Journal of Educational Evaluation & Standards

jees.polaca.com

Research on the Influencing Factors of the Scale and Structure of International Students from Belt and Road Countries in China

Li Keyi[1], Du Chuang[2], Li Zhanguo[3*]

[1]Hangzhou Future Science and Technology City Industry Development Co, Zhejiang, China
[2]Beijing Foreign Studies University, Beijing, China
[3]China Jiliang University, Zhejiang, China

Correspondence: Li Zhanguo, China Jiliang University, Zhejiang, China

Email: zhanguoli@cjlu.edu.cn
Citation: Li K., Du C.&Li Z., Research on the Influencing Factors of the Scale and Structure of International Students from Belt and Road Countries in China, (2026). *Journal of Educational Evaluation & standards,1*(1)84-98. https://doi.org/10.65514/ea9986d66

Abstract: With the deepening of the Belt and Road Initiative, the number of international students from participating countries studying in China has been continuously expanding. How to further expand the scale and enhance the quality of these students has become a key priority of China's international education strategy. Using data from 53 Belt and Road countries between 2005 and 2018, this paper empirically analyzes the factors influencing the scale and structure of their students studying in China from economic, socio-cultural, and educational perspectives. The results show that the differences in economic development levels between China and source countries, as well as bilateral trade cooperation, are major economic factors. The signing of bilateral agreements on mutual recognition of academic degrees and qualifications, and the teacher–student ratio in higher education, are significant educational factors. Moreover, the existence of a common border and the distance between the two capitals are important socio-cultural factors. Degree students are more influenced by economic and educational factors, whereas graduate students are more concerned with bilateral mutual-recognition agreements and the quality of higher education faculty. To promote the high-quality development of studying in China among Belt and Road countries, the Chinese government should continue to strengthen scholarship programs, promote mutual recognition of academic qualifications and degrees, and improve the quality of higher education.

Keywords: Study in China, Belt and Road, Trade in Higher Education Services

1. Introduction

The ongoing refinement and expansion of the global industrial structure has resulted in a notable shift towards a more sophisticated and technologically advanced mode of trade in services. Education services, a pivotal component of this trade, have gained considerable prominence and value among developed countries. The United States, the United Kingdom and Australia serve as illustrative examples. The United States maintains a robust competitive position in the education services trade market, with an annual trade surplus exceeding 1 billion U.S. dollars, and international education services have become the fifth largest industry in the U.S. service sector (NAFSA, 2019). As one of the earliest countries to develop trade in education services and with a well-established higher education system, The United Kingdom has been the second largest destination for study abroad after the United States for many years (Institute of International Education, 2019). The proportion of international students, the source of teachers and the degree of internationalisation of courses and teaching in Australian universities all rank among the top universities in the world. Consequently, international education services have become the largest service export industry and the third largest export industry (Zhang, 2021).

China has established itself as the third most popular destination for international students in the world and the most popular in Asia. Over recent years, the Chinese government has placed a particular emphasis on the internationalisation of higher education, with a focus on countries along the Belt and Road Initiative. In 2016, the Ministry of Education published the “Educational Actions to Promote the Co-construction of the Belt and Road”, which proposed that by 2019, the CPC Central Committee and the State Council should issue the “China's Education Modernization 2035”. This document also emphasized the importance of solidifying the internationalization of higher education. In 2019, the CPC Central Committee and the State Council issued the document “China's Education Modernization”, which re-emphasized the importance of promoting “the Belt and Road” education initiative. In October 2023, China government announced at the opening ceremony of the Third “the Belt and Road” International Cooperation Summit Forum that China would support the high-quality co-construction of the “One Belt, One Road” with eight actions, of which education is an important part, serving as the foundation and bridge for co-construction. Statistical data indicates that over half of the total number of international students from countries along the Belt and Road Initiative have pursued their studies in China, becoming a significant driving force behind China's international education programme (Ministry of Education, n.d.). Nevertheless, further investigation is required at the empirical level to ascertain the factors that influence students from countries along the Belt and Road Initiative to pursue their studies in China. This paper employs data from 53 countries participating in the “One Belt, One Road” Education Initiative between 2005 and 2018 to investigate the factors influencing participation.

2. Literature review

In recent years, as the scale of international students has continued to expand, academics have become increasingly concerned about the factors influencing the inflow of international students. These factors can be broadly categorised into five categories: economic, socio-cultural, education policy, education quality and other factors. Firstly, economic factors must be considered. The discrepancy in economic development between destination country of study and the countries of origin of international students, along with the nature of economic and trade relations, the level

of science and technology and so on, all exert an influence on the scale of international students (Merga et al., 2024). Secondly, socio-cultural factors are worthy of consideration. The geographic distance from the source countries to the destination country of study, immigration network, cultural similarity, cultural identity and the scale of exports of cultural goods are significant socio-cultural factors influencing international students' decisions to study (Wei & Lai, 2017). The geographical distance and language differences between the two countries exert varying influences on students' decisions regarding the selection of their study destinations (Nikou & Luukkonen, 2024). Thirdly, educa-tion policy factors also must be considered. The implementation of convenient study policies pro-vides international students with a highly convenient option for pursuing their studies. The imple-mentation of scholarship policies, education cooperation policies, mutual recognition of academic degrees and other education policy factors has been observed to have a positive effect on the attraction of international students for the purpose of study (Han, 2017). A fourth factor is the quality of the education provided. This is reflected in the quality of education about universities, the per capita expenditure of higher education institutions, and the teacher-student ratio of higher education institutions (Kim & Ngoc, 2023). Additionally, the ratio of students to teachers in higher education institutions is a significant factor influencing the quality of education (Li et al., 2023). Finally, other factors must be considered. The establishment of friendly cities can foster greater trust among source countries, thereby expanding the scale of international students (Beine et al., 2014). Furthermore, the number of Internet users and foreign tourists has a positive impact on the scale of international students.

In conclusion, scholars have investigated the scale of international students from various perspectives. However, there are still limitations to this research, primarily due to the fact that the majority of scholars examine international students as a homogeneous group, without delving into the nuances of their diverse subcategories. The lack of differentiation between the various types of international students is a further shortcoming. Furthermore, the majority of studies focus on the influencing factors affecting international students as a whole, with insufficient research on the countries along the "One Belt, One Road". This paper employs data from 53 countries along the Belt and Road to examine the factors influencing the scale and structure of international students in China. It focuses on international students from Belt and Road countries, categorising them according to their types and levels.

