- *subjective norms* – the degree to which a professor believes that people important for him expect him to get involved in research activities;

- *university motivational support* – the degree to which the university recognizes and appreciates research activities, through moral and financial rewards;

- *university technical support* – methodological and publishing seminars;

- *network externalities* – increased research utility, generated by an increase in the number of other professors involved in research and publication

- *external support* – informational aid from national institutions for research

All these variables are measured using existent scales, adapted for academic research activities. Table 1 shows the number of questions used.

**Table 1. Number of items for each construct (latent variable), by source**

Construct	Number of items	Adapted from
Intention to do research	2	Venkatesh and Davis (2000)
Intention to publish	2	
Enjoyment to do research	8	Amabile, Hill, Hennessey, and Tighe (1994)
Subjective norms	2	Wu, Chen, and Lin (2007); Venkatesh and Davis (2000)
Auto-efficacy	9	Holden, Barker, Meenaghan, and Rosenberg(2007)
Motivational support from university	7	Al-Nsour (2012); Erbaşı and Arat (2012)
Technical support from university	3	
External support	3	
Externalities	3	Katz and Shapiro (1985)
Ease of doing research	4	Venkatesh and Davis (2000); Taylor and Todd (1995)
Ease of publishing in highly ranked journals	3	
Usefulness of research and publishing	8	Venkatesh and Davis (2000); Taylor and Todd (1995); Amabile, Hill, Hennessey, and Tighe (1994)

## Data and methodology

For analyzing who is more likely to have the intention to conduct research and/or to publish, data is reported from a national survey conducted in 2014. The analyzed population is represented by the academics in economic and business administration field affiliated to a public university in Romania. The sample included only the employees with a public e-mail address on their institutional web page. Therefore, in a first step we identified and sent our questionnaire to 1422 e-mail addresses from 22 public universities. The only public university for which no e-mail address could be identified was the University of Pitesti, which was excluded from our sample. In the second step, after a week from our first message, we sent a reminder to the academics which did not respond to our first invitation. We obtained in total a number of 533 responses, out of which in the present study we analyzed only those for which the data to each socioeconomic variable was available, summing 431 responses.

In the analysis, two dummy dependent variables are used with recorded value 1 for academics who ticked 3 or 4 to the question “Next year I intend to get involved in

research in my field of interest”, respectively to the question “Next year I intend to publish my research results in a highly ranked journal in my field of interest” and with recorded value 0 otherwise.

To evaluate the academics intention to conduct research and/or to publish, two categories of independent variables were selected based on the previous studies. On the one hand, independent variables related to the Technology Acceptance Model and its different applications and, on the other hand, independent variables related to motivational theories about human behavior were selected. Therefore, drawing upon previous studies, we here used: perceived research and publishing utility (Davis, 1989; Davis, Bagozzi & Warshaw, 1989), auto-efficacy (Wu, Chen & Lin, 2007; Holttum & Goble, 2006; Bandura, 1982), enjoyment to do research (Horodnic & Zait, 2015; Zait, 2011; Kominis & Emmanuel, 2007; Wu, Chen & Lin, 2007), subjective norms (Holttum & Goble, 2006), perceived ease of doing research and publish (Venkatesh & Davis, 2000; Taylor & Todd, 1995), university motivational support (Ferguson & Tudiver, 2008), university technical support (Holttum & Goble, 2006), network externalities (Wu, Chen & Lin, 2007) and external support (Holttum & Goble, 2006). The other control indicators considered in the analysis are those related to socio-economic characteristics influencing academic productivity and include: gender (Horodnic & Zait, 2015; Baccini et al., 2014; Kessler Spector & Gavin, 2014; Mauleón, Daraio & Bordons, 2014; Corsi & Zacchia, 2014; Danell & Hjerm, 2013; Tien, 2000, 2008), age (Horodnic & Zait, 2015; Baccini et al., 2014; Costas, van Leeuwen & Bordons, 2010; Rauber & Ursprung, 2008), income (Horodnic & Zait, 2015; Litwin, 2014; Sen, Ariizumi & Desousa, 2014; Backes-Gellner & Schlinghoff, 2008), number of hours dedicated to teaching activities, research and number of hours dedicated to administrative activities, respectively (Horodnic & Zait, 2015; Baccini et al., 2014) (see Table A1 in Appendix ).

