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FACTORS THAT CAN EXPLAIN STUDENTS' CHOICE BETWEEN ECONOMICS AND BUSINESS STUDIES

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ABSTRACT

This article confirms that students at economics and business school are not a homogeneous group. The choice of major depends on personal characteristics (Big Five), abilities, expected pay, career opportunities and the desire to contribute to society. Students who are concerned about job security and contributing to society have different personality traits than those who are primarily interested in salaries and career opportunities. The analysis is based on a questionnaire handed out to students at a faculty of a university in Norway. The chosen methods in this paper are factor analysis, comparison of means and the linear binary logistic model. The results of this survey provide useful information to university administrations for student recruitment and designing study programmes.

JEL: I20, J30, J31

KEYWORDS: Personality Traits, Academic Skills, Big Five, Quantitative Analysis, Business Students, Economics Students, Care

INTRODUCTION

Business studies are very popular worldwide, and also in Norway. A significant proportion of the study population chooses subjects in economics, business and management. Both in number and as a percentage, interest in these study fields has increased in recent decades and currently accounts for over 10 percent of the student population. Many students make this decision while attending the upper secondary school, while others gain an interest in these topics later. But the trend might be changing. For instance, there seem to be less interest in business administration as a major in the USA (Hiatt et al., 2018). This article will investigate how personality traits, career opportunities, interest and aptitudes have an impact on students' choice of major at the Faculty of Economics and Management, Norwegian University of Science and Technology (NTNU). Previous research has documented that there are differences among the students depending on their selected spesialisation (Opstad, 2019). The author found a substantial gap in attitudes towards mathematics depending on the chosen study programme. This article is a follow-up of this result. The purpose is to see if we can identify other factors that differ depending on the choice of major at this faculty. This is obviously not a homogeneous group of students. Therefore, it would be interesting to see if there are different abilities and expectations from career and working life. Since international research shows that personality characteristics have an impact on the choice of study fields, it is also interesting to see if this is the case for the students included in this analysis.

An important contribution of this article is to acquire more knowledge about the undergraduates' choice of major within economics and business fields. What do the students emphasise in their selection? How do academic skills and personality traits matter in influencing the fields chosen? Information and knowledge about factors that influence students' specialisation will be helpful for university administrations in making studies attractive and to promoting their programmes. The article is structured as follows: Section 2 presents the Big Five personality traits. The next section gives an overview of the previous literature. Section 4 introduces the hypotheses. Then comes the section on data and methodology. After presenting the results, the findings are discussed and analysed in relation to the hypotheses. Finally, the limitations (section 8) and conclusion (section 9) are presented.

The Big Five

The big five personality traits (Costa & McCrae, 1995) is used in many articles around the world and has become a highly recognised method of measuring personal characteristics (Mayfield et al., 2008). The method measures five dimensions: extraversion, agreeableness, conscientiousness, neuroticism and openness to experience.

Table 1: The Big Five model (From Mayfield et al., 2008)

Trait	Description. High Scores Indicate
Neuroticism (N) (opposite of Emotional Stability)	- anxiety, insecurity, moodiness and tenseness.
Extraversion (E)	- talkativeness, sociability and optimism
Openness (O)	- a broad cultural interest, an active imagination and intellectual curiosity
Agreeableness (A)	- altruism, helpfulness, personal warmth and sympathy towards others
Conscientiousness (C)	- determined, well organised, goal-focused, trusted and punctual

Neuroticism is characterised by depression and worries, extraverts are outgoing persons, openness is associated with intellectually curiosity, conscientiousness is linked to achieving targets, while agreeableness is characterised by the desire to help and to contribute without creating conflicts.