3. Basic facts and related hypotheses

In recent years, the cohort of international students hailing from countries situated along "the Belt and Road" has been growing. Figure 1 illustrates the general trajectory of international students from countries along "the Belt and Road" from 2005 to 2018. This figure allows for the discernment of the trend of international students from countries along the belt to China at different academic levels. From the data presented in the figure, it is evident that there has been a notable increase in the number of international students from countries along the route at different academic levels. Overall, the data demonstrates a clear upward trend. The number of academic students has been growing continuously and has exceeded the number of non-academic students

since 2009. In particular, the number of undergraduates and postgraduates has exhibited a significant growth trend. This indicates that the scale and structure of international students from countries along the Belt and Road are expanding and diversifying, and that China's higher education sector is becoming increasingly attractive on an international scale.

A scatterplot can initially ascertain whether a correlation exists between two variables by observing the distribution and trend of the scatter points. This paper aims to ascertain whether economic, educational and socio-cultural factors influence international students to come to China to study. Figure 2 illustrates the scatter plots of the ratio of international students coming to China to the GDP between China and the country of origin, the total trade between the two countries, the probability of obtaining scholarships, and the resources of higher education teachers in China, respectively. Based on the above study, the following hypotheses are proposed:

Hypothesis 1: The economic gap between China and the source countries will inhibit international students from coming to China.

Hypothesis 2: The fostering of economic and trade relations between China and the source countries will serve to encourage international students to come to China.

Hypothesis 3: Scholarships will discourage incoming students.

Hypothesis 4: China's higher education faculty will promote incoming students.

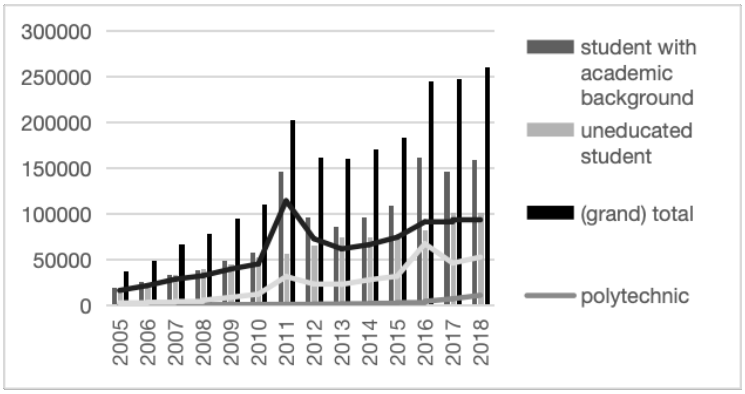

Figure 1 Total Trend of International Students from 53 Countries

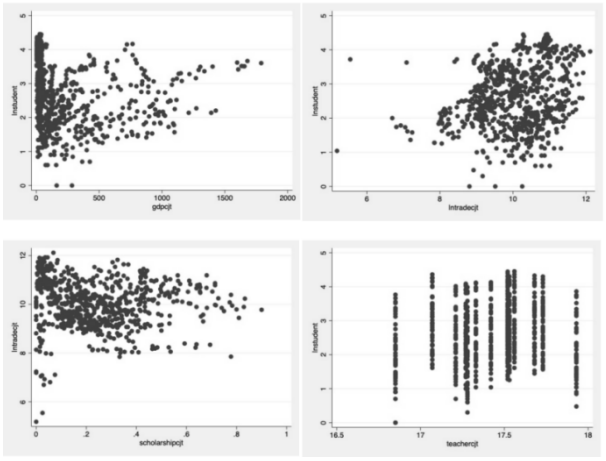

Figure 2 Scatterplot

4. Research design

4.1 Basic model

This paper builds upon existing relevant studies to construct the following econometric model (Beine et al., 2014; Abbott & Silles, 2016):

$$\ln student_{cjt} = \alpha_0 + \beta X_{1cjt} + \beta X_{2cjt} + \beta X_{3cjt} + \beta X_{4cjt} + Z_{ct} + \lambda_t + \varepsilon_{cjt}$$

In the above model, α_0 is a constant term; X_{1cjt} denotes the set of economic influences affecting the inflow of international students from country j to China c in period t; X_{2cjt} denotes the set of socio-cultural influences affecting the inflow of international students from country j to China c in period t; X_{3cjt} denotes the set of educational quality influences affecting the inflow of international students from country j to China c in period t; X_{4cjt} denotes the set of policy influences affecting the inflow of international students from country j to China c in period t; Z_{ct} denotes the set of destination country characteristic variables; λ_t denotes time fixed effects; ε_{cjt} is the random perturbation term.

4.2 Data Sources

This study employs data on international students from countries situated along "the Belt and Road" from 2005 to 2018. As a consequence of the absence of data for certain countries, this paper employs the data of 53 countries along the Belt and Road for the purposes of this study, following the exclusion of invalid data. The data on international students utilised in this paper are derived from *"the Concise Statistics on International Students Coming to China"*, published by the Ministry of Education of China. The data on geographic distance, common borders and language similarity are sourced from the French Center for International Perspectives and Information Studies (*CEPII*). The remaining data are drawn from the websites of the World Bank and the United Nations Trade Database, as well as from *"the Statistical Yearbook of China"*. Furthermore, data on pertinent bilateral agreements pertaining to the mutual recognition of academic degrees and agreements on mutual visa exemptions between China and foreign countries were collated from relevant online sources.

4.2.1 Explained variables

The explanatory variable, Instudentcjt, refers to the number of international students arriving in China from country j in period t. In order to facilitate comparison and analysis of the factors influencing international students from countries along the Belt and Road at different levels and types, the explanatory variables have been subdivided into the following categories: firstly, the inflow of international students with and without degrees; secondly, the inflow of international students with undergraduates, specialists and postgraduates, of which postgraduates are further subdivided into master's degree and doctoral degree students, and postgraduates are further subdivided into master's degree and doctoral degree students.

4.2.2 Explanatory variables

In this paper, the explanatory variables will be selected from three dimensions: economic factors, educational factors and socio-cultural factors.