To report the findings, we firstly describe the sample and provide insights about the intention of doing research and/or publish by socio-economic variables. Secondly, as our dependent variable is a dummy one, we employ a logistic regression analysis to explore the association between the latent variables as well as the socio-economic variables and academics’ intention to conduct research and/or to publish.

## Findings

Of the 431 questionnaires completed by academics in economics and business administration fields, and as Table 2 displays, 53 percent are women and 47 percent are men. Some 10 percent of respondents in the sample were assistant professors, 30 percent Lecturers, 34 percent associate professors and 26 percent full professors. In addition, those answering the questionnaire cover all age groups (most of them having between 35 and 44 years old) and income intervals (most of them having a monthly income between 2501 and 4500 RON) as shown in Table 2. The sample used in the analysis, therefore, is well balanced according to gender, age, monthly income, and academic degree.

**Table 2. Sample structure, by socio-economic variables**

Socio-economic variables		Sample distribution	Academics having the intention to do research	Academics having the intention to publish
		(%)	(%)	(%)
<i>TOTAL (n = 431)</i>		100	89	82
Gender	Female	53	90	83
	Male	47	87	80
Age	25-34 years old	23	90	80
	35-44 years	39	93	83
	45-54 years	20	87	83
	54+ years	18	78	81
Monthly Income#	less than 1500 RON	11	91	79
	1500-2500 RON	31	88	77
	2501-4500 RON	37	88	81
	4501-6500 RON	15	89	89
	over 6500 RON	6	93	93
Academic Degree	Assistant Professor	10	93	88
	Lecturer	30	90	77
	Associate Professor	34	90	81
	Professor	26	84	86

# 1 EUR = 4.4450RON (average exchange rate for 2015, according to the National Bank of Romania).

To start displaying the uneven distribution of intention to do research and to publish in highly ranked journals, Table 2 also reports the socio-economic variations. This reveals that the intention to do research is more prevalent amongst females (90 percent), academics between 35 and 44 years old (93 percent), with the highest monthly income (93 percent), or just starting their careers (93 percent in the case of assistant professors). Meanwhile, the intention to do research is relatively less prevalent amongst academics over 54 years (78 percent) and those having achieved the rank of full professor (84 percent).

Similarly, the intention to publish in highly ranked journals is more prevalent amongst academics with high income (between 4501 and 6500 RON and over 6500 RON with 89 and 93 percent respectively) or just starting their careers (88 percent in the case of assistant professors). Interestingly, in the case of full professors or academics over 54 years old, the number of those expressing their intention to publish is higher than the number of those expressing their intention to do research. However, this can be explained by the supervisory role of full professors or experienced researchers.

Analyzing these descriptive statistics, the tentative conclusion is that, with small deviations of the mean sample by socio-economic characteristics, a large majority of academics have expressed their intention to do research and even to publish in highly ranked journals (89 and 82 percent respectively). Yet, alongside with socio-economic variables, what factors identified in the economics of science literature can explain the academics' intentions for doing research and publishing in economics and business administration?

