

## **ANALYSIS OF THE INFLUENCING FACTORS AFFECTING STUDENTS' COLLEGE ENTRANCE EXAMINATION SCORES**

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**ABSTRACT** – The college entrance examination scores are significant for students. In China, the result of the college entrance examination is the only criterion for judging whether a student can enter a university. This study takes some students from China West Normal University to analyze the factors that may influence the scores. Through the statistical analysis of SPSS, it is found that gender is related to the score of college entrance examination, and the place of origin is significantly related to the score of college entrance examination. The causes of the various phenomena are analyzed, and targeted suggestions are put forward to provide valuable references for improving students' performance.

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*Independent Sample*

*T-test*

*One-way ANOVA*

*SPSS*

## **INTRODUCTION**

The college entrance examination is indeed an unavoidable social hot spot and is closely related to the livelihood of the people, but also for the country. More and more people realise that academic performance and quality education should be two sides of the coin rather than should not be contradictory. Yes, we aim to reach the other side with excellent results in the college entrance examination while adhering to quality education. Therefore, determining the factors affecting college entrance examination achievement is crucial.

There are many studies on the factors affecting academic performance, and the research entry points are also different, and the research methods are different. However, through combing the literature, it is found that there are not many documents on the "analysis of the factors affecting the results of the college entrance examination." Still, this paper includes the main factors affecting the results into the scope of the investigation, conducts regression analysis and T-test, and has specific innovations in the research content, objects, and methods.

This study obtains the factors affecting college entrance examination achievement through data analysis, which can provide a good reference for schools to cultivate talents. It also points out the direction for individuals to achieve better results in the college entrance examination and makes more excellent contributions for students to achieve better results.

## **PROBLEM STATEMENT**

Many factors can affect college entrance examination achievement. This paper investigates some freshmen from the Western Normal University of China and analyses the relationship between gender, region, and students and the college entrance examination results.

## **LITERATURE REVIEW**

### **An Overview of Literature Review**

Shao Zhifang et al.(2016) reviewed domestic and foreign studies on college entrance examination scores and gender differences. They pointed out that gender differences exist in college entrance examination scores and may affect the male-female gender ratio in universities. Gu Liya et al.(2009) believed that whether it is science or liberal arts students, there is a positive correlation between the total score of the college entrance examination and the high school entrance examination. Regarding correlation, liberal arts students are also higher than science students. Lihua et al.(2014) studied the factors that affect the college entrance examination scores of liberal arts and science students. Science students believe that gender is the main factor influencing their Chinese and English college entrance

examination results, the main factor affecting the math scores of the college entrance examination is the physics score of the high school entrance examination, and the main factor affecting the comprehensive science is the math scores of the high school entrance examination; For liberal arts students, they believe that the main characteristics of physics in the high school entrance examination affect the results of Chinese and English college entrance examination, the mathematical, physical and chemical effects in the high school entrance examination are the main factors affecting the scores of liberal arts mathematics in the college entrance examination. The results of physics and chemistry in the high school entrance examination are the main factors affecting the total scores of liberal arts in the college entrance examination. Xu Yangfeng (2015) used the correlation analysis method to analyse the factors affecting the college entrance examination scores from three aspects: the entrance examination score, the source of origin, and the subjects taught by the head teacher. The research results show that the students' entrance scores (high school entrance examination results) significantly impact the results of the college entrance examination. At the same time, the other two factors do not play a significant role. Yu Zhang et al.(2015) studied the difference in scores due to gender. They believe that in mathematics, the gender difference between boys and girls is not apparent on average. Still, the top of the established quantity regression model shows that there is a significant difference between boys and girls (girls are worse). In Chinese and English, the girls are better.

Some researchers have comprehensively examined the factors affecting students' results in the college entrance examination. For example, Li Li (2014) used the multiple linear models, quantile regression model, and panel data model to analyse the factors affecting high school student's academic performance. It also points out that in addition to internal factors such as gender, students' performance is influenced by external factors such as living and learning environment. It emphasises that we should consider students' emotional and psychological needs.

## **METHODOLOGY**

I have studied the previous research results through the literature method and took advantage of the status of on-duty teachers to actively carry out the questionnaire survey to obtain reliable first-hand information. Finally, the data obtained was quantitatively analysed to draw reliable conclusions.

### **Research Design**

In this study, different statistical methods, Excel, SPSS, and other statistical software are used to calculate, classify and analyse the data of 750 first-year students from China West Normal University to form a certain number of statistical analysis conclusions to make the theory of this paper more accurate and scientific.

### **Population and Sampling**

There are a total of 7,500 freshmen in the class of 2022. According to the minimum sample algorithm, the information of 750 first-year students is randomly selected for sample analysis, including different genders from urban or rural first-year students.

### **Data Collection**

The data of this study were obtained from the school admissions authority. In college enrollment, the primary data of first-year students have been received, such as gender, race, and place of origin. This study randomly obtained relevant information about 750 first-year students from the admissions department.

The methods section describes actions to be taken to investigate a research problem and the rationale for the application of specific procedures or techniques used to identify, select, process, and analyse information applied to understanding the problem, thereby allowing the reader to critically evaluate a study's overall validity and reliability. The methodology section of a research paper answers two main questions: How was the data collected or generated? And how was it analysed? The writing should be direct and precise and always written in the past tense.