LITERATURE REVIEW

Career, Interest and Skills

According to Dudley et al. (1995), the students' selections are based on career opportunities, employment, wages and personal interest. Their interest is linked to job status and reputation and high starting salaries. Mauldin et al. (2000) reported a higher level of starting wages for business students compared with other studies. They found that expected monetary rewards had a significant impact on the choice of study field. Enget et al. (2020) reported that students that rate career opportunities in accounting as high relative to other fields tend to prioritise specialisation in accounting. Kim et al. (2002) discussed different motivations and preferences for selecting different business majors. They reported that students' expectations about work opportunities have a great influence on their priorities. Expectations do not have to be in line with the actual conditions. However, this can lead to future job dissatisfaction.

According to Calkins and Welki (2006), many students choose the business major depending on how easy or difficult they find the subjects. Some hard-working students prefer fields that require greater effort while other students are not interested in putting too much effort into their study and are searching for studies that are easy to get through. The authors reported that another key factor was the reputation of the faculty. Many students prefer to attend faculties and departments which offer high prestige. However, the literature is mixed about this issue. Vangermeersch (2000) concluded in his investigation that the quality of the instruction and departmental reputation may or may not have an influence on students' preferred majors. Leppel et al. (2001) suggested that social image and status matter, especially among male students.

A key factor for the selected major is the students' aptitude. For instance, students with a good background and high academic skills in mathematics and science tend to prefer more quantitative and technical majors (Opstad, 2019). Other students might be uncomfortable applying mathematics and quantitative analysis and try to avoid such tools (Carter, 2006). The undergraduates' choice of business major depends on abilities, skills and success within this field (Cobb-Walgren et al., 2017). However, notice that Hiatt et al. (2018) found that students' attitudes only had a marginal impact on the choice of specialisation. They suggested the students do not have enough knowledge about the long-term outcomes related to the choice of major.

Downey et al. (2011) found many similarities between the different subjects within business and economics studies. The students pick different majors due to factors like advice from others (family, friends and advisors), interest, salaries, job availability and security, difficulty of the major and social image). They reported that the most influential factor for choosing a major is interest in and attitudes towards the fields. This is in line with the findings of Zhang (2007). Other important factors for choosing study fields are job availability and job security (Niculescu, 2006; Opstad, 2021). There is a strong significant relationship between choice of major and the degree of job security and availability (Downey et al., 2011). Downey et al. (2011) found that advice from friends and family also matters for some fields and the impact was strongest for technological fields. Students choosing finance and more technical issues like Management Information Systems (MIS) or Computer Information Systems (CIS) reported high job opportunities in contrast to a management major. On the other hand, students taking finance and MIS/CIS majors reported a lower rate of fit to the abilities required than the average score.

Personality Traits

Since some subjects are more suitable for some students than others, personality traits matter in choosing a major (Lounsbury et al., 2009; Vedel, 2014, 2016). Business students score higher on extraversion and conscientiousness than the average student. However, they score substantially lower in agreeableness than other academic majors. They tend also to have lower scores for neuroticism and openness than other students. This confirms that students who match a particular personality profile tend to choose the same major. The median student in economics and business studies has different personal characteristics than those who study languages and humanities subjects. The differences between economics and natural science students in personality traits are rather small, but it seems that economics students achieve lower scores for the trait openness and higher for the trait neuroticism (Vedel et al., 2015). Lakhal et al. (2012) investigated whether there were personality trait differences depending on preferred major in business studies. Students who choose less quantitative oriented majors like management or marketing tend to score lower for the traits neuroticism and conscientiousness and higher scores in openness and agreeableness compared to students who have selected quantitative oriented business majors like finance. The choice of education is linked to opportunities in the labour market. Personality traits have a high explanatory power for career success (Semeijn et al., 2020). Extraversion and conscientiousness are a positive related to promotion, salaries and career satisfaction while neuroticism is negative correlated to these factors (Eisenbarth et al., 2018). For agreeableness and openness, the results are more mixed.

Hypotheses

Based on the literature review and the purpose of this paper, we postulate the following hypotheses:

Hypothesis1 (H1): There are differences in personality traits among economics and business students;

Hypothesis 2 (H2): There are differences in expected job and career opportunities among economics and business students;

Hypothesis 3 (H3): There are differences in aptitudes and interest among economics and business students.

