

Traditional Dietary Habits and Interprovincial Migration in College Choice: Evidence From Ningxia in China

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Abstract

Purpose: Every September, millions of students—elite human resources—enter higher education in China. This large-scale college-induced migration has substantial impacts on China’s national and local labor markets. This study examines the migration pattern in college choice and admission among the Hui students in China. In doing so, we extend the existing interprovincial migration model by identifying and measuring the role of traditional dietary habits in college migration decisions.

Design/Approach/Methods: This study uses college entrance examination (*Gaokao*) admission data for 10 high school graduation cohorts from 2001 to 2010 in the Ningxia Hui Autonomous Region. These data are used to study the interprovincial migration of the Hui students following their college entrance examination. Ordinary least squares and logit regressions are used to control for other confounding factors, while the method of instrumental variables and placebo group comparison were used to rule out other explanations.

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Findings: Results demonstrate that traditional dietary habits produce geographic inequalities in terms of college opportunities for Hui and other minority group students. First, after controlling for variables such as college entrance examination scores and personal characteristics, results show that the Hui students are more likely to choose an institution closer to their hometown and preferred institutions located in Ningxia and the northwestern provinces rather than the Yangtze/Pearl River Delta regions and coastal provinces. Second, this migration pattern is shaped by the dietary habits of the Hui. Third, the Hui students were more likely to choose institutions in underdeveloped areas, resulting in corresponding welfare losses.

Originality/Value: This study supplements classic college choice literature by documenting a special impact factor of geography previously overlooked by researchers, demonstrating the need to examine the underlying mechanisms of proximity and its significance in college choice. Moreover, the provision of dietary information may have important policy impacts for improved college choice, as well as for human capital investment and poverty alleviation measures in Northwest China.

Keywords

College admissions, demographical welfare, dietary habits, interprovincial migration, Ningxia

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Introduction

The spatial distribution and migration of population groups has been an important concern in economics. The classic human capital theory states that migration is an important component of human capital investment, in addition to formal school education, on-the-job training, and health care (Becker, 1964). From the perspectives of human capital investment and poverty alleviation and development, research on the migration behavior of the poor and other socially vulnerable groups also retains distinct theoretical and policy implications. As the market for higher education has been transformed into a nationally integrated market, many high school graduates migrate across geopolitical borders to enroll in college. This article focuses on the migration caused by the specifics of the higher education system, specifically due to college admission each September in China. The significance of this migration can be summarized in the following three points:

Firstly, the size of the population involved in the migration is huge. In 2010, there were 6.73 million students admitted to Chinese higher education institutions. The number of students who migrated to study in colleges and universities in other provinces reached 1.51 million, accounting for 22.4% of the total enrolled students of the year (Ma & Pan, 2013). If we include the students who migrated to study at institutions in other cities within the same province, this number would be even greater.

Secondly, this population group represents the highest-quality human resource in China. According to reports from two different sources, the average years of schooling received by the working population in China is approximately 10 years (Cai, 2015; Li, 2016). The target population group of this article had already received 12 years of education and would have received at least 15 years of education upon graduation from the corresponding college and university. From this perspective, they can be considered the elites in the Chinese workforce.

Thirdly, the migration of this population group has a certain impact on the labor market in China. Migration due to being admitted to colleges in other regions involves not only years of study away from home, but more importantly, may lead to a high probability of continued living and working in the city where the colleges are located following graduation. Based on a survey in 2009, approximately 64 out of 100 college and university graduates who studied in other cities chose to remain and work in the corresponding city (Ma & Pan, 2013). On that account, migration due to higher education could lead to a direct impact on the labor market.