The initial step is to select the economic factor indicators. Firstly, the ratio of GDP between China and the countries along "the Belt and Road" (gdp_{cjt}) is chosen, which is used to indicate the

difference in economic scale between the two countries. the ratio of GDP$\left(\frac{\text{GDPct}}{\text{GDPjt}}\right)$is used to indicate the difference in economic scale between the two countries, the larger the difference, the better the economic development level of the destination country compared to the country of origin, and the more stable macroeconomic environment, which will be more attractive to the flow of international students (Hou et al., 2020).Secondly, the bilateral exchange rate between China and the countries along "the Belt and Road" ($exchange\_rate_{cjt}$) is selected to represent the exchange rate between the two countries in terms of the foreign currencies that can be exchanged for one unit of RMB. The exchange rate serves to reflect the financial implications of pursuing studies abroad to a certain extent. It can be observed that an increase in the exchange rate level is associated with a rise in the financial burden associated with studying abroad, which in turn reduces the likelihood of students opting to pursue their studies abroad (Zhang et al., 2021). Ultimately, the total value of merchandise trade between China and the countries along "the Belt and Road" ($Intrade_{jt}$) is selected. This figure can be used to indicate the economic and trade cooperation between the two countries, which may in turn reduce the cost of international students' exchanges between them. It can be posited that the more frequent the trade activities between the two countries, the more conducive it is to the inflow of international students. The greater the frequency of trade activities between the two countries, the more favourable the outcome (Wei et al., 2012).

The selection of indicators pertaining to the educational factor. Firstly, the student-teacher ratio in higher education ($teacher_{ct}$) is selected to demonstrate the extent of China's investment in higher education teacher resources. A lower ratio indicates a lighter educational workload for each higher education teacher, suggesting a relatively sufficient allocation of educational resources. This, in turn, is conducive to the improvement of higher education quality and the attraction of international students to China. Secondly, it is necessary to ascertain whether a mutual visa exemption agreement ($visa\_exemption_{cjt}$) exists between China and the country of origin. A dummy variable is employed, taking the value of 1 if a mutual visa exemption agreement was signed in year t and 0 otherwise. The signing of mutual visa exemption agreements between the two countries has two beneficial effects. It makes cross-border travel more convenient and reduces the cost of trust, thereby allowing the effect of trade to continue to expand (Shi & Xiong, 2023). It also reflects the friendly relations between the two countries, thereby providing international students with greater assurance that China is a suitable destination country for study. It is similarly important to ascertain whether the two countries have entered into a bilateral agreement on the mutual recognition of academic qualifications($qualification_{cjt}$). A value of 1 indicates that the two countries have entered into a bilateral agreement on the mutual recognition of academic degrees in the specified year, whereas a value of 0 indicates that such an agreement has not been concluded. The conclusion of a bilateral academic degree mutual recognition agreement serves to reduce the financial and reputational risks associated with pursuing studies in China to a certain extent, while simultaneously providing a comprehensive and systematic guarantee for international students to pursue their studies in China. Finally, the probability of obtaining a scholarship ($scholarship_{cjt}$) is employed to indicate the extent of the Chinese government's support for scholarships. The availability of scholarships is an additional factor to be considered.

Socio-cultural factor indicators are selected. Firstly, bilateral geographic distance is represented by the distance between the capitals of the two countries ($Indistance_{cj}$), the further the distance between the two countries means the higher the mobility cost and then the higher the cost of studying. Secondly, the language similarity ($language_{cj}$) can be used to indicate whether the two countries are culturally close or not, and it is easier for international students to integrate into the local life and thus communicate with each other when they study in countries with high cultural similarity (Wei & Lai, 2017). The second one is language similarity. Finally, the common border ($border_{cj}$), some countries are geographically far away from the capital of China, but there is still a common border between the two countries, the culture of the two countries may still be close to each other, and it is faster to adapt to the life of studying in China, and then it can reduce the cost of studying in China for international students, and if there is a common border between the two countries, then take the dummy variable to be 1, and vice versa, then take 0.

4.3 Benchmark regressions

This paper employs benchmark regressions to empirically analyse the influencing factors of the scale and structure of international students from countries along "the Belt and Road". The analysis is based on data from international students from countries along "the Belt and Road" from 2005 to 2018. The empirical results of models (1) to (5) in Table 1 demonstrate that economic, educational and socio-cultural factors are all influential in determining which international students from countries along "the Belt and Road" choose to study in China.

Firstly, "the total merchandise trade between China and source countries", "the higher education student-teacher ratio" and "the common border" are all found to be significantly positive at the 1% confidence level in all five models. This suggests that the greater the frequency of economic exchanges between China and the source countries, the greater the investment by the Chinese government in higher education faculty resources. Furthermore, the existence of a common border between the two countries is associated with an increased number of students from countries along the Belt and Road pursuing studies in China, which is consistent with both Hypotheses 1 and 4.

Secondly, "the ratio of GDP of the two countries" and "the distance between China and the capital of the source country" are both significantly negative in all five models. This indicates that the gap between the economic development level of the source country and China is shrinking. Furthermore, the closer the distance between the two countries, the more attractive the attraction to international students from countries along the Belt and Road. This suggests that the disparity in economic development between the source country and China is diminishing, and that the proximity of the two countries is a significant factor in the appeal of international students from countries along the Belt and Road. In this regard, "the ratio of GDP between China and the source countries" is consistent with hypothesis 2, although this is contrary to the expectations set out in this paper. This discrepancy may be attributed to the narrowing of the gap between the economic development levels of China and the source countries, as well as the greater financial capacity of foreign students from the source countries to pursue studies in China.

Thirdly, the variables of "bilateral exchange rate" and "language similarity" are not statistically significant in the five models. This indicates that the exchange rate, government investment

in higher education, and language differences between the two countries do not exert any influence on the decision of international students from countries along "the Belt and Road" to pursue their studies in China. This suggests that exchange rates, government investment in higher education and language differences between the two countries have no bearing on the decision of international students from countries along "the Belt and Road" to pursue their studies in China.

The final factor to consider is the impact of "bilateral mutual recognition of academic degrees". This is found to have a markedly positive effect in model (2), which suggests that when China signs bilateral mutual recognition of academic degrees with source countries, it has a beneficial influence on the number of international students from countries along the Belt and Road who choose to study in China. The results for "scholarship opportunities" in models (4) and (5) are significantly negative, which aligns with hypothesis 3. However, this is contrary to the findings of previous studies. The rapid increase in the number of international students from countries along the Belt and Road may have diluted the opportunities for scholarships, leading to a decline in the number of students from these countries. This is contrary to the results of previous studies, which may be explained by the rapid increase in the number of international students from countries along the Belt and Road, resulting in a reduction in the number of scholarships available. Consequently, the attractiveness of scholarships to international students from these countries is diminished. Conversely, the "bilateral academic degree recognition agreement" and "scholarship opportunities" are both significant in model (5), which suggests that education policy factors also exert a considerable influence on the scale and structure of international students from borderline countries. The "bilateral visa exemption policy" is not a significant factor in models (3) and (5), indicating that the existence of a bilateral visa exemption policy between China and the source countries has no discernible impact on the scale and structure of international students from countries along the route.