We could have chosen more specified hypotheses, however since we are unsure of the possible correlation between the variables, in this paper we have chosen the hypotheses in a general form. The focus is whether one can identify differences depending on the students' selected major.

DATA AND METHODOLOGY

The Sample

The data were collected in 2019 (Table 2). Questionnaires were given out in lectures in compulsory subjects to students from three departments at the Faculty of Economics and Management of the Norwegian University of Science and Technology (NTNU). Students at the Department of Industrial Economics and Technology Management (IETM) have an engineering background, and these students have chosen to specialise in economics and administrative issues. This field is very popular and only students with high qualifications gain access. These students have good basic knowledge in mathematics and natural science.

Table 2: the Sample

Department	Males	Females	Total in the Survey
Industrial Economics and Technology Management (IETM)	23	9	32
Business School (BS)	22	33	55
Economics (EC)	14	12	31
	61	57	118

The Business school (BS) also has high entrance requirements, but not to the same degree as in the field of Industrial Economics and Technology Management. The third department includes students who want to specialise in economics (EC with microeconomics, macroeconomics, public economics, etc.). Students from the Business school and Department of Industrial Economics and Technology Management mainly take up careers in the private sector, while many of those studying economics will get future work in the public sector. Economics is more for those who have a particular interest and this direction is not as popular as the other two disciplines. Bachan and Barrow (2006) observed the same. Approximately 30 percent of the students taking exams in the relevant subjects were present when the questionnaires were distributed. Therefore, this is a non-randomly selected sample. The response rate was around 30 percent of all students taking exams in those subjects. The representativeness of the non-randomly selected sample has not been evaluated. Analogous research has previously indicated that the sample will include students with marginally higher qualifications than the mean student (Bonesrønning & Opstad, 2015).

Methodology

There are no standard answers to how the questions should be designed. In this work, inspiration has been taken from a number of previous reported studies (Davies & Tikoo, 2019; Granitz et al., 2014; Malgwi et al., 2010; Siegall et al., 2007). Numerous questions with different dimensions were included in the survey. With the exception of the Big Five personality traits, a factor analysis was conducted. This makes it possible to analyse multiple questions that are connected to the same dimension. The results are presented in Table 2. The factor analysis failed to distinguish between aptitude and motivation. Therefore, they were merged into one dimension.

Table 2: Factor Analysis

Dimension	Items	Loading
	I expect a high salary	0.696
Career		
	Excellent job opportunities	0.658
	High probability of getting relevant work	0.657
	Great career opportunities	0.605
Development skills	Strategic thinking and planning	0.799
	Develop creativity and new ideas	0.591
	Preparation for leadership roles	0.492
Job security	It offers long-term job security	0.999
	Regardless of the economic climate, I will be guaranteed work	0.571
Contribution/Commitment	The work gives opportunities to help others	0.684
	The work gives opportunities to contribute to society	0.489
Aptitudes/Motivation	It requires skills that I'm good at	0.973
	It suits my ability	0.669
	The job will bring great personal satisfaction	0.518
	I will have varied tasks that reflect my education	0.441
Enjoyment	I expect to have a job that I will enjoy	0.661
Advice	I was influenced by advice from my family	0.670
	I was influenced by the advice of friends and acquaintances	0.584

The descriptive statistics (Table 3) also present some items that are not included in the factor analyses. Apart from the dimension of contribution where economics students score significantly higher, there are only minor differences between the value of BS and EC. Industrial Economics and Technology Management (IETM) has many values that differ from those we found for the other two departments. The methodical choice made is to compare the values of IETM with the other two studies. Table 4 presents the result of pairwise comparisons of measuring an Independent sample t-test.