Students benefit from long-distance transportation to better college choice options; however, not all students benefit equally from this expansion of college opportunities. Disadvantaged students place more weight on proximity, preferring to stay close to home for college, but they often live in communities without college opportunities nearby (Cooke & Boyle, 2011; Hillman, 2016; Hoxby, 2000; Hoxby & Avery, 2013; Kling, 2001; Turley, 2009). Understanding how geographic proximity shapes students' college choices is crucial for designing optimal policy interventions for disadvantaged students. However, much of the college choice literature does not engage with the importance of geography in shaping educational destinations (Hillman, 2016). Existing studies have tended to approach the subject from two perspectives. Some studies have adopted the perspective of individual decision-making and have discussed the role of tuition, quality of education, living facilities, and home-college distance in student selection criteria (Baryla & Dotterweich, 2006; Desjardins, Ahlburg, & McCall, 2006; Jacob, McCall, & Stange, 2018; Long, 2004; Manski & Wise, 1983; Mixon & Yu, 1994; Spiess & Wrohlich, 2010). In addition, a working paper by Loyalka, Wu, and Ye (2016) confirmed that the aforementioned factors are equally important for the decision-making process of Chinese students.

Other studies have adopted a micro perspective and discussed the factors that affected students' interregional migration, such as distance, overall educational resources in the region, and the quality of the institutions (Ali, 2003; Alm & Winters, 2009; Cooke & Boyle, 2011; Sá, 2004; Spiess & Wrohlich, 2010). Hoxby and Avery (2013) show that high-achieving, low-income students favor in-state colleges near their family home. But a follow-up randomized experiment finds that the impacts of distance diminish after these students receive information on better college options (Hoxby & Turner, 2013). This suggests that distance masks unobserved impact factors and students' heterogeneous preferences. Additionally, Cooke and Boyle (2011) and Hillman (2016)

observe that the presence of a college in a given commuting zone correlates with a number of factors that researchers and policymakers often overlook. Liu and Pan (2016) used an extended gravity model to analyze college admission data in 2010 and concluded that the interprovincial migration of students in China mainly involved three motives.

In this article, we contribute to the literature by documenting a particular migration pattern in college choice and admission among the Hui students in China. We extend the existing interprovincial migration model by identifying and measuring the role of traditional dietary habits in college migration decisions. Using detailed administrative data on college entrance examination (*Gaokao*) for 10 high school graduation cohorts, our empirical analysis focuses on the underlying mechanisms of why the Hui students in Ningxia Hui Autonomous Region (Ningxia or NHAR hereafter) have dramatically different migration patterns than the Han students (Han is the largest ethnic group in China). We show that traditional dietary habits produce geographic inequality of college opportunities for the Hui and other minority group students.

The differences in migration patterns can be illustrated using location quotients, a concept commonly used in economic geography. For example, if we assume that the proportion of the Hui students from the total number of students in Ningxia is N in a given year, and the proportion of the Hui students from Ningxia (Ningxia Hui students) who are admitted to province i is M_i , then the location quotient is $Q_i = M_i/N$. If $Q_i > 1$, then more Hui students are aggregated in i . For example, in 2010, a total of 37,075 students from Ningxia were admitted to higher education institutions, and 23.11% of them were the Hui students. The number of students who were admitted to these institutions from Gansu Province was 389, and 32.39% of them were Hui. Thus, the location quotient of the Hui students in Gansu was 1.40, which shows that Gansu is an aggregation area of the Hui students.

Table 1 illustrates the distribution of the average location quotients of Ningxia Hui students in various provinces between 2001 and 2010.¹ It can be seen that, when excluding students who were admitted to the specialized institutions and preparatory programs for ethnic minorities (I&PP-EM), six provinces had a location quotient greater than 1, including Ningxia (1.41), Beijing (1.40), Gansu (1.23), Xinjiang (1.20), Qinghai (1.07), and Shaanxi (1.05). When including the students who were admitted to the specialized I&PP-EM, four provinces had a location quotient greater than 1, including Gansu (2.05), Qinghai (1.75), Ningxia (1.44), and Beijing (1.38). The results showed that, with the exception of Beijing, the majority of the aggregation provinces of the Hui students were located in Northwest China.

Figure 1 shows the trends of the changes in the location quotients over time. We have merged the provinces into the Greater Administrative Areas. It can be seen from Figure 1 that the location quotients of Northwest China were above 1 during the period of 2001–2010, while the majority of

Table 1. Average location quotients of Ningxia Hui students by province (2001–2010).