Table 1 Overall regression results of international students from countries along "the Belt and Road"

	(1)	(2)	(3)	(4)	(5)
gdp_{cjt}	-0.0007***	-0.0006***	-0.0007***	-0.0006***	-0.0006***
	(-7.02)	(-6.90)	(-7.03)	(-6.55)	(-6.50)
$lntrade_{cjt}$	0.3539***	0.3177***	0.3506***	0.3295***	0.2892***
	(6.27)	(5.84)	(6.03)	(6.13)	(5.45)
$exchange\_rate_{cjt}$	0.0000	0.0000	0.0000	0.0000	0.0001*
	(0.72)	(1.37)	(0.75)	(1.41)	(2.20)
$teacher_{cjt}$	2.0740***	1.9328***	2.0752***	1.8957***	1.7706***
	(11.97)	(11.21)	(11.99)	(10.79)	(10.11)
$language_{cj}$	-0.8923***	-0.9268***	-0.8888***	-0.6445**	-0.6804***
	(-4.07)	(-4.42)	(-4.04)	(-3.17)	(-3.48)
$Indistance_{cj}$	-0.0284	-0.2617	-0.0275	0.0898	-0.1359
	(-0.21)	(-1.77)	(-0.20)	(0.75)	(-1.03)
$boundary_{cj}$	1.0480***	0.8791***	1.0529***	1.0060***	0.8564***
	(20.31)	(16.17)	(19.58)	(22.29)	(17.82)
$qualification_{cjt}$		0.3451***			0.3293***
		(8.25)			(8.20)
$visa\_exemption_{cjt}$			-0.0156		-0.0317
			(-0.35)		(-0.74)
$scholarship_{cjt}$				-0.6463***	-0.6201***

				(-6.45)	(-6.00)
_cons	-33.3975***	-30.5084***	-33.3939***	-30.9056***	-28.2423***
	(-9.45)	(-8.75)	(-9.44)	(-8.80)	(-8.12)
Year	yes	yes	yes	yes	yes
N	742	742	742	742	742
adj. R^2	0.620	0.650	0.620	0.667	0.693

Note: t statistics in parentheses* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$, same below

4.4 Robustness tests

In order to verify the reliability of the findings presented in this paper, three methods were selected for robustness testing.

Firstly, in 2010, China enacted the *"Outline of the National Medium- and Long-Term Education Reform and Development Plan (2010-2020)"* and *the Study in China* programme, thereby establishing the objective of becoming the largest study abroad destination in Asia by 2020. To exclude the impact of this policy, the study period was shortened to 2010-2018. The regression results are presented in column (1) of Table 2 and show no significant change compared with the results in Table 1.

Secondly, the shrinkage process was conducted. Each variable in the model is subjected to a two-sided 1% shrinkage treatment, and a regression analysis is conducted after the completion of shrinkage. The regression results are shown in Column (2) of Table 2, which demonstrates that there is no significant change in each explanatory variable in comparison to Table 1. The aforementioned tests demonstrate that the findings of this paper are robust.

Table 2 Robustness test results

	（1）	（2）
gdp_{cjt}	-0.0005***	-0.0006***
	(-5.86)	(-6.50)
$lntrade_{cjt}$	0.2532***	0.2892***
	(3.90)	(5.45)
$exchange\_rate_{cjt}$	0.0000	0.0001*
	(1.23)	(2.20)
$teacher_{cjt}$	3.1351***	1.7706***
	(6.51)	(10.11)
$Indistance_{cj}$	-0.8192***	-0.6804***
	(-4.65)	(-3.48)
$language_{cj}$	-0.3158*	-0.1359
	(-2.09)	(-1.03)
$boundary_{cj}$	0.7831***	0.8564***
	(13.62)	(17.82)
$qualification_{cjt}$	0.3496***	0.3293***
	(6.86)	(8.20)
$visa\_exemption_{cjt}$	-0.0455	-0.0317
	(-0.86)	(-0.74)
$scholarship_{cjt}$	-0.7329***	-0.6201***
	(-6.31)	(-6.00)
_cons	-51.2334***	-28.2423***
	(-5.68)	(-8.12)
Year	yes	yes
N	477	742
adj. R^2	0.670	0.693

Thirdly, in consideration of the potential endogeneity issue between each explanatory variable and the explained variables, this paper incorporates a one-period lag for each explanatory variable prior to conducting the fixed effects regression. Table 3 presents the regression results for the lagged explanatory variables. A comparison of the regression results presented in Table 1 with those in Table 3 reveals that the significance and sign of the influencing factors in the economic, socio-cultural and educational domains are consistent with the findings of the previous study. Therefore, the study is robust and the results are reliable.

Table1 Fixed Effects Regression Results for Explanatory Variables Lagged One Period

	$lnstudent_{cjt}$
$L.gdp_{cjt}$	-0.0006***
	(-6.57)
$L.\ Intrade_{cjt}$	0.2865***
	(5.18)
$L.exchange\_rate_{cjt}$	0.0001
	(1.78)
$L.\ Teacher_{cjt}$	1.6769***
	(10.23)
$Indistance_{cj}$	-0.7909***
	(-3.87)
$L.language_{cj}$	-0.1957
	(-1.39)
$L.boundary_{cj}$	0.8614***
	(16.38)
$L.\ Qualification_{cjt}$	0.3408***
	(7.98)
$L.visa\_exemption_{cjt}$	-0.0219
	(-0.48)
$L.\ Scholarship_{cjt}$	-0.3903***
	(-3.96)
_cons	-26.0815***
	(-8.13)
Year	yes
N	689
adj. R^2	0.660

5. Test of Significance Research design

Article 15 of *China's Higher Education Law* distinguishes between two categories of higher education: academic and non-academic. Article 16, in turn, delineates three subcategories of academic education: specialized education, undergraduate education, and postgraduate education. In light of the aforementioned distinctions, the analysis in this paper categorizes international students coming to China into two principal groups: academic and non-academic students. At the academic level, these are further delineated into specialists, undergraduates, and postgraduates, the latter of which are themselves subdivided into doctoral and master's degree students.