Table 3: Descriptive Statistics (Seven-Point Likert Scale Where 1 Is Strongly Disagree and 7 Strongly Agree)

	BS	EC	IETM	All	Min	Max	St. Dev	Reliability[2)]
The studies are demanding and challenging	4.71	4.52	5.33	4.90	1.00	7.00	1.51	
I'm primarily looking at the opportunity to earn money	3.11	3.22	3.48	3.24	1.00	7.00	1.53	
It is encouraging to see the high level of idealism in the sector I plan to work in	4.08	4.10	3.53	3.93	1.00	7.00	1.35	
I want to continue in the job I have chosen even if my salary goes down	3.92	3.63	3.90	3.84	1.00	6.00	1.09	
Career	4.70	4.65	5.72	4.96	1.75	7.00	1.10	0.87
Development	4.92	5.01	6.50	5.05	1.67	7.00	1.10	0.82
Job security	4.76	4.78	5.77	5.05	2.00	7.00	1.26	0.88
Contribution	4.59	5.33	4.68	4.81	1.00	7.00	1.32	0.85
Aptitude/Motivation	5.11	5.03	5,32	5,15	2,20	7,00	0.91	0.75
Enjoyment	5.31	5.30	5.71	5.41	2,00	7,00	1,16	0.52
Advice	2.58	2.48	3.38	2.78	1.00	7.00	1.38	
Extraversion	3.55	3.73	3.59	3,61	2,50	5,33	0.55	0.80
Agreeableness	4.68	4.30	4.19	4,44	2,50	6,00	0.75	0.61
Neuroticism	3.48	3.06	2.96	3,23	1,00	6,50	1,06	0.63
Conscientiousness	4.41	4.29	4.59	4,43	2,75	6,33	0.76	0.62
Openness[1)]	4.38	4.49	4.83	4,53	2,00	7,00	1,10	0.62
N	56	32	33	121				

[1)] *Due to low reliability value one of the item was removed*
[2)] *Alfs Cronbach*

Table 4: Comparing Students from IETM with the two Other Departments (Equal Variances Assumed)

	Mean Difference	St. Error Diff.	t	Sig.
Career	1.03883	0.20540	5.058	0.000
Aptitudes/Motivation	0.23731	0.18423	1.288	0.200
Enjoyment	0.40530	0.23463	1.727	0.087
I'm primarily looking at the opportunity to earn money	0.33542	0.31341	1.070	0.287
The studies are demanding and challenging	0.95422	0.30249	3.155	0.002
It is encouraging to see the high level of idealism in the sector I plan to work in	-0.55625	0.27946	-1.990	0.049
I want to continue in the job I have chosen even if my salary goes down	0.09612	0.22960	0.419	0.676
Advice	0.83333	0.27363	3.046	0.003
Development	0.35859	0.22213	1.614	0.109
Job security	1.00000	0.24072	4.154	0.000
Contribution	-0.17614	0.27044	-0.651	0.516
Extraversion	-0.02841	0.11186	-0.254	0.800
Agreeableness	-0.35290	0.15004	-2.352	0.020
Neuroticism	-0.36742	0.21384	-1.718	0.088
Conscientiousness	0.22254	0.15528	1.433	0.154
Openness	0.40593	0.22265	1.823	0.071

By using binary logistic regression, it is possible to research the impact of the various independent variables while controlling for other factors.

The following model specification is used:

$$Yi = a_0 + a_1X1 + a_2X2 + a_3X3 + a_4X4 + a_5X5 + a_6X6 + a_7X7 + a_8X8 + a_9X9 + a_{10}X10 + a_{11}X11 + a_{12}X12 + a_{13}X13 + a_{14}X14 + a_{15}X15 + a_{16}X16 + \varepsilon$$

