Regression Analysis of the Effect of Personality–Career Match on the Academic Performance in Business Higher Education: an Evidence from the University of Debrecen

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Abstract

This paper aims to provide a deeper understanding of the contribution of personality to the academic performance. This effect, however, can be divided at least into two parts: (1) personality can enhance the performance in any educational institution independently of the curriculum (i.e. the personality fits the formal educational system); additionally (2) one's personality can fit a profession, thus this person will show a better performance in the education if the curriculum is connected to the given profession. Our study tries to identify this two effects through the comparison of the contribution of the personality-profession match to the university admission scores (representing the performance not connected to a given profession) versus to the two semester average grade means (representing the performance connected to a profession) among students of the University of Debrecen Faculty of Economics and Business Administration. Our sample contained 372 students from BA in Business Administration and Management and BA in International Business Economics majors. Personality was measured with a written Myers–Briggs typology test. We used linear regression models for both the admission scores and the average grade means as dependents, where a dummy variable represented the personality-profession match. Our results supported the hypothesis that if a student's personality type fits the economic or business career paths, it will positively contribute to the academic performance in the economic and business higher education, and this effect is independent of the personality's possible impact on the general (not curriculum specific) academic performance.

Keywords: personality, higher education, Myers–Briggs typology, labour market

Introduction

Social sciences have long been interested in the relationship between personality and career. Empirical studies confirm that personality contributes at least some degree to performance in higher education (e.g. BORG–SHAPIRO 1996, BORG–STRANAHAN 2002a, 2002b, ZIEGERT 2000, DITIBERIO–HAMMER 1993).

However, the contribution of personality to the academic performance can be divided at least into two parts: (1) personality can enhance the performance in any educational institution independently of the curriculum (i.e. the personality fits the formal educational system); additionally (2) one's personality can fit a profession, thus this person will show a better performance in the education if the curriculum is connected to the given profession. In our current research we tried to separate these two effects. Our hypothesis is that if personality is matched to the profession, it will increase significantly the university grade average which consists mainly of subjects related to professional career, whereas it does not increase admission scores unrelated to professional career at all or only to a limited extent.

To examine our hypothesis we used one of the most common personality typology in the literature (Myers–Briggs typology), on a sample consisting of BA in Business Administration and Management (BAM) and BA in International Business Economics (IBE) students at the University of Debrecen Faculty of Economics and Business

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Administration, Hungary (UD FEBA). Therefore in our research professional career means economic/business career.

Literature Review

Here we will introduce the Myers–Briggs personality typology used in the research only to the extent necessary for an understanding of the research results. Detailed descriptions are available in several textbooks and studies (e.g. QUENK 2009, BRIGGS-MYERS ET AL. 1998, KEIRSEY–BATES 1984, BAYNE 1997). The typology of the 16 personality types used in our examination was created by K. C. BRIGGS and I. BRIGGS-MYERS based on, and complementing, the personality theory of C. G. JUNG (QUENK 2009, 1–3). The 16 personality types are defined along 4 preference pairs (called dichotomies): extraversion (E) and introversion (I), sensing (S) and intuition (N), thinking (T) and feeling (F), judging (J) and perceiving (P). The names of the personality types are traditionally formed by the letter combinations of the preferred 'poles' of each pairs, in the above order (i.e. ESTJ, ISTJ etc.). All the eight preference-poles are used at least some of the time by all individuals, although the preferred ones tend to be used more frequently.

The official instrument used to measure the preferences – and hence personality types – is the Myers–Briggs Type Indicator® (QUENK 2009, 1–3). However, many other assessment instruments exist that are capable of categorising people into the 16 types (e.g. HOGAN–CHAMPAGNE 1980, KEIRSEY 1998).

Much research has already been conducted concerning the relationship between personality preferences and academic success (see among others DITIBERIO–HAMMER 1993, BORG–STRANAHAN 2002a). BORG and SHAPIRO (1996) found that personality preferences measured by the Myers–Briggs Type Indicator® had a significant influence on success on Principles of Macroeconomics courses. They demonstrated that being an introvert had a significant positive effect on the chance of getting a good grade. ZIEGERT (2000) examined a Microeconomics Principles course and found that the sensing and the thinking preferences contributed positively to grades, while for the Test of Understanding College Economics (TUCE) score measured at the end of the semester only the judging preference was insignificant, and the sensing preference modified the TUCE performance negatively. BORG and STRANAHAN (2002b) investigated the personality effects on three advanced-level economics courses. They found only the effect of the introversion type significant (positively).