5.1 Based on the perspective of academic and non-academic students

The regression results for academic students among international students coming to China, as shown in Models (1) to (5) in Table 4, indicate that economic, educational and socio-cultural

factors are all significant influences on international students coming to China. The "total merchandise trade between China and the source countries" and "common border" are both found to be significantly positive at the 1% confidence level across all five models, while the "higher education student-teacher ratio" is significantly positive at the 5% confidence level across all five models. The "higher education student-teacher ratio" is found to be significantly positive at the 5% confidence level across all five models. This indicates that the closer the economic and trade collaboration between the two countries, the greater the investment by the Chinese government in higher education faculty resources, and the more proximate the country of origin, the more straightforward it is to attract international students with academic qualifications to China as a destination for their studies. Furthermore, the ratio of GDP between China and the country of origin is significantly negative at the 1% confidence level of the five models. This suggests that the smaller the gap between the two countries in terms of economic development level, the more favourable it is for international students with academic qualifications to come to China to study. The "distance between China and the capital city of the country of origin" is not a significant factor in Model (1), indicating that the distance between the two countries is not a significant factor for academic students. Furthermore, the results indicate that the signing of bilateral academic degree recognition agreements between the two countries has a positive effect on international students with academic degrees who wish to study in China. This is evidenced by the significant positive coefficient at the 1% confidence level in both model (2) and model (5). In contrast, the variable "scholarship opportunities" is not significant in model (4), while the variable "distance between China and the capital city of the country of origin" is not significant in model (4), indicating that these factors do not have a significant effect on the academic students. The variable is significantly negative in models (4) and (5), which is consistent with the previous empirical results.

Table2 Empirical results of influencing factors for academic and non-academic students

	Student With Academic Background					Uneducated Student				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
gdp_{cjt}	-0.0009***	-0.0009***	-0.0009***	-0.0009***	-0.0008***	-0.0003**	-0.0003*	-0.0003**	-0.0003*	-0.0002*
	(-9.86)	(-9.91)	(-9.78)	(-9.51)	(-9.60)	(-2.70)	(-2.46)	(-2.74)	(-2.31)	(-2.20)
lntradecjt	0.2422***	0.2046***	0.2622***	0.2277***	0.2067***	0.4585***	0.4119***	0.4474***	0.4431***	0.3777***
	(5.00)	(4.46)	(5.26)	(4.80)	(4.45)	(6.36)	(5.88)	(6.08)	(6.25)	(5.40)
exchange_ratecjt	0.0001*	0.0001**	0.0001*	0.0001**	0.0001**	0.0001	0.0001**	0.0001	0.0001*	0.0001**
	(2.45)	(3.08)	(2.24)	(2.78)	(3.25)	(1.77)	(2.61)	(1.82)	(2.03)	(3.00)
teachercjt	2.0815***	1.9351***	2.0742***	1.9758***	1.8373***	1.9621***	1.7805***	1.9661***	1.8497***	1.6866***
	(11.31)	(10.55)	(11.28)	(10.82)	(10.09)	(11.55)	(10.62)	(11.62)	(10.90)	(10.12)
languagecj	-1.3386***	-1.3743***	-1.3599***	-1.1917***	-1.2470***	-0.4465*	-0.4908*	-0.4348*	-0.2903	-0.3285
	(-5.73)	(-6.18)	(-5.80)	(-5.17)	(-5.64)	(-2.13)	(-2.48)	(-2.07)	(-1.45)	(-1.73)
Indistancecj	-0.1842	-0.4262**	-0.1897	-0.1142	-0.3500*	0.2100	-0.0900	0.2131	0.2845	-0.0174
	(-1.37)	(-2.95)	(-1.43)	(-0.88)	(-2.55)	(1.22)	(-0.48)	(1.22)	(1.73)	(-0.10)
boundarycj	1.1253***	0.9502***	1.0957***	1.1004***	0.9156***	0.7016***	0.4845***	0.7179***	0.6751***	0.4905***
	(18.95)	(14.48)	(18.09)	(19.30)	(14.99)	(10.38)	(7.64)	(10.32)	(10.37)	(7.81)
qualificationcjt		0.3579***			0.3382***		0.4437***			0.4438***
		(7.44)			(7.00)		(10.06)			(9.94)
visa_exemptioncjt			0.0947*		0.0654			-0.0521		-0.0958*
			(1.98)		(1.39)			(-1.03)		(-2.00)
scholarshipcjt				-0.3831***	-0.3653***				-0.4075***	-0.3671***
				(-4.68)	(-4.50)				(-3.87)	(-3.54)
_cons	-31.0063***	-28.0098***	-31.0286***	-29.5292***	-26.7811***	-34.6636***	-30.9490***	-34.6513***	-33.0926***	-29.5097***
	(-8.55)	(-7.83)	(-8.55)	(-8.28)	(-7.59)	(-9.81)	(-8.90)	(-9.81)	(-9.45)	(-8.56)
Year	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
N	742	742	742	742	742	742	742	742	742	742
adj. R^2	0.605	0.631	0.606	0.618	0.643	0.511	0.565	0.511	0.531	0.584

The empirical results for non-degree students among international students coming to China

are presented in Models (6) to (10) of Table 4. The total merchandise trade between the two countries, the ratio of students to teachers in China's tertiary education sector, and the existence of a common border are all found to have a significant positive impact at the 1% confidence level for all five models. The ratio of GDP between China and the source country is found to be significantly negative at the 5% level of significance in all five models, which is consistent with the previous empirical results. However, the "distance between China and the capital city of the country of origin" is not a significant factor in models (9) and (10), likely due to the shorter study period of non-degree students among international students in China having a less pronounced impact on them. Furthermore, the "bilateral academic degree recognition agreement" is significantly positive in models (7) and (10) at the 1% confidence level, while the "scholarship opportunities" variable is significantly negative in models (9) and (10) at the 1% confidence level. These findings align with those of previous studies.

Table 4 additionally demonstrates that the absolute values of "total bilateral merchandise trade" and "China's higher education student-teacher ratio" are greater in model (5) than in model (10). This suggests that educational factors exert a more pronounced influence on academic students, whereas economic and socio-cultural factors play a more pivotal role in shaping the educational choices of non-academic students.

5.2 Perspectives based on specialist, undergraduate and postgraduate students

In accordance with the findings of the research on academic students, these students can be further categorised into three distinct groups: specialists, undergraduates and postgraduates. The latter group can be further subdivided into those pursuing a master's degree and those pursuing a doctoral degree.