Yi: Endogenous variable, (1: IETM. 0: Other studies)
α_0: Constant
X_1: Gender (1: F, 0: M)
X_2: Demanding education
X_3: The ability to make money
X_4: Idealism in the sector
X_5: Continues in the case of a decrease in wages
X_6: Extraversion (Likert scale 1 to 7, 1: strongly disagree, 7: strongly agree)
X_7: Agreeableness (Likert scale 1 to 7, 1: strongly disagree, 7: strongly agree)
X_8: Neuroticism (Likert scale 1 to 7, 1: strongly disagree, 7: strongly agree)
X_9: Conscientiousness (Likert scale 1 to 7, 1: strongly disagree, 7: strongly agree)
X_{10}: Openness
X_{11}: Development
X_{12}: Job security
X_{13}: Contribution
X_{14}: Career
X_{15}: Aptitude/Motivation
X_{16}: Enjoyment
ε: Stochastic error

The SPSS does not give collinearity diagnostics in logistic regression. However, one can obtain the VIF value by running a linear regression. This gave VIF scores between 1.1 and 2.2, but after removing Advice as independent variable to avoid overly high values. Hence, the multicollinearity is not considered as a problem for this analysis.

Table 5: Result of the Binary Logistic Regression. Dependent Variable: Attending IEMT

	B	S.E.	Wald	Sig.	VIF
Gender	0.963	0.919	1.098	0.295	1.631
Demanding education	0.594	0.305	3.793	0.051	1.682
The ability to make money	-0.236	0.282	0.699	0.403	1.510
Idealism in the sector	-0.491	0.287	2.932	0.087	1.397
Continue in the case of a decrease in wages	-0.499	0.425	1.379	0.240	1.466
Extraversion	-1.691	0.885	3.654	0.056	1.303
Agreeableness	-0.503	0.518	0.946	0.331	1.298
Neuroticism	-1.117	0.505	4.903	0.027	1.284
Conscientiousness	0.295	0.476	0.385	0.535	1.204
Openness	1.376	0.520	6.996	0.008	1.483
Development	-0.361	0.473	0.582	0.445	2.026
Job security	0.694	0.457	2.311	0.128	2.047
Contribution	-0.460	0.347	1.755	0.185	1.452
Career	1.768	0.681	6.736	0.009	2.296
Aptitude/Motivation	-0.844	0.683	1.526	0.217	1.770
Enjoyment	0.740	0.572	1.671	0.196	1.806
Constant	-4.379	4.549	0.927	0.336	
	N =118, Nagelkerke R Square= 0.629				

FINDINGS

Table 3 showed consistently high values on all variables included in this study except for the variables, I am primarily looking to make money, advice and neuroticism. Comparing IETM with the others indicated significant differences regarding personal characteristics. Students from IETM had significantly lower value on agreeableness (under five percent significant level), neuroticism (under ten percent significant level) and higher score for openness (under 10 percent significant level). The binary regression confirmed the link between the lower value of neuroticism for IETM students (under five percent level) and substantially higher value for openness (B = 1.378 and under 1 percent significant level). The regression model did not confirm the link between agreeableness and IETM. However, there was a considerable negative link to extraversion (B= -1.691 and significant level under 10 percent). Hypothesis 1 (H1) is therefore confirmed. The career opportunities varied among the students. Students from IETM obtained a strongly significant higher career score both in Table 4 and 5 (significant level under one percent). The companionship of means also gave significant differences in favour of IETM for job security (under one percent significant level) and enjoyment (under ten percent significant level). But these effects were not significant in the binary regression. Notice also that Table 4 showed a significant positive difference for advice. Idealism is significantly negatively correlated both in Table 4 and 5 (under 10 percent significant level). These factors confirm hypothesis 2 (H2). Students from IETM reported that their study was challenging and demanding to a higher degree than the other study fields. The impact was positive for companionship of means (significant level under one percent) and by the binary regression model (significant level around 5 percent). However, the dimension aptitude and motivation did not appear to be significant with the choice of IETM subjects. Hypothesis 3 (H3) is only partly confirmed.