The Greater Administrative Areas ^a	Province with location quotient greater than 1	
	Specialized I&PP-EM students excluded	Specialized I&PP-EM students included
North China	Beijing (1.40)	Beijing (1.38)
Northeast China	None	None
East China	None	None
Central and South China	None	None
Southwest China	None	None
Northwest China	Ningxia (1.41), Gansu (1.23), Xinjiang (1.20), Qinghai (1.07), and Shaanxi (1.05)	Gansu (2.05), Qinghai (1.75), and Ningxia (1.44)

Data source. The data were calculated based on the statistics of the college entrance examination results of NHAR from 2001 to 2010.

Note. NHAR = Ningxia Hui Autonomous Region.

^aThe Greater Administrative Areas were the now-defunct top-level administrative divisions in China, and are still used for some statistics purposes. In these informal administrative divisions, North China includes Beijing, Tianjin, Hebei, Shanxi, and Inner Mongolia; Northeast China includes Liaoning, Jilin, and Heilongjiang; East China includes Shanghai, Jiangsu, Zhejiang, Anhui, Fujian, Jiangxi, and Shandong; Central and South China include Henan, Hubei, Hunan, Guangdong, Guangxi, and Hainan; Southwest China includes Chongqing, Sichuan, Guizhou, Yunnan, and Tibet; and Northwest China includes Shaanxi, Gansu, Qinghai, Ningxia, and Xinjiang.

the other areas did not reach this level. On that account, the aggregation of the Hui students in Northwest China appears to be a persistent phenomenon.

However, the question as to the causes of such differentiated migration patterns between the Hui students and other students remains to be explored. This study hypothesized that such differentiation is caused by the differences in dietary habits between the Hui and Han people. Hence, we adopted a series of methods to test the hypothesis. The results showed that the special dietary habits indeed were the cause of the aggregation of Ningxia Hui students in the northwestern provinces and their reduced willingness to choose institutions in coastal provinces (particularly the Yangtze River Delta and Pearl River Delta regions). In addition, such a preference has caused certain welfare losses for them.

This article is structured as follows: The second section introduces the traditional dietary habits of the Hui people. The third section describes data and empirical methods. The fourth section discusses the location characteristics of the Hui students' migration. The fifth section explores the underlying causes of the migration patterns of the Hui students. The sixth section calculates the corresponding welfare losses. The seventh section presents conclusions.