In the first instance, we present the empirical results pertaining to college students, undergraduates and postgraduates. Table 5 presents the empirical results of the influencing factors of college students, undergraduates and postgraduates of international students from the countries along "the Belt and Road". It demonstrates that the influence of economic factors, socio-cultural factors and educational factors on international students with different levels of education varies. The economic, socio-cultural and educational factors exert a differential influence on international students from countries along the Belt and Road, according to the level of education in question. The "total merchandise trade between the two countries", "common border", "resources of Chinese university teachers" and "bilateral academic degree mutual recognition agreement" are all conducive to "the Belt and Road" initiative. All the aforementioned factors are conducive to international students from countries along the Belt and Road pursuing studies at all academic levels in China.

Table3 "Empirical study on the influencing factors of specialized students, undergraduates and postgraduates from countries along the Belt and Road"

	polytechnic					undergraduate student					postgraduate student				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
gdp_{cjt}	-0.0003***	-0.0003***	-0.0003***	-0.0003***	-0.0003***	-0.0011***	-0.0010***	-0.0011***	-0.0010***	-0.0010***	-0.0006***	-0.0006***	-0.0006***	-0.0006***	-0.0006***
	(-4.35)	(-4.20)	(-4.34)	(-4.14)	(-4.08)	(-10.93)	(-10.99)	(-10.86)	(-10.56)	(-10.63)	(-7.04)	(-6.98)	(-6.91)	(-6.96)	(-6.87)
$lntrade_{cjt}$	0.3202***	0.2828***	0.3232***	0.3160***	0.2730***	0.2476***	0.2146***	0.2644***	0.2296***	0.2124***	0.2420***	0.2062***	0.2666***	0.2384***	0.2203***

	(7.75)	(7.26)	(7.63)	(7.69)	(6.75)	(4.88)	(4.39)	(5.03)	(4.67)	(4.34)	(4.82)	(4.36)	(5.10)	(4.73)	(4.43)
exchange_rate$_{cjt}$	0.0002**	0.0002**	0.0002**	0.0002**	0.0002**	0.0000	0.0001	0.0000	0.0000	0.0001	0.0002***	0.0002***	0.0002***	0.0002***	0.0002***
	(2.72)	(3.25)	(2.68)	(2.75)	(3.24)	(0.85)	(1.35)	(0.69)	(1.21)	(1.56)	(5.59)	(6.49)	(5.36)	(5.67)	(6.29)
teacher$_{cjt}$	1.4251***	1.2793***	1.4239***	1.3946***	1.2584***	2.0330***	1.9042***	2.0268***	1.9020***	1.7817***	2.1320***	1.9925***	2.1231***	2.1060***	1.9700***
	(7.27)	(6.51)	(7.26)	(7.07)	(6.37)	(10.10)	(9.37)	(10.08)	(9.49)	(8.81)	(11.88)	(11.11)	(11.85)	(11.74)	(11.01)
language$_{cj}$	-0.8838***	-0.9193***	-0.8871***	-0.8414***	-0.8810***	-1.7447***	-1.7761***	-1.7626***	-1.5626***	-1.6113***	-0.6004***	-0.6345***	-0.6265***	-0.5643***	-0.6201***
	(-5.25)	(-5.81)	(-5.24)	(-4.93)	(-5.46)	(-6.84)	(-7.24)	(-6.88)	(-6.21)	(-6.61)	(-3.56)	(-4.02)	(-3.70)	(-3.35)	(-3.90)
Indistance$_{cj}$	0.8596***	0.6188***	0.8588***	0.8798***	0.6348***	-0.1688	-0.3815*	-0.1734	-0.0820	-0.2860*	0.0537	-0.1768	0.0469	0.0709	-0.1590
	(6.99)	(4.60)	(6.99)	(7.16)	(4.69)	(-1.19)	(-2.55)	(-1.24)	(-0.60)	(-2.01)	(0.39)	(-1.21)	(0.35)	(0.52)	(-1.12)
boundary$_{cj}$	0.5407***	0.3664***	0.5362***	0.5335***	0.3700***	1.2532***	1.0993***	1.2284***	1.2224***	1.0612***	0.9304***	0.7635***	0.8941***	0.9243***	0.7409***
	(5.74)	(3.97)	(5.82)	(5.67)	(4.10)	(21.28)	(17.25)	(20.22)	(22.00)	(17.68)	(17.17)	(11.99)	(15.58)	(16.93)	(11.89)
qualification$_{cjt}$		0.3562***			0.3574***		0.3145***			0.2925***		0.3409***			0.3292***
		(7.26)			(7.03)		(6.10)			(5.72)		(7.49)			(6.98)
visa_exemption$_{cjt}$			0.0145		-0.0307			0.0794		0.0608			0.1160*		0.0744
			(0.29)		(-0.60)			(1.54)		(1.20)			(2.30)		(1.46)
scholarship$_{cjt}$				-0.1105	-0.0824				-0.4749***	-0.4600***				-0.0943	-0.0780
				(-1.85)	(-1.52)				(-4.66)	(-4.46)				(-1.59)	(-1.49)
_cons	-24.2242***	-21.2418***	-24.2276***	-23.7981***	-20.9071***	-28.9794***	-26.3459***	-28.9981***	-27.1484***	-24.7717***	-35.2524***	-32.3982***	-35.2797***	-34.8887***	-32.2123***
	(-6.80)	(-5.98)	(-6.80)	(-6.68)	(-5.87)	(-7.31)	(-6.66)	(-7.31)	(-6.98)	(-6.35)	(-10.57)	(-9.80)	(-10.58)	(-10.47)	(-9.72)
Year	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
N	742	742	742	742	742	742	742	742	742	742	742	742	742	742	742
adj. R^2	0.446	0.487	0.446	0.447	0.487	0.604	0.622	0.605	0.623	0.639	0.567	0.596	0.569	0.567	0.596

The ratio of GDP between China and the source countries suggests that international students of different academic levels from countries along the Belt and Road are more likely to pursue their studies in countries where the costs are lower. The distance between China and the capital city of the source country is only a significant factor for those pursuing specialist qualifications, indicating that undergraduates and postgraduates are not particularly influenced by this aspect. With regard to the educational factors, it can be observed that the ratio of teachers to students in higher education in China has a greater impact on undergraduates and postgraduates, while the availability of scholarships has a greater impact on undergraduates, but not on specialists and postgraduates.