Material and Methods

Our data on personality and academic achievement is based on a primary questionnaire survey at the UD FEBA. The survey was implemented in October and November 2011, in classes where attendance was obligatory. Although, students from various programs answered our questionnaire, for this study only BAM and IBE students in their first, second and third year are included in our sample. The total number of the respondents was 372 from which 161 students were in their 1st year (104 BAM and 57 IBE) and 211 were in their 2nd (83 BAM and 25 IBE) and 3rd year (103 BAM). BAM and IBE majors share more than 58% of their obligatory courses that indicates an appreciable similarity of these majors.

To measure the personality preferences we used a freely available questionnaire containing 72 forced choice questions (http://lelektanitipusok.net/tesztek/teszt_72). We also asked the respondents to give their sex, year of birth, whether they had worked before, and whether their permanent abode was in the same city as the university. Table 1 includes the explanation of the independent and dependent variables we used in the study.

Table 1. Explanation of variables

Variable name	Explanation
INDEX	Average of a special form of grade index officially termed 'stipend index' of the previous two academic semesters (0.00 is the minimum, 5.00 is the maximum). Calculated as the product of the credit values of subjects graded as 'pass' or higher multiplied by their grades divided by the total number of credits undertaken.
ADSCORE	University admission score. Calculated from the high school and the baccalaureate grades with some extra points partly independent of academic achievement.*
SEX	1 if the student is female, 0 if male.
WORK	1 if the student has any work experience (past or present), 0 if not.
LOCAL	1 if the student is a local resident, 0 otherwise.
AGE	Age of the student in years. Calculated as the difference between the date the questionnaire was filled in and the year of birth (the assumed birthday was 1st July).
IBE	1 if the student attends IBE major.
YEAR3	1 if the student is a 3rd year student, 0 if not.
MATCH	1 if the careers connected to BAM and IBE majors are favoured for the given personality type, 0 if these careers are disfavoured, missing value if the personality-career match is undefinable.

*For the details of admission score calculation see EDUCATIO (2010).

Results

Based on the literature we can distinguish between three categories of personality types according to their fit to the economic/business career. To examine our hypothesis we separated students with personality types matching economic/business career (and therefore economic/business studies) and those with personality types non-matching to that career. The third group consists of students with personality types which cannot be categorised definitely as matching or non-matching to the economic/business career. These categories are based on the career recommendations for the different personality types provided by the free access www.similarminds.com (FLYNN 2013) and the career paths recommended by the UD FEBA's sample curriculums (DE-KTK 2011, 6–10, 40–44). The three categories of matching, non-matching and undefined personality types are indicated in Table 2.

Table 2. Matching and non-matching personality types

Matching	ENTJ, ESFP, ESTP, ISTJ, ESTJ, ESFJ
Non-matching	INTP, INFP, ENFP, INFJ, ENFJ, ISFP
Undefined	ENTP, INTJ, ISTP, ISFJ

Sources: FLYNN (2013), DE-KTK (2011, 6–10, 40–44)

To examine our hypothesis, we investigated the contribution of the fit between Myers–Briggs personality types and economic/business careers to the students' academic achievement with the use of linear regression models. The dependent variables were ADSCORE for the 1st year students and INDEX for the 2nd and 3rd year students. The 'starting' equations used in the linear regression analysis were the following:

ADSCORE = g(SEX, WORK, LOCAL, AGE, IBE, MATCH)
INDEX = f(SEX, WORK, LOCAL, AGE, IBE, YEAR3, MATCH)

We also used 'reduced' models, where only those independent variables were entered that were significant at least at the 0.10 level. Table 3 reports the results of the linear regression analysis for the two starting, and the two reduced models.

In the starting model (Model1) describing the 1st year students' admission scores only the major contributed significantly to the dependent variable: IBE students outperformed BAM students at the 0.01 level. The whole model is significant at the 0.01 level according to the F test and explains slightly less than 16 percent of the total variance of the dependent variable. The reduced model (Model2) is also significant at the 0.01 level according to the F test and explains a little more than 20 percent of the total variance of the admission scores. This model contains only two independent variables: the major and the sex that are significant at the 0.01 and 0.05 level respectively.

