

Analysis of Major Selection Under the Background of Enrollment in Large Category

Guiyun Hu

School of Finance and Public Administration, Anhui University of Finance and Economics, Anhui Bengbu, 233030, China

Abstract: By using questionnaire survey and Logit regression analysis, this paper explores the influencing factors of students' major choice under the background of enrollment in large category, and draws the following conclusions: personal professional endowment, family, teacher guidance and major construction level have significant influence on students' major choice, and there are great differences between comprehensive universities and local professional universities. Some suggestions are put forward in shaping personal qualities and environment, strengthening professional construction, and expanding the space for professional selection.

Keywords: Enrollment in large category, Major selection, Influential mechanism.

1. Review of the Literature

1.1. The current status of the implementation of enrollment in large category

With the rapid development of the economy and the popularization of higher education, the employment pressure of college students gradually increases, and the over-specialized talent training system of colleges and universities can hardly meet the demand of compound and innovative talents in the market economy, so enrollment in large category and training has become the breakthrough of higher education reform. By 2020, 114 of the 137 "double first-class" universities in China have implemented enrollment in large category and cultivation, accounting for 83.2% of the total[1]. In this model, universities no longer enroll students according to specific majors or professional directions, but admit students in a particular discipline or department as a major category, and then students are streamed into the major after 1-2 years of basic training. Du Yang et al. (2021) pointed out that the combination of major category admission and major selection model is an important mechanism to give students more developmental options, which helps to clarify personal professional intention and professional satisfaction and promote immersion learning[2]; however, some scholars represented by Chunhua Liang et al. (2018) pointed out that major category admission and major training have the disadvantages of utilitarianism and low sense of belonging, which are not conducive to the participation of teachers and students in the rational allocation of teaching resources [3]; at the same time, education scholars represented by Huang (2013) point out that the learning model of enrollment in large category and training does not effectively meet the need for flexible training of innovative talents, the fragmentation of talent training before professional triage and the curriculum system that is not fully articulated after professional triage still need to build a system of curriculum construction and teacher allocation to support[4]. The many benefits of enrollment in large category make it a possible path of talent training mode reform in China's colleges and universities, and it is still necessary to focus on and solve the problems that arise in the practice of enrollment in large category. In this regard, Yin (2021) analyzes the current situation and dilemma

of enrollment in large category in colleges and universities, and proposes to strengthen scientific and reasonable professional triage policy, enhance student management and professional guidance in order to solve the problems of enrollment in large category in China[5]. The scientific professional triage leads to the transformation of education system, which helps to optimize the enrollment in large category and promote the reform of talent training mode and system innovation.

1.2. Current status of professional choice

The major training is conducive to the cross-fertilization of discipline knowledge, and the education with independent choice can promote students' personalized development. Whether the choice of major matches with students' interests and personal endowments will directly affect students' subsequent professional learning and career development, and more importantly, the quality of composite and innovative talents cultivation in universities. Scholars Zhong Yuping (2005) argued that in terms of major choice, since risk and reward show a positive correlation and students have different risk preferences for academic and employment, the different output effects caused by major choice will affect students' major choice[6]. Hu Yudong et al. (2016) summarized the factors influencing the choice of majors into five aspects: employment prospect, professional strength, family background, influence of others, self-trait, etc.[7], implying that students' professional interest, educational experience, family background, etc. are also important influencing factors in the choice of majors. Li Chen et al. (2015) also pointed out that external factors such as learning experience and family background shape the expectation framework of student subjects, through which professional choices are measured[8]. In addition, the impact of major choice on students' individual academic commitment and benefits is also crucial, as Du Xin et al. (2016) studied based on the SSLD data of the Survey of Undergraduate Learning and Development and found that individuals who achieved a successful match with their majors gained higher input benefits than those who were not successfully matched[9], and Ren Bingqiang et al. (2019) analyzed based on the data of the Beijing University of Aeronautics and Astronautics Undergraduate Major Survey also (2019), based on data from

a survey of undergraduate majors at Beijing University of Aeronautics and Astronautics, also pointed out that the choice of majors that match personal preferences can help improve students' satisfaction with their majors and enhance their employment competitiveness[10]. The right choice of major will effectively improve the major matching and realize the benign path of promoting students' engagement.