**Table 3. Logistic regressions of the intention to do research and publish in economics and business administration**

Variables	Model 1				Model 2			
	Intention to do research				Intention to publish			
	$\beta$		se( $\beta$ )	Exp( $\beta$ )	$\beta$		se( $\beta$ )	Exp( $\beta$ )
Enjoyment to do research	0.673		0.477	1.959	-		0.420	0.528
					0.639			
Subjective norms	0.512	**	0.248	1.669	0.326		0.218	1.385
Self-efficacy	0.053		0.449	1.055	1.132	***	0.378	3.101
Motivational support from university	0.530		0.400	1.698	-		0.336	0.878
					0.130			
Technical support from university	-		0.270	0.933	0.519	**	0.231	1.681
	0.070							
External support	-		0.321	0.704	0.186		0.272	1.204
	0.352							
Externalities	0.540	*	0.276	1.715	0.084		0.228	1.088
Ease of doing research	0.680		0.447	1.974	1.654	***	0.402	5.227
Ease of publishing in highly ranked journals	0.289		0.413	1.335	0.093		0.360	1.098
Usefulness of research and publishing	0.687	*	0.358	1.987	0.663	**	0.302	1.940
Gender (Female)								
Male	0.151		0.398	1.162	-		0.335	0.790
					0.236			
Age (25-34 years old)								
35-44 years	0.466		0.585	1.593	0.091		0.444	1.095
45-54 years	-		0.681	0.529	-		0.569	0.623
	0.636				0.474			
54+ years	-	**	0.766	0.145	-		0.687	0.383
	1.933				0.960			
Monthly Income (less than 1500 RON)#								
1500-2500 RON	-		0.714	0.452	-		0.565	0.954
	0.794				0.048			
2501-4500 RON	-		0.795	0.970	0.451		0.628	1.570
	0.030							
4501-6500 RON	0.711		0.954	2.037	1.316		0.831	3.729
over 6500 RON	0.846		1.160	2.331	1.233		1.111	3.432
Academic Degree (Assistant Professor)								
Lecturer	-		0.824	0.790	-	*	0.691	0.320
	0.236				1.140			
Associate Professor	-		0.980	0.644	-		0.816	0.385
	0.440				0.954			
Professor	-		1.154	0.643	-		0.995	0.604
	0.442				0.505			
Weekly teaching hours	0.017		0.035	1.017	0.018		0.030	1.018
Weekly research hours	0.031		0.021	1.031	0.028		0.019	1.028
Weekly administrative hours	-	**	0.022	0.957	-		0.022	0.997
	0.044				0.003			
Constant	-	***	1.968	0.001	-	***	1.859	0.001
	7.343				8.863			
N	431				431			
Pseudo R <sup>2</sup>	0.2461				0.2899			

Log likelihood	-115.0715	-145.7824
$\chi^2$	75.14	119.05
p>	0.0000	0.0000

*Notes:*

Significant at \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$  (standard errors in parentheses).

All coefficients are compared to the benchmark category, shown in brackets.

To analyze the effect of the various independent variables on the intention to do research and publish in economics and business administration field, Table 3 reports the results of a logistic regression analysis. Model 1 examines the intention to do research while Model 2 examines the intention to publish in highly ranked journals. Model 1 in Table 3 shows a statistically significant positive relation between subjective norms and the intention to do research. Weak evidence was found in the case of externalities and usefulness of research and publishing. As such, no significant association is identified in relation to the other investigated latent variables. According to the same model, not only are experienced academics (aged over 54 years) significantly less likely to have the intention to do research but so too are those with a large number of administrative hours. In other words, intention to do research correlates negatively with the number of administrative hours. However, no evidence is found to support an association with gender, monthly income, and academic degree.

Furthermore, when Model 2 in Table 3 analyses the intention to publish in highly ranked journals, a positive relation with self-efficacy, technical support from the university, perceived ease of doing research and perceived usefulness of research and publishing is found. Excepting a weak association with an academic degree, (lecturers are less likely to have the intention to publish than assistant professors), no association is found between socioeconomic characteristics, teaching, research or administrative load and the intention to publish in highly ranked journals.