Table4 Empirical results of influencing factors of master's and doctoral students in countries along "the Belt and Road" route

	Master's degree student					PhD student				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
gdp$_{cjt}$	-0.0005***	-0.0005***	-0.0005***	-0.0005***	-0.0005***	-0.0007***	-0.0007***	-0.0007***	-0.0007***	-0.0007***
	(-6.26)	(-6.22)	(-6.13)	(-6.20)	(-6.14)	(-9.61)	(-9.41)	(-9.49)	(-9.61)	(-9.39)
lntrade$_{cjt}$	0.2596***	0.2193***	0.2790***	0.2564***	0.2267***	0.1552***	0.1428***	0.1934***	0.1557***	0.1804***
	(4.99)	(4.52)	(5.17)	(4.92)	(4.47)	(3.85)	(3.60)	(4.55)	(3.83)	(4.22)
exchange_rate$_{cjt}$	0.0001***	0.0002***	0.0001***	0.0001***	0.0002***	0.0002***	0.0002***	0.0002***	0.0002***	0.0002***
	(3.92)	(4.97)	(3.79)	(3.97)	(4.88)	(8.49)	(8.23)	(7.43)	(8.43)	(7.17)
teacher$_{cjt}$	2.1519***	1.9947***	2.1449***	2.1289***	1.9776***	1.7835***	1.7353***	1.7696***	1.7872***	1.7321***
	(12.41)	(11.56)	(12.40)	(12.29)	(11.50)	(10.58)	(10.08)	(10.49)	(10.52)	(10.00)
language$_{cj}$	-0.5708***	-0.6092***	-0.5915***	-0.5388**	-0.5947***	-0.8460***	-0.8578***	-0.8866***	-0.8512***	-0.8951***
	(-3.39)	(-3.90)	(-3.51)	(-3.22)	(-3.79)	(-6.34)	(-6.59)	(-6.61)	(-6.27)	(-6.71)
Indistance$_{cj}$	0.1167	-0.1431	0.1114	0.1320	-0.1295	-0.1684	-0.2481	-0.1789	-0.1709	-0.2449
	(0.86)	(-1.00)	(0.84)	(0.99)	(-0.92)	(-1.26)	(-1.75)	(-1.39)	(-1.28)	(-1.80)
boundary$_{cj}$	0.9394***	0.7514***	0.9108***	0.9340***	0.7377***	0.7260***	0.6683***	0.6697***	0.7269***	0.6265***
	(17.12)	(13.01)	(15.61)	(16.91)	(12.67)	(12.39)	(9.06)	(11.71)	(12.34)	(9.26)
qualification$_{cjt}$		0.3841***			0.3769***		0.1178*			0.0975
		(9.17)			(8.67)		(2.27)			(1.86)

$visa\_exemption_{cjt}$			0.0915		0.0426			0.1801***		0.1665**
			(1.92)		(0.90)			(3.38)		(3.01)
$scholarship_{cjt}$				-0.0836	-0.0610				0.0134	0.0047
				(-1.46)	(-1.22)				(0.21)	(0.08)
_cons	-	-	-	-	-	-	-	-	-	-
	36.0632***	32.8472***	36.0848***	35.7408***	32.6822***	27.8442***	26.8577***	27.8866***	27.8960***	27.0854***
	(-11.13)	(-10.28)	(-11.14)	(-11.04)	(-10.20)	(-9.16)	(-8.67)	(-9.16)	(-9.12)	(-8.66)
time fixed effect	be	be	be	be	be	be	be	be	be	be
N	742	742	742	742	742	742	742	742	742	742
adj. R^2	0.572	0.610	0.573	0.572	0.610	0.516	0.519	0.524	0.515	0.525

Secondly, the discussion turns to master's and doctoral degree students. The empirical results for master's and doctoral degree students among international students from countries along the Belt and Road routes to China are presented in models (1) to (10) in Table 6. Similarly, economic, socio-cultural and educational factors are all significant influences on their decision to study in China. The total amount of merchandise trade between the two countries, the resources of Chinese university teachers, and the common border are all significant factors influencing the decision to study in China for students from countries along the Belt and Road. The total merchandise trade between the two countries, the resources of Chinese university teachers and the common border all have a positive effect on master's degree and doctoral degree students from countries along the Belt and Road. The impact of "China's higher education student-teacher ratio" on educational factors varies. It has a more pronounced effect on master's degree students, while "bilateral academic degree mutual recognition agreement" has a more pronounced effect on master's degree students. The impact of the Bilateral Academic Degree Mutual Recognition Agreement is more pronounced for those pursuing a master's degree, while it exerts a less pronounced influence on those pursuing a doctoral degree. The impact of "access to scholarships" is not statistically significant for either master's or doctoral students.

6.Research findings and policy recommendations

6.1 Research findings

This paper employs data from 53 countries spanning the period from 2005 to 2018 to examine the factors influencing the influx of international students into China. Through empirical investigation, it is evident that economic, educational, and socio-cultural factors collectively exert a significant influence on the scale and composition of international students in China.

In general, the economic disparities between China and the countries of origin, along with the economic and trade exchanges between China and these countries, represent significant economic factors influencing the inflow of international students to China. The shared border between China and these countries, coupled with the geographic distance between them, constitute crucial socio-cultural factors affecting the inflow of international students to China. China's higher education faculty resources are a significant determinant of educational quality. The existence of a bilateral agreement on the mutual recognition of academic degrees between the two countries and the availability of Chinese scholarships are important education policy factors affecting the inflow of international students to China.

With regard to the type of education, it can be observed that educational factors exert a relatively greater influence on the decision of academic students to come to China, whereas economic factors and social and cultural factors play a more prominent role in the decision of non-academic students from countries along the route to study in China. With regard to the level of education,

there are notable differences in the influencing factors of specialists, undergraduates and postgraduates among international students coming to China. Specialists are more concerned about economic factors and socio-cultural factors, whereas among the educational factors, China's higher education teachers' resources exert a more significant influence on undergraduates and postgraduates. Furthermore, the existence of a bilateral agreement on the mutual recognition of academic degrees between the two countries represents an important factor in attracting these three types of international students to come to China for study. The availability of scholarships has a detrimental impact on the likelihood of undergraduates pursuing their studies in China. For those pursuing master's and doctoral degrees, economic and educational factors play a significant role in their decision to study in China. China's higher education faculty resources and the existence of a bilateral agreement on the mutual recognition of academic degrees are particularly influential in attracting master's students to China.