DISCUSSION

In several areas, there are small differences between the students at the Faculty of Economics and Management. Students are seeking jobs that give pleasure other than money in their pocket. Therefore, this question did not get a high score and it is distributed approximately equally among the three departments. Undergraduates choose study fields that are adapted to their abilities and interests, and subjects they enjoy. This is in line with the findings of Calkins and Welki (2006). The motivation is high across the departments. In line with the finding of Kim et al. (2002), advice from parents and friends had only marginal impact on the choice of study fields. There are gender differences between the departments. There is a predominance of males in Industrial Economics and Technology Management, while females are in the majority at the Business school. All in all, the proportion of women is just under 50 percent for the entire faculty (Table 2). The overall impression is that the students have positive attitudes and expect the selected major to provide secure jobs and a good career. The expected prospects are good. Nevertheless, differences between the departments are recorded. Not between business and economics students as one might expect, but between students in Industrial Economics and Technology Management (IETM) and the rest. In many countries, the share of people studying economics has fallen significantly, while interest in business studies has increased considerably. Bachan and Barrow (2006) reported that between 1992 and 2004, the number of graduates in the economy fell by 62 percent, while the increase in business studies increased by 70 percent. The economics programme captures to a large extent candidates who have a special interest in this topic. According to the authors, it is harder for economics students to get work.

Therefore, those who choose this pathway are more interested in the subject than business students. Economics students have ambitions to get jobs in a high professional category, while business students may want jobs in a lower professional category, and that requires less skills. The findings of this report only partly confirmed the analysis of Bachan and Barrow (2006). At some point, there is a distinct difference. The economics students want to contribute more to society and others than business students. However, in many other areas only minor differences are recorded between these two study fields. One possible

explanation is that the admission requirements are significantly higher for business studies than for economics studies. Many business students have career ambitions in the financial sector, among others. This may indicate that the proportion of business students seeking less demanding jobs is lower in this sample than in the analysis of Bachan and Barrow (2006). Another explanation for the fact that there is little difference between the two groups is that about half of economics students prefer to work in the private sector (according to this survey). Like business students, many economics students also want to make a career in the private sector. The research emphasised there are substantial differences depending on the preference between working in the public or private sector (Houston, 2000; Levitas & Vigoda-Gadot, 2020)

One of the important contributions of this article is the evidence that IETM students stand out in relation to others at this faculty. There may be several reasons for this. An important factor is that the students have technical backgrounds and are skilled in theoretical mathematics. Based on previous research (Vedel et al., 2015), this may explain why these students score a significantly higher value for the trait openness and significantly lower for the trait neuroticism compared to the other students. Another important factor is that they were engineering students who want to qualify in economics and management. There is great competition to gain this admission ticket, and these students have a good reputation especially in conducting advanced quantitative analyses. They experience their education as demanding. Since these students expect to follow a successful career and achieve secure jobs with development opportunities, this is probably consistent with the actual situation. An indicator of this is that potential employers including Norwegian Central bank are actively seeking out this environment with the intention of recruiting new employees. The findings of this analysis are useful for the faculty in the planning of study programmes and in the work of recruiting new students.

Limitations

Since the sample was from only one university in Norway, one cannot say how valid the results are in a national or international context. However, it can provide an indicator about how the situation is. The sample for the questionnaire was not randomly chosen. There are different ways to design the questions for capturing the issue discussed in this paper. The focus in this analysis is on the students' expected professional career and not about the students' actual career.

CONCLUSIONS

Economics and business students who participated in this analysis look positively at the future. They expect to get attractive jobs. The difference between business and economics students was rather small. The most marked distinction was that the economics students want to contribute more to society than business students. On the other hand, the students in Industrial Economics and Technology Management (IETM) stood out largely in relation to the rest (economics and business students). This is a very popular study among engineers who want to specialise in economics, business and management. These students scored high in the personality trait openness and low in the trait neuroticism. They expect to follow a career and secure jobs with high wages. There was a marked difference in relation to the other majors. The findings may not be so surprising since these students are very much in demand in the work market.

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