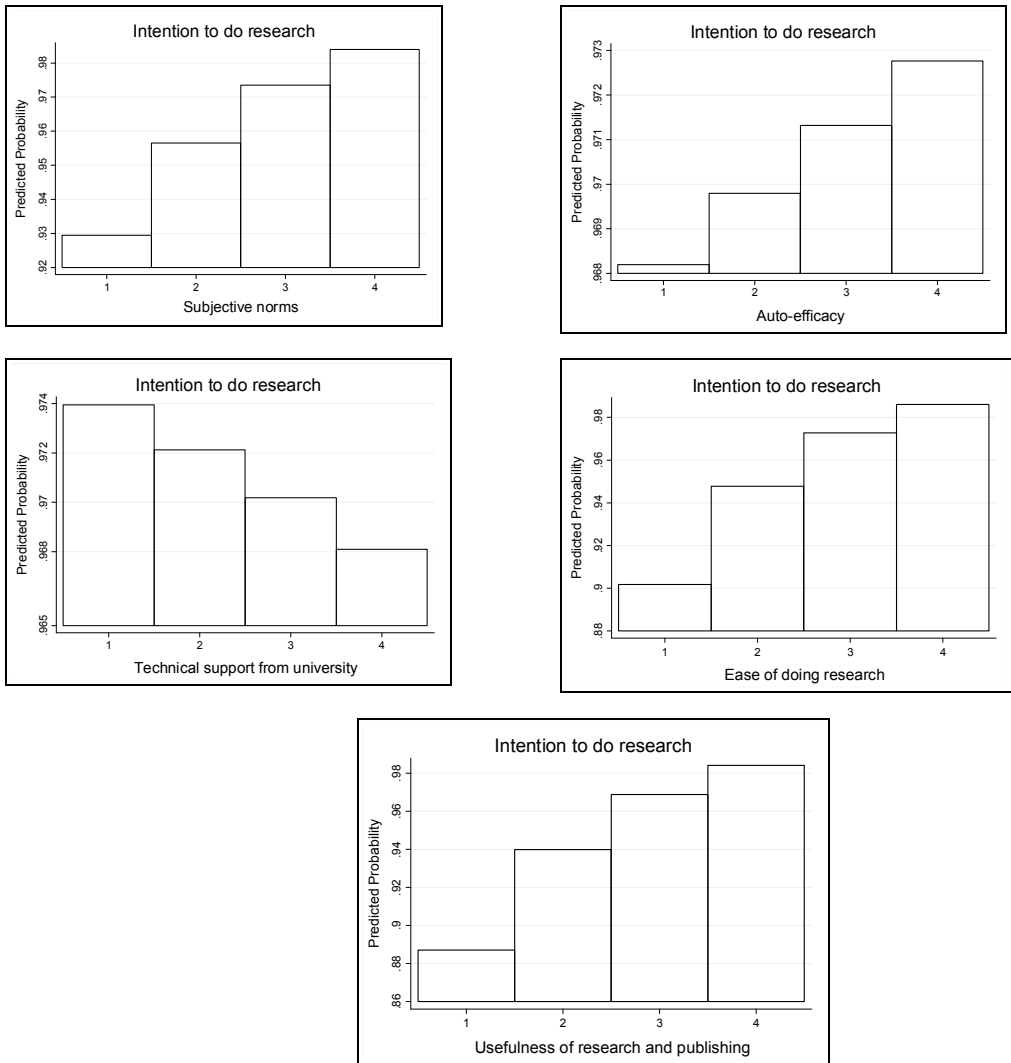
Here, therefore, there is support for an existing relation between the intention to do research and publish and some selected latent variables, namely subjective norms, self-efficacy, technical support from the university, perceived ease of doing research and perceived usefulness of research and publishing. To understand better the relationship between these variables, Figure 1 and 2 show the predicted probability of intention to do research and publish for a “representative academic” in economics and business administration at different levels of these latent variables. The “representative academic” is derived by taking the mean and modal values of the other independent variables. Consequently, the “representative academic” in economic administration is a female associate professor, aged between 35-44 years old with an income between 2501-4000 RON, which on average spends 13.97 hours per week for teaching, 14.21 hours for researching and 9.75 hours for administrative activities, and have the mean values for the other latent variables used in the regression. As Figure 1 graphically shows, for this representative academic, as subjective norms, self-efficacy, perceived ease of doing research and perceived usefulness of research and publishing increases, the predicted probability of them having the intention to conduct research increases as well. Interesting, however, is the inverse relation with the technical support from the university. Yet, this association is not significant and the difference in predicted probabilities is lower than 1 percent.