2. Research Design and Data Analysis

2.1. Research Design and Data Collection

This study is based on the background of enrollment in large category in universities in Anhui Province. In order to investigate the main affecting factors of the major selection, comprehensive university D and financial university C were selected as the main research objects. Exploratory factor analysis and ordered logistic regression methods were used to analyze the data, explore the implementation effect of major diversion in major enrollment,

the situation of students' major selection, and its influencing factors. A total of 550 survey questionnaires were distributed and collected, and some invalid questionnaires were removed. Finally, 516 valid questionnaires were screened and obtained.

2.2. Variable Definition and Model Setting

Based on the research purpose of this article, a Logit regression analysis model is established based on a questionnaire survey:

$$\text{Logit}(Y) = C + \sum_{i=1}^{i=15} \lambda_i X_i + \varepsilon_i$$

Y represents the assignment of each sample to the status of changing majors, C is the intercept term, and X_i is the explanatory variable, λ_i is the estimated parameter of the explanatory variable, ε_i is a random disturbance term, and the specific variable meanings and descriptive statistics are shown in the table below:

Table 1. Descriptive Analysis

VariableName	Variable Code	Average value	Standard deviation	Minimum value	Maximum value
hether to switch majors	y1	0.2316	0.4265	0.0000	1.0000
Professional understanding before diversion	x1	3.3605	0.9126	1.0000	5.0000
Volunteer professional understanding	x2	3.3488	0.9319	1.0000	5.0000
Personal professional preferences	x3	3.3818	0.9071	1.0000	5.0000
Personal professional endowment	x4	3.9593	0.7909	1.0000	5.0000
family influence	x5	3.8740	0.7917	1.0000	5.0000
Teacher influence	x6	3.5446	0.8173	1.0000	5.0000
Classmate influence	x7	3.4767	0.7916	1.0000	5.0000
Volunteer professional construction level	x8	3.5136	0.7669	1.0000	5.0000
Volunteer Professional Social Reputation	x9	3.8256	0.7508	1.0000	5.0000
Volunteer professional teaching staff	x10	3.7810	0.7711	1.0000	5.0000
Volunteer Professional Training Objectives	x11	3.8702	0.7430	1.0000	5.0000
Voluntary professional diversion and competitive pressure	x12	3.8372	0.7351	1.0000	5.0000
The difficulty level of voluntary professional learning	x13	3.7364	0.7685	1.0000	5.0000
Volunteer for postgraduate entrance examination and further educatio	x14	3.6725	0.8073	1.0000	5.0000
Professional employment situation	x15	3.8140	0.7760	1.0000	5.0000

From the data, it can be seen that the influencing factors of major selection in this article are 15 main factors, including personal understanding and endowment of the profession; The influence of family, teachers, and classmates on the environmental level; The level of professional construction at the school level, including the strength of teaching staff and training objectives, as well as the prospects for professional development, including factors such as difficulty and employment status in the postgraduate entrance examination. The understanding or importance level of the corresponding options in each questionnaire is assigned from weak to strong, with values ranging from 1 to 5.

3. Analysis of Results and Impact Mechanisms

3.1. Logit model regression analysis

Using a binary Logit model, regression analysis was conducted on various factors that may affect students' major choices. The impact of personal factors, environmental factors, and major construction on college students' major

choice decisions was analyzed from the perspectives of personal factors, environmental factors, and major construction. The results are shown in the table below:

In the basic regression model, the four factors x4, x5, x6, and x8 passed the significance test, and the coefficients of the explanatory variables corresponding to x4, x6, and x8 were positive. That is, personal professional endowment, teacher influence, and volunteer professional construction level provide effective help for students to choose to switch majors. Through improving their professional quality and communicating with teachers, they can play a purposeful role in guiding students to switch majors, At the same time, the construction level of volunteer majors can also attract students. On the contrary, the family influence represented by x5 may have a reverse effect on students' professional choices, indicating that college students who are still in adolescence may have reverse psychology towards their native families, especially when they are independent from their families.

3.2. Heterogeneity analysis

On the basis of conducting a principal regression analysis

of all samples, considering that the professional settings and concentration of majors in universities may have an impact on students' professional choices, according to the research conclusion of Zhao Tingting et al, Their students need more guidance to determine suitable majors[11]. Therefore, this article divides the interviewed subjects into two types: local financial and economic colleges represented by C University and comprehensive colleges represented by D University for heterogeneity comparative analysis. The effects of each factor are shown in Table 2 above.