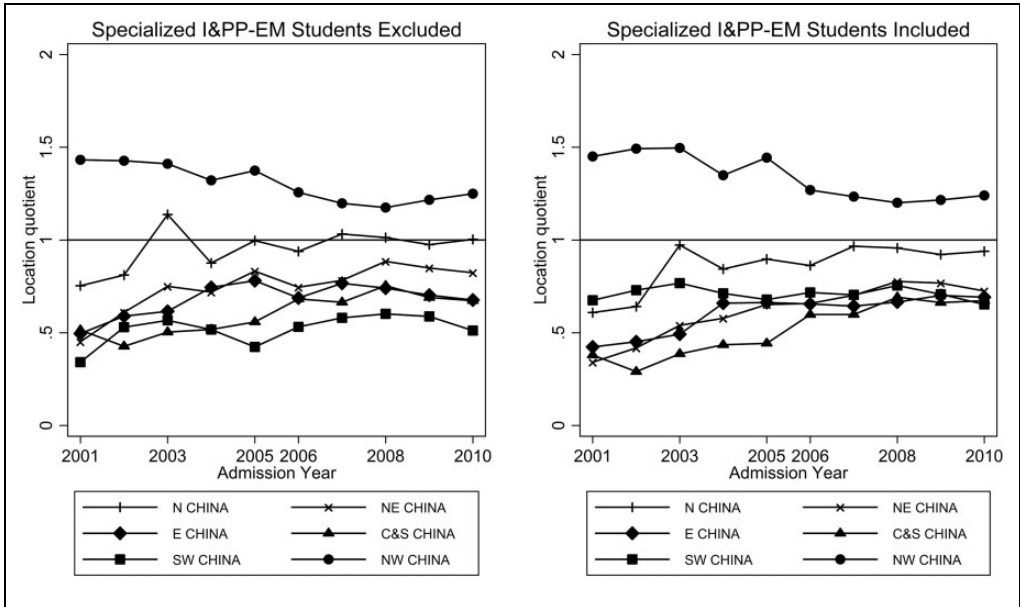


Figure 1. Changes in the location quotients of Ningxia Hui students by Greater Administrative Areas (2001–2010). *Data source.* The data were calculated based on the statistics of the college entrance examination results of NHAR from 2001 to 2010. NHAR = Ningxia Hui Autonomous Region; I&PP-EM = institutions and preparatory programs for ethnic minorities.

The traditional dietary habits of the Hui people

Due to tradition, the Hui people maintain dissimilar dietary habits compared with the Han people. Specifically, the Hui are forbidden to consume pigs, horses, mules, donkeys, dogs, as well as carrion and animal blood. In addition, they are forbidden to eat birds and beasts that are considered “Haram” (such as predator animals possessing fangs, birds with talons, and the majority of reptiles). Furthermore, all animals, regardless of being cattle, sheep, camels, or poultry, are required to be slaughtered with the presence of an akhoond or a Muslim missionary referencing the name of Allah; otherwise, the animals cannot be consumed.² The food that is permitted to be eaten by the Hui is commonly called “*Qingzhen* (Halal)” food. As such, the diets of the Hui people are similar to that of several other ethnic minorities in China, such as Uighurs, Kazakhs, Dongxiangs, Kyrgyzs, Salars, Chinese Tajiks, Uzbeks, Bonan people, and Chinese Tatars.³

In fact, the majority of the ethnic groups that have these similar dietary habits are concentrated in the northwestern areas of China. According to the 2010 Chinese Census conducted by the National Bureau of Statistics of China,⁴ four of the top five provinces, except for Henan (0.97 million), that had ethnic minorities with similar dietary habits were in Northwest China: Xinjiang

(12.71 million), Ningxia (2.18 million), Gansu (1.84 million), and Qinghai (0.95 million). However, the central and eastern areas, particularly the coastal regions alongside the Yangtze/Pearl River Delta, have a much smaller population that have such dietary habits. To many Hui people, migrating to the central and eastern areas and the coastal regions may lead to difficulties in maintaining the specific diet restrictions.

This article discusses how traditional dietary habits affect the location choices of the Hui students when selecting their desired higher education institutions. Prior to the quantitative analysis, we collected some qualitative evidence supporting the hypothesis that the Hui students are less likely to choose to migrate out of Northwest China because of their traditional dietary habits. The Hui students are highly concerned that their target colleges are not able to provide halal food. As far back as 20 years ago, research demonstrated that “daily habits” (particularly dietary habits) were one of the most important factors that concerned the Hui students during college choice (Nan, 1997). In 2015, the national news app *The Paper* (or *Pengpai* in Chinese) featured a column entitled “*Ma Teng Shi Qu*,” in which Ma Teng, a Hui student from Xinjiang, answered readers’ questions relating to the traditions and customs of the Hui people. When asked about the difficulties in finding appropriate food in institutions outside of their hometown, Ma Teng replied, “In fact, when you first fill in the application form for the institutions, one of the major criterion is to make sure that they have a halal canteen.”⁵ In the school forums and various question-and-answer websites such as *Zhihu* (zhihu.com) and *Iask* (iask.com), questions regarding finding halal food in a location and university are quite common among prospective college students.⁶⁻⁹ In addition, such questions are usually asked during the period prior to and following the college entrance examination. There are also cases in which students were not able to find halal food and had to report to the school management team.¹⁰

On the supply side, colleges that recruit Muslim students, or intend to recruit more students from the western areas, have tended to establish halal canteens dedicated to these students. For example, the Three Gorges Vocational College of Electric Power claims that “understanding the dining situation of the Hui students and resolving their diet-related problems in a timely manner is of great significance to the smooth implementation of the college’s strategy of expanding the enrollment of students from the western areas.”¹¹ The Hunan Institute of Science and Technology has also established a halal canteen for the Hui students. “Receiving such attention and care from the school, the Hui students have expressed their resolution to study hard and recommend the institute to more students from their villages.”¹² In recent years, the Hubei University of Technology has also constructed a halal canteen due to the recruitment of Hui students.¹³