As for the intention to publish, for all analyzed variables a positive trend is identified. When subjective norms, self-efficacy, technical support from the university, perceived

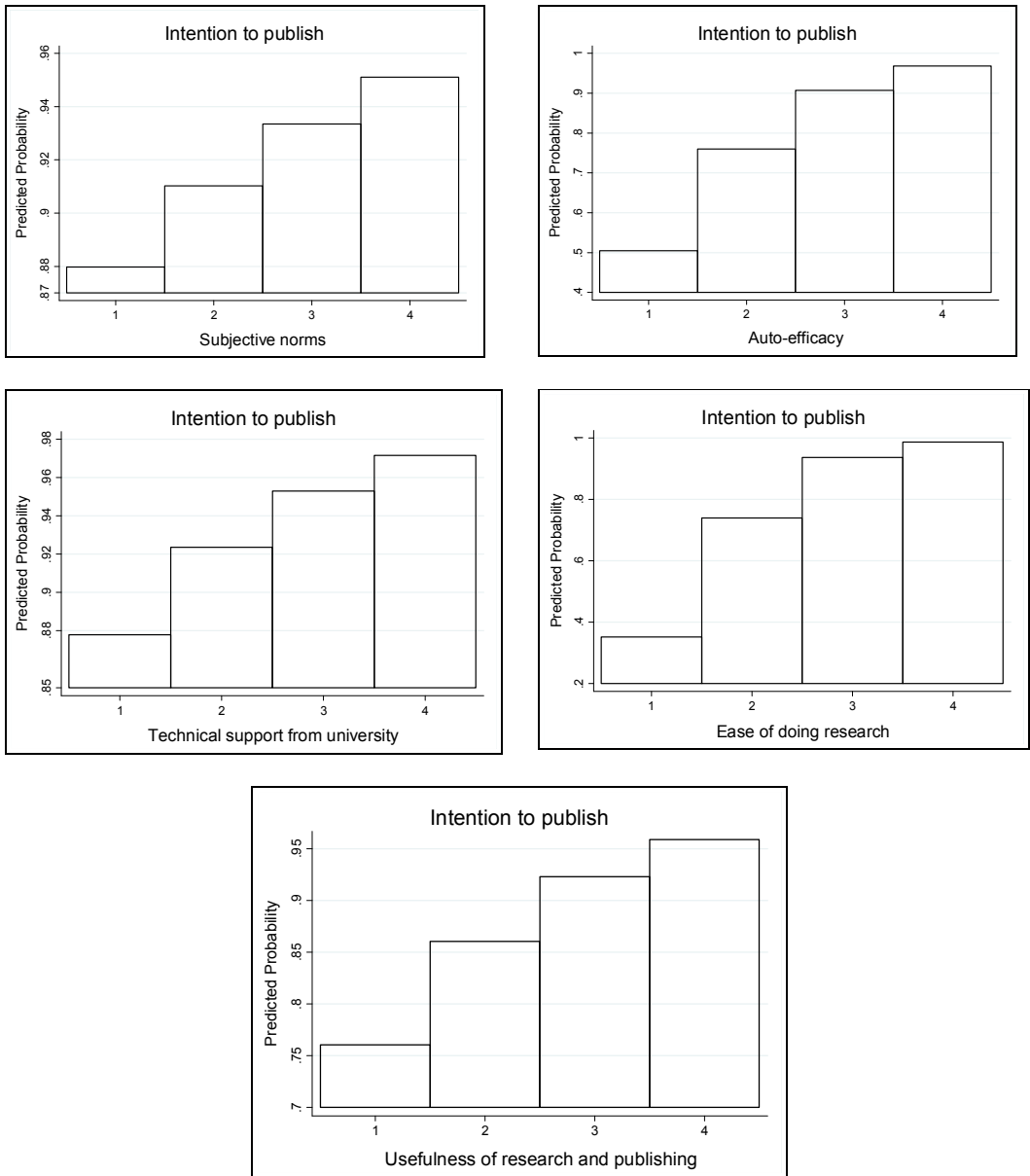


ease of doing research and perceived usefulness of research and publishing increases, so too is the predicted probability to have the intention to publish in a highly ranked journal (Figure 2). To be noticed that, in this case, the differences are much higher, as for example about 70 percent in the case of perceived ease of doing research.