6.2 Policy recommendations

Based on the above research findings, the following policy recommendations are proposed to better attract more and better-quality international students from the countries along “the Belt and Road” to study in China:

Firstly, it is imperative to enhance the provision of scholarships on an ongoing basis. The aforementioned research findings indicate that scholarships have an inhibitory effect on the attraction of international students, particularly undergraduates, from countries along the Belt and Road. The probability of obtaining a scholarship directly influences the willingness to pursue studies in China. In light of the extant policies, such as the Chinese government scholarships, it is possible to consider the involvement of enterprises, social organisations and individuals in the establishment of a variety of scholarship types and formats. This could prove an effective strategy for attracting a greater number of students from countries along the Belt and Road to pursue their studies in China.

Secondly, efforts will be made to further optimise the institutional environment for studying in China and to extend the scope of mutual recognition of bilateral academic degrees. By 2022, China had concluded bilateral academic degree mutual recognition agreements with 53 countries and regions, including 27 countries along the Belt and Road Initiative. Globally, the number of countries with which China has signed bilateral agreements on the mutual recognition of academic degrees is relatively low. It is therefore important to continue to expand the coverage of mutual recognition of academic degrees in countries and regions along “the Belt and Road” in order to overcome the current bottlenecks to educational cooperation and exchanges with the countries along the route. Furthermore, China should proactively advance the implementation of the UNESCO Convention on the Recognition of Qualifications in Higher Education in the Asia-Pacific Region, the Global Convention on Higher Education Qualifications, and other related frameworks. This should include the establishment of a global mutual recognition mechanism for academic degrees, the enhancement of educational qualification frameworks in accordance with international standards, and the continued development of China's educational soft power.

Thirdly, it is imperative that we pursue the continued reinforcement of the internal framework of China's higher education system, coupled with an intensified effort to elevate the global

standing of this sector. The quality of education is a significant factor that impacts academic students, particularly postgraduate students. Therefore, enhancing the strength of China's higher education and establishing China's higher education's competitive advantage in the international student market is an essential component of improving China's higher education competitiveness. Currently, the Chinese government is advancing the development of the "double first-class" initiative, optimising the configuration of academic disciplines and specialisations, and establishing a cadre of highly qualified faculty members. *The double first-class construction initiative* is designed to facilitate the advancement of more universities and academic disciplines in China to the global forefront, thereby enhancing the overall strength of the country's higher education system and raising its international profile. It is essential to consider the construction requirements of the countries along “the Belt and Road” and the needs of international students. The development of a discipline system with Chinese characteristics, the cultivation of first-class faculty and disciplines with international competitiveness, and the attraction of high-level international students to study in China are key objectives.

AUTHOR CONTRIBUTIONS

Li Keyi: Conceptualization; research design; methodology; supervision; project administration; writing – review and editing. Du chuang: Data collection; investigation; questionnaire administration/interview coordination; writing – original draft. Li Zhanguo: Formal analysis; data curation; statistical analysis; visualization; validation.

ACKNOWLEDGEMENTS

The authors would like to thank the participants and interviewees for their valuable contributions to this study. The authors also appreciate the constructive comments provided by anonymous reviewers and the editorial team.

CONFLICT OF INTEREST STATEMENT

The authors declare that there are no commercial or financial relationships that could be construed as a potential conflict of interest.

DATA AVAILABILITY STATEMENT

The data generated and analyzed in this study are available from the corresponding author upon reasonable request. All data will be provided without undue restriction.

Reference

1. NAFSA: Association of International Educators. (2019). New NAFSA data: Despite stagnant enrollment, international students contribute nearly $41 billion to the U.S. economy. NAFSA.

2.Institute of International Education. (2019). Open Doors 2019: Report on international educational exchange. IIE.
3.Zhang, Y., & Li, H. (2021). The development of the internationalization of Australian higher education and its implications]. Journal of Hebei Normal University (Educational Science Edition), (6), 57–67.
4.Department of International Cooperation and Exchange, Ministry of Education of the People's Republic of China. (n.d.). Concise statistics of international students in China. Ministry of Education of the People's Republic of China.
5.Wei, H., Yuan, R., & Lai, D. (2018). An empirical study on the determinants of international students to China: Based on bilateral data between China and 172 origin countries. Educational Research, (11), 76–90.
6.Merga, G. D., Pant, S., & Nikou, S. (2024). Exploring key themes and trends in international student mobility research: A systematic literature review. Journal of Applied Research in Higher Education, 16(3), 843–861.
7.Qu, R., Li, J., & Yang, X. (2016). The impact of cultural identity on the scale of international students coming to China. Economic Survey, (3), 48–53.
8.Wei, H., & Lai, D. (2017). An empirical study on the influence of cultural factors on the transnational mobility of international students: Another discussion on China's strategy to expand the scale of international student education in China. Educational Research, (7), 55–67.
9.Nikou, S., & Luukkonen, M. (2024). The push-pull factor model and its implications for the retention of international students in the host country. Higher Education, Skills and Work-Based Learning, 14(1), 76–94.
10.Nuwer, R. (2024). Why China has been a growing study destination for African students. Nature, 630(8015), S14–S16.
11.Han, L. (2017). How to improve the competitiveness of study abroad education in China: An empirical analysis from the perspective of total scale and academic structure. Journal of Beijing Normal University (Social Sciences), (5), 18–30.
12.Thi, K. K. M., & Huy, N. C. (2023). Attracting international students to a developing Asian country: Push-pull factors for a niche market, the case of a Vietnamese higher education institution. Policy Futures in Education, 21(4), 445–464.
13.Li, G., Zhang, L., & Long, M. (2023). A study on the impact of the establishment of friendship cities on the scale of international students coming to China. Chongqing Higher Education Research, 11(4), 61–78.
14.Beine, M., Noël, R., & Ragot, L. (2014). Determinants of the international mobility of students. Economics of Education Review, 41, 40–54.
15.Abbott, A., & Silles, M. (2016). Determinants of international student migration. The World Economy, 39(5), 621–635.
16.Hou, C., Du, D., Shi, W., & Gui, Q. (2020). Spatio-temporal evolution and factors influencing international student mobility networks in the world. Acta Geographica Sinica, 75(4), 681–694.

17.Zhang, L., Wei, L., Zhu, L., & Li, Z. (2021). Research on the influencing factors of overseas study choice and decision-making: An analysis based on a survey of Chinese international students in Korea. Modern Education Management, (11), 113–119.
18.Wei, H., Wang, C., & Mao, R. (2012). An empirical analysis of international talent mobility and its influencing factors. Management World, (1), 33–45.
19.Shi, B., & Xiong, Z. (2023). Cross-border movement of people, "soft information," and international trade. The Journal of World Economy, (2), 56–84.