In recent years, all the Chinese colleges have made tremendous efforts to respect and cater to the dietary habits of these minority students (e.g., the halal canteens), which was formally required by the Ministry of Education.^{14,15} However, students may lack this information and

have the belief that their dietary habits may not be well accompanied in colleges outside the northwestern areas. Moreover, the services provided by colleges may only meet the minimum requirements/preferences of the Hui students, which makes them still less likely to choose colleges outside Northwest China.

Research design

Data sources

The main data of this article, provided by the Department of Education in Ningxia, include administrative information in college entrance examination (*Gaokao*). Specifically, information such as ethnic groups, gender, academic orientation (arts or science), senior high schools that the students graduated, birthplaces, *hukou* (household registration), total score of the college entrance examination, the institutions to which the students were admitted, and the major applied to of all students from 2001 to 2010 were obtained. Between 2001 and 2010, 443,891 students from Ningxia participated in the college entrance examination, of which 91,304 were the Hui students (20.57%). Moreover, 277,463 students were admitted to higher education institutions, of which 59,182 were the Hui students (21.33%).

This article systematically compiles the information of all involved institutions. Using the summary of changes in higher education institutions provided by the Ministry of Education, we processed the data of institutions that have undergone a rename and merger since 2001 and updated their names according to the List of Higher Education Institutions in China issued by the Ministry of Education in 2016. Next, the names of the institutions provided by the Department of Education in Ningxia were compared to the List of Higher Education Institutions in China (2016) to obtain the locations of the institutions. Thus, the migration status of the students (whether they stayed in Ningxia, Northwest China, coastal provinces, or Yangtze/Pearl River Delta regions) was obtained.¹⁶

A further comparison of other data between various sources yielded information related to the students, such as the distance between the institutions and students' hometowns. The specific measurement and operational definitions of the variables are as follows:

The distance between the institution and the student's hometowns (home-college distance) was mainly obtained through Baidu Maps (map.baidu.com). To simplify the measuring process, the home-college distance was defined as the driving distance (in kilometers) between Yinchuan (the provincial capital of Ningxia) and the capital of the province in which the institution was located. Since Ningxia covers a relatively small area, the above simplification was unlikely to lead to notable differences in the results. To take a student from Guyuan, Ningxia, who was admitted to Xiamen University as an example, the driving distance between Guyuan and Xiamen (Fujian Province) is 2,154.6 km, while the driving distance from Yinchuan to Fuzhou (the capital of Fujian Province) is 2,360.6 km. The difference between the two measurements is not distinctive.

The gross domestic product (GDP) per capita of the province that the institution was located in and the GDP per capita of the corresponding provincial capital were obtained from the online database of the National Bureau of Statistics (data.stats.gov.cn) and the China City Statistical Yearbook, respectively. In cases when the GDP per capita was not reported directly, the GDP and population of the corresponding provinces and cities were used to calculate the GDP per capita.

The average years of schooling and life expectancy of the province that each institution was located in were obtained from the *China Statistical Yearbook* and *China Health Statistics Yearbook*, respectively. However, in 2001 and 2010, the average years of schooling were not reported in the Yearbook due to the national census being conducted. A linear extrapolation method was used instead to process the missing data. In addition, since the life expectancy data were limited to the years the national census was conducted, the linear interpolation method was adopted to obtain the missing data based on the data from the 2000 and 2010 censuses.

The Human Development Index (HDI) of the province that each institution was located in and the corresponding provincial capital were obtained from *China National Human Development Report 2016: Social Innovation for Inclusive Human Development* (UNDP China and Development Research Center of the State Council of China, 2016) and *China Sustainable Cities Report 2016: Measuring Ecological Input and Human Development* (UNDP China, 2016).