The results show that local finance and economics university students, taking C University as an example, have

a wider range of influencing factors on their major choices. The four factors x4, x5, x6, and x8 pass the significance test, while students in comprehensive university, taking D University as an example, are more affected by x2, which is the understanding of their major preferences, and the coefficient of the explanatory variable is negative, indicating that the degree of professional understanding has a negative effect on major diversion. Therefore, for different types of universities, varying student coverage or training objectives can lead to varying degrees of impact on students' major selection.

Table 2. Regression Analysis

	whole y1	C University y1	D University y1
x1	-0.1541 (0.2204)	-0.0657 (0.2394)	-1.7583 (1.2842)
x2	0.0565 (0.1980)	0.2962 (0.2159)	-2.8189* (1.7020)
x3	0.0777 (0.2367)	-0.1310 (0.2641)	3.3267 (2.0526)
x4	0.3662* (0.2197)	0.6094** (0.2580)	0.4771 (1.4496)
x5	-0.6582*** (0.2359)	-0.7399*** (0.2692)	-2.3074 (1.5967)
x6	0.4056** (0.1919)	0.3441* (0.2057)	1.2786 (1.3644)
x7	0.1241 (0.2034)	0.0483 (0.2306)	1.9097 (2.0566)
x8	0.3163* (0.1781)	0.3310* (0.1874)	-1.5136 (2.0013)
x9	0.1388 (0.2839)	0.0795 (0.2989)	-0.0240 (2.3501)
x10	0.1437 (0.2623)	0.2009 (0.2745)	-0.0312 (1.6774)
x11	-0.1177 (0.3101)	-0.1434 (0.3385)	1.5468 (2.6726)
x12	-0.1045 (0.3066)	-0.1216 (0.3465)	-0.6177 (1.3333)
x13	0.0677 (0.2446)	-0.1355 (0.2701)	2.9577 (1.9356)
x14	-0.0382 (0.2059)	0.0645 (0.2249)	-0.6296 (1.2702)
x15	-0.0441 (0.2309)	0.0198 (0.2504)	-2.1822 (2.3921)
_cons	-0.9626 (0.7208)	-0.9895 (0.7585)	-2.7299 (7.7951)
R ²	0.0283	0.0333	0.4346

3.3. Analysis of Impact Mechanism

The core of empirical deduction through theoretical models is to explore the main factors that affect major selection. Overall, individual professional endowments, teacher influence, family influence, and the level of volunteer professional construction have a significant impact on students' major selection. Analysis shows that personal professional endowments have the most significant impact on professional choice, reflected in professional understanding and strength, as well as professional interests. Matching major selection with personal intelligence and interest characteristics can not only improve professional learning motivation and satisfaction, but also fully tap into students' personalities and talents, enabling students to maximize investment efficiency and output results in the professional learning process. The guidance of teachers, as a secondary

influencing factor, is more reflected in professional introduction, diversion guidance and consultation, and career planning. As a hub for university life and before entering society, it plays a leading role in students' major selection. Beneficial guidance from teachers will enhance students' professional matching. In other scholars' studies, family influence is often regarded as a positive influencing factor of major selection. However, according to the data analysis results of this study, there is a negative correlation between family and major selection, which is more because contemporary college students gradually get rid of their ideological dependence and obedience to their parents and families under the guidance of independent thoughts. With certain reverse psychology, students are likely to make decisions that are contrary to their families when choosing majors. The level of professional construction in schools directly affects students' professional knowledge learning and

comprehensive ability cultivation. Professional training objectives, curriculum settings, teacher level, and employment prospects affect students' professional choices through their own awareness and school environment. In addition, other influencing factors such as the influence of classmates and the social reputation of majors are not significant in the model results, but the regression coefficient is high, which has a certain degree of influence on the choice of majors. Many factors such as personal independence and social expectations are intertwined to jointly build a framework for rational choice of majors.

4. Conclusion and Suggestions

4.1. Conclusion

Enrollment in large category is a new trend in the talent cultivation model of universities. Accurate and effective professional diversion and guidance will enhance the matching and satisfaction of major selection, and help students realize their self-worth. The enrollment in large category and the diversion of majors give students more choices and also bring more challenges to the construction of universities. For students, enrollment in large category provides a preliminary foundation for accumulating learning experience and personal advantages, while major division allows for students to independently choose and match their personal characteristics, promoting the improvement of student input-output efficiency. However, in the selection process, it is more constrained by the environment and guidance, and construction of university will shoulder more responsibilities. For universities, enrollment in large category is a change and opportunity in the process of student cultivation. It is necessary for universities to grasp the direction of talent cultivation and knowledge development, cultivate a group of educators who are at the forefront of disciplinary and professional development, and can integrate interdisciplinary abilities. Only by fully coordinating multiple departments such as curriculum teaching, teaching management, and student management can the quality of talent cultivation be fundamentally improved. enrollment in large category and major diversion may be more appropriate in comprehensive colleges and universities. College major selection is a rational choice based on students' personal quality and the structure of school and family environment. In comparison, the knowledge base, academic vision and interdisciplinary environment of professional college education are relatively narrow, and the industry specific and employment limitations in talent training are greater. Therefore, the promotion of large-scale reform should be based on the comprehensive and holistic discipline strength construction.