These results are in line with previous research which underlines the positive association between organizational support and academics performance (Richard et al., 2015; Vătămănescu et al., 2015; 2016) and the positive relation between self-efficacy and the intention to conduct research in the future (Wright & Holttum, 2012).



**Figure 1. Predicted probability of intention to do research for a “representative academic” in economics and business administration**



**Figure 2. Predicted probability of intention to publish in a highly ranked journal for a “representative academic” in economics and business administration**

**Conclusion**

Previous studies have shown that there are multiple socio-demographic characteristics as well as motivational factors that influence the academics’ research productivity. Our study investigated the prior behavior, namely the intention of doing research and to publish in highly ranked journals as for reaching the final goal (i.e. a high research productivity) it is necessary first to have the intention do to so (attitudinal changes). Using data from a self-administrated survey of economics and business administration

academics in Romania, our study shows that subjective norms, self-efficacy, perceived ease of doing research and perceived usefulness of research and publishing are associated with the academics' intention to do research and/or to publish in highly ranked journals. These results provide support for managers at local, national and international bodies. Firstly, it helps to understand their staff behavior in order to act on motivating them to conduct research and publishing activities. Secondly, the results provide insights for predicting the evolution of research and publishing activities for the existing staff, and thirdly, it provides tools to universities for hiring new people, based on their research and publishing predicted potential.

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## APPENDIX

**Table A1. Descriptive statistics of the variables used in analysis**

Variables		Description	Mode or mean
Dependent	Intention to do research	Dummy variable for academics intention to get involved in research in the next year	Yes (89%)
	Intention to publish	Dummy variable for academics intention to publish in highly ranked journals in the next year	Yes (82%)
Independent	Enjoyment to do research	Average mean of 8 items measuring <i>Enjoyment to do research</i> Index	3.33
	Subjective norms	Average mean of 2 items measuring <i>Subjective norms</i> Index	2.87
	Auto-efficacy	Average mean of 9 items measuring <i>Auto-efficacy</i> Index	3.28
	Motivational support from university	Average mean of 7 items measuring <i>Motivational support from university</i> Index	1.94
	Technical support from university	Average mean of 3 items measuring <i>Technical support from university</i> Index	2.21
	External support	Average mean of 3 items measuring <i>External support</i> Index	2.05
	Externalities	Average mean of 3 items measuring <i>Externalities</i> Index	2.99
	Ease of doing research	Average mean of 4 items measuring the perceived <i>Ease of doing research</i> Index	2.94
Ease of publishing in highly ranked	Average mean of 3 items measuring the perceived <i>Ease of publishing in highly ranked</i>	2.92	

journals	<i>journals</i> Index	
Usefulness of research and publishing	Average mean of 8 items measuring the perceived <i>Usefulness of research and publishing</i> Index	3.13
Gender	Dummy variable for the gender of the respondent	Female (53%)
Age	Respondent age in intervals	35-44 years (39%)
Monthly Income	Respondent monthly income (RON) in intervals	2501-4500 RON (37%)
Academic Degree	Respondent academic degree in categories	Associate Professor (34%)
Weekly teaching hours	Respondent declared number of teaching hours per week	13.97
Weekly research hours	Respondent declared number of research hours per week	14.21
Weekly administrative hours	Respondent declared number of administrative hours per week	9.75

*Notes:*

For the latent variables, the questions were measured using a Likert scale, ranging from 1 “never or almost never true about me or my university” to 4 “always or almost always true about me or my university”. We here provide the mean of the questions used for measuring latent variables. The dummy dependent variables were obtained by recording the answers as follow: value 0 (no) for original values 1 and 2 and value 1 (yes) for original values 3 and 4.