Based upon this model we can state that being an IBE student and being male have a positive relationship to the admission score. However, neither the starting model nor the reduced one contains the MATCH variable describing the personality-career fit. This result is not surprising, however, as admission scores include grades from subjects predominantly not associated with the economic/business career. This way we have proved the second part of our hypothesis.

Regarding the models describing the 2nd and 3rd year students' academic performance, however, personality-career fit has a significant positive effect. The starting model (Model1) is significant at the 0.01 level according to the F test and explains slightly less than 13 percent of the total variance of the INDEX.

Table 3. Regression (absolute t-statistics in parentheses)

Population	IBE 1ˢᵗ year & BAM 1ˢᵗ year		BAM 2ⁿᵈ & 3ʳᵈ year & IBE 2ⁿᵈ year	
Dependent	**ADSCORE**		**INDEX**	
Variables	**Model1**	**Model2**	**Model1**	**Model2**
Constant	483.3398***	408.5428***	2.2395*	2.9581***
	(7.6304)	(112.8443)	(1.9363)	(25.4075)
SEX	-9.3455	-9.2711**	0.3628***	0.3168***
	(1.6544)	(-2.1164)	(3.7330)	(3.4817)
WORK	-0.3084		-0.3054***	-0.3113***
	(0.0583)		(-3.3128)	(-3.5324)
LOCAL	-0.9650		0.1246	
	(-0.1728)		(1.2992)	
AGE	-3.7273		0.0305	
	(1.1263)		(0.5408)	
IBE	25.8658***	28.5568***	0.1592	
	(4.6953)	(6.2699)	(1.0846)	
YEAR3			-0.0201	
			(-0.1757)	
MATCH	-3.2127		0.2258**	0.2284**
	(0.6048)		(2.3429)	(2.4433)
R^2	0.1953	0.2157	0.1593	0.1485
adjR^2	0.1573	0.2058	0.1296	0.1361
F	5.1365***	21.7291***	5.3593***	12.0293***
N	134	161	206	211
R^2 change	0.0023		0.0233	0.0246
adjR^2 change	-0.0042		0.0196	0.0206
F change	0.3658		5.4893**	5.9695**

Notes: Listwise method. * Significant at the 0.10 level; ** significant at the 0.05 level; *** significant at the 0.01 level.

Beside the MATCH variable, the model includes the variables of the sex and the previous work experience as significant ones (at the 0.05, 0.01 and 0.01 level, respectively). We can draw the conclusion that being female and having a personality matching the economic/business career has a positive relationship, while having a work experience has a negative relationship to the academic success in the economic/business higher education. The reduced model (Model2) which is significant at the 0.01 level according to the F test and explains almost 14 percent of the total variance of the INDEX contains the same variables as the significant ones in the starting model. MATCH is significant at the 0.05 level, while SEX and WORK at the 0.01 level. We can conclude again that being female and having a personality matching the economic/business career have a positive relationship, while having a work experience has a negative relationship to academic achievement. This has confirmed the first part of our

hypothesis: if personality is matched to the profession, it will increase significantly the university grade average which consists mainly of subjects related to professional career.

Concluding Remarks

The goal of this study was to contribute to a better understanding of the relationship between personality and academic success. We tried to separate two effects in this relationship: (1) personality can enhance the performance in any educational institution independently of the curriculum (i.e. the personality fits the formal educational system); additionally (2) one's personality can fit a profession, thus this person will show a better performance in the education if the curriculum is connected to the given profession.

Our data was based on our primary questionnaire survey of 372 business students at UD FEBA. To examine our hypothesis that if personality is matched to the profession, it will increase significantly the university grade mean average which consists mainly of subjects related to professional career, whereas it does not increase admission scores unrelated to professional career at all or only to a limited extent, we used linear regression analyses. We found no relationship between personality-profession match and admission scores of 1st year students at all. However, personality-profession match showed a significant positive relationship with the average grade means of 2nd and 3rd year students at the 0.05 level. We can conclude that if personality is matched to the economic/business profession, it will significantly increase the university grade average, whereas it does not increase admission scores.

However, the nature of the relationship between personality-professional match and academic success may vary from major to major. Moreover, personality and its impact on academic performance may be affected by cultural traits, as well. Future research therefore might extend our examination to other business and non-business major programs domestically and internationally to reveal the common and specific patterns in the contribution of personality-professional match to the academic success.

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