**RESULTS**

1. First, we performed descriptive statistics on the data and found the data valid. Specific as in the table 1-2:

**Table 1.**

		<b>Gender</b>			
		Frequency	Percent	Valid Percent	Cumulative Percent
	1	601	80.1	80.1	80.1
Valid	2	149	19.9	19.9	100.0
	Total	750	100.0	100.0	

**Note:** "Male" code "1", "Female" code "2".

**Table 2.**

		<b>Territory</b>			
		Frequency	Percent	Valid Percent	Cumulative Percent
	1	409	54.5	54.5	54.5
Valid	2	341	45.5	45.5	100.0
	Total	750	100.0	100.0	

**Note:** "Urban" code "1", "Village" code "2".

2. Mutual independent T-tests were used. The hypothesis tested for this purpose is that:

Original hypothesis H0: There is no correlation between regions and college entrance examination scores:

Alternative hypothesis H1: There is a correlation between regions and college entrance examination scores:

We divided the sample data into two groups. Urban students marked 1, and rural students marked 2. The results of T test of two independent sample pairs are as follows:

**Table 3. Group Statistic**

		<b>Group Statistic</b>			
		N	Mean	Std. Deviation	Std. Error Mean
Score	1	409	556.52	3.466	.171
	2	341	555.65	3.801	.206

**Table 4. Independent Sample Test**

		Independent Sample Test								
		Levene's Test for Equality of Variances			T-test for Equality of Means					
	Score	F	Sig.	t	df	Sig (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Differences	
									Lower	Upper
	Equal variances assumed	10.080	.002	3.278	748	.001	.871	.266	.349	1.392
	Equal variances are not assumed.			3.251	696.010	.001	.871	.268	.345	1.397

**Note:** Sig <0.05, which means that the variance is uneven. In the second line, the Sig <0.05, so the null hypothesis was rejected and accepted H1, indicating that the origin (from urban or rural areas) is significantly associated with the scores.

3. The effect of gender on scores was analysed by one-way ANOVA. The hypothesis tested for this purpose is that:

Original hypothesis H0: There is no significant difference between gender and scores ;

Alternative hypothesis H1: There is a significant difference between gender and scores ;

The analysis results generated in SPSS are as follows :

**Table 5. Descriptives**

Descriptives								
Score	N	Mean	Std. Deviation	Std. Error	95% Confidences Interval of Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
1	601	556.09	3.656	.149	555.80	556.39	552	566
2	149	556.22	3.613	.296	556.81	556.81	552	566
Total	750	556.12	3.645	.133	556.38	556.38	552	566

**Table 6. Test of Homogeneity of Variances**

Test of Homogeneity of Variances				
Score	Levene Statistic	df1	df2	Sig.
	.185	1	748	.688

**Note:** As can be seen from the homogeneity of variance test, given the Sig level of 0.05, the Sig is much greater than 0.05, so the data can meet the homogeneity of variance and one-way ANOVA can be conducted.

**Table 7. ANOVA**

ANOVA					
Score					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1.915	1	1.915	.144	.705
Within Groups	9951.285	748	13.304		
Total	9953.200	749			

**Note:** The Sig is 0.705, which is greater than the given significance level of 0.05, so the null hypothesis should be rejected, indicating that there is a significant difference between the gender and the scores.

## DISCUSSION

Studying the factors affecting gaokao scores is essential for students, schools, and parents, which can help students improve their grades differently. In this paper, the independent sample T-test and one-way analysis of variance were used to explore the influence of gender and origin on performance.

The findings match those observed in earlier studies. Gender and origin have a particular influence on performance. This study's findings further confirm that the factors affecting performance are multifaceted. To improve grades, we should not only give full play to the internal advantages of students' gender differences but also pay attention to the influence of the differences between students on grades.

There are still some deficiencies in this study: since the data are only from one university, the study conclusions are not necessarily representative and are for reference only. Due to the limitation of the data source, extensive sampling cannot be conducted. In the future, comprehensive studies can be performed after obtaining data from different regions and schools.

## CONCLUSION AND IMPLICATIONS

The college entrance examination results have always been the focus of individuals, schools, and even society. The related studies on the factors affecting the college entrance examination results have also been widely concerned by researchers. The freshmen data from China West Normal University were collated, analysed, and studied. Through the analysis of each factor of gender and origin, an independent sample T-test, and one-way ANOVA, the following conclusions are drawn:

a. Gender has an impact on college entrance examination scores. Therefore, we should give full play to the advantages of different genders in different subjects.

b. The source of students influences the results of the college entrance examination. The imbalance of education quality in China shows here that the quality of urban education is higher than that in rural areas. Therefore, on the one hand, qualified families should try their best to make their children enjoy a high-quality education in the city; on the other hand, the Chinese government should increase the investment in rural education to narrow the gap between urban and rural education.

## DATA AVAILABILITY DECLARATION

The original contributions encompassed within this study are comprehensively documented in the article and accompanying supplementary materials. Should additional inquiries or data-related requests arise, kindly direct them to the attention of the corresponding author.

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## **CONFLICT OF INTEREST**

The authors herein assert that the research undertaken was executed without the influence of any commercial or financial affiliations, which may be perceived as potential conflicts of interest.

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