4.2. Suggestions

4.2.1. Personal qualities and environmental shaping

Based on the analysis results of the questionnaire data, it can be seen that students' major choices are more affected by their personal professional endowments, families, teachers and other surrounding environments. On the one hand, major selection is based on students' rational choice behavior. On the basis of interest and preference, we encourage comprehensive consideration of employment, further education and other factors, and then explore the best choice. We should actively guide students to actively explore

themselves, discover their strengths and potential intelligence as soon as possible, and plan professional and career directions. At the same time, students are encouraged to explore academic interests and improve their internal drive in the professional learning process, as well as the matching degree between their personal characteristics and professional learning. On the other hand, major selection is a process that revolves around majors, where students choose and interact with teachers' guidance. Schools should first pay attention to professional promotion and introduction, guide students to closely integrate professional cognition with career planning, and help students form reasonable expectations. Through the tutorial system, counselor talk system, professional introduction courses, special lectures, practical activities, etc., a comprehensive and objective presentation of the basis for professional setting, training objectives, selective reading requirements, social reputation, etc., especially the disciplinary qualities and related employment fields that professional graduates must have, so that students can comprehensively consider their own actual situation, future development direction and other rational choice of the most suitable major.

4.2.2. Strengthening Professional Construction

Due to the influence of the level of professional construction on the selection of majors, in the process of university enrollment and professional construction, universities that implement enrollment in large category should adjust the structure of large categories according to the development needs of social industrial structure, the characteristics of disciplines and specialties, and the specific situation of the school, strengthen the construction of specialized disciplines and the guidance of diversion, in order to maximize students' independent selection of suitable majors, Expand the coverage of majors and internalize the diverse and independent characteristics of university education as the driving force for effective major selection. We should aim to cultivate students' comprehensive qualities, innovation and entrepreneurship abilities, and practical abilities, and combine the characteristics and advantages of our major to develop a scientific talent training program. At the same time, we continuously optimize the curriculum system, establish a rich and diverse module elective course group based on the determination of professional core courses, increase interdisciplinary elective courses, promote interdisciplinary knowledge integration, and allow students to independently choose courses based on their own advantages, interests, and career planning. We gradually establish a mechanism to allocate educational and teaching resources according to students' professional choices and self-learning needs, to provide students with more abundant resources such as teachers, practice platforms and equipment for their professional choice, and to maximize the effectiveness of talent cultivation with limited teaching resources.

4.2.3. Expand the freedom of major selection

Major selection is an important mechanism for granting students personalized development choices in enrollment in large category and training, with the ultimate goal of improving the matching and satisfaction between individual students and their majors. Universities need to serve the comprehensive development of students as their purpose, expand the space for students to choose majors, and achieve full freedom of major selection. For example, many universities in South Korea have crossed disciplinary and inter university barriers, implementing diverse and open

major selection systems such as "centralized learning system," "integrated majors system," and "no majors system," and allowing students to self choose their original majors and freely choose "original majors, joint majors, and student design majors," to maximize the protection of students' independent choice rights[12]. Although some local universities in our country have already implemented the model of enrollment in large category and training, the establishment of large categories is limited, and there are many restrictions on the time and scope of choosing majors. Some even do not allow cross major selection. Universities should consider breaking down the time and space limitations of students' major choices and gradually expanding the freedom of students' major choices. In a market economy, students choosing majors is more likely to be an investment behavior of human capital, and they will make rational choices based on the expected benefits and probability of achievement in the later stage[13]. Universities should expand the diversity and openness of their major choices, allowing students to freely choose more suitable majors, courses, etc. as much as possible after weighing their personal interests and professional ability requirements. In addition, if the existing majors cannot meet the needs of some students, personalized professional design under two-way selection can be explored, providing students with the opportunity to independently design majors, learn content, and progress.

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