Since we focus here on the location choices of institutions among students who were admitted to higher education institutions, the data of students who failed the examinations or were not admitted to any higher education institutions were not included. In addition, the original data also included military colleges (such as Shenyang Artillery Academy), armed police colleges (such as Kunming Command Academy of Armed Police Force), and adult colleges (such as Tianjin Radio and TV University), institutions that were not located in Chinese mainland (such as the Chinese University of Hong Kong), and schools that did not belong to the higher education system (such as Ningxia Tongxin Arabic Language School). Considering the special characteristics of these schools, they were excluded from the final data. Following the screening and exclusion process, the data of 274,220 students were included in the study, of which 58,426 were the Hui students (21.31%).

Descriptive statistics

The Hui students tend to aggregate in Northwest China, which has three important economic implications. (1) Since NHAR is located in Northwest China, the aggregation of the Hui students in Northwest China indicates that the institutions that the Hui students selected were closer to Ningxia; hence, the home-college distance tended to be shorter. (2) Since Northwest China is an inland area, the aggregation of the Hui students in Northwest China indicates that the proportion of the Hui students who migrated to the coastal provinces and Yangtze/Pearl River Delta regions was relatively low. (3) The coastal provinces and the Yangtze/Pearl River Delta regions are the

forefront of the economic reform in China; hence, they are more economically developed and open. The college migration choice of the Hui students concentrating in Northwest China indicates that these students are more likely to “miss out on” opportunities from the most prosperous regions of China.

Table 2 provides descriptive statistics by ethnic groups. There are substantial differences between the Han and Hui students in terms of home–college distance, location of the institution (Ningxia, Northwestern China, Yangtze/Pearl River Delta regions, and coastal areas).¹⁷

The upper part of Table 2 excludes the data of students admitted to specialized I&PP-EM. The average home–college distance of the Hui students (659.4 km) was noticeably shorter than that of the Han students (906.3 km); the percentage of the students selecting Ningxia and northwest provinces was noticeably greater among the Hui students (0.502 and 0.633, respectively) than among the Han students (0.351 and 0.468, respectively); and the percentage studying in the Yangtze/Pearl River Delta regions and coastal areas was noticeably smaller among the Hui students (0.0500 and 0.130, respectively) than among the Han students (0.0677 and 0.176, respectively). However, in terms of the mean of the GDP per capita and HDI of the provinces (and provincial capitals) in which the institutions were located, no apparent differences were observed. In fact, the GDP per capita and HDI of the provinces (and provincial capitals) that the institutions of the Hui students were located in appeared to be slightly higher. These findings could be due to omitted variables. Hence, multiple regression analysis was used to further examine the data.

The lower part of Table 2 included the data of students who were admitted to the specialized I&PP-EM. The results were similar.

Empirical methods

The empirical analysis was designed as follows:

In the first step, a descriptive analysis of the characteristics of interprovincial migration of the Hui students was conducted. The purpose was to prove that, when other conditions hold equal, the home–college distance of the Hui students is shorter than that of the Han students, and they are more likely to choose institutions that are located in Ningxia and northwestern provinces and less likely to choose institutions that are located in coastal areas and Yangtze/Pearl River Delta regions. The corresponding equation of the model is

$$Y_{it} = \beta_0 + \beta_1 Hui_{it} + \beta_2 Minority_other_{it} + \beta_3 Urban_{it} + \beta_4 Track_{it} + \beta_5 CEE_{it} + \beta_6 Non-repeaters_{it} + \beta_7 Year_t + u_{it} \quad (1)$$

where Y is the dependent variable (DV). In the first regression analysis, the *home–college distance* (in kilometers and in logarithm of kilometers) was the DV, and ordinary least squares was used; in the second regression analysis, *NHAR* and *northwestern provinces* were the DVs;

Table 2. Descriptive statistics.

Variables	Hui students			Han students		
	Observation	Mean	Standard deviation	Observation	Mean	Standard deviation
Students from specialized I&PP-EM excluded						
Gender (male = 1)	41,473	0.533	0.499	210,628	0.503	0.500
Academic orientation (science = 1)	41,473	0.648	0.478	210,628	0.681	0.466
Household registration (urban = 1)	41,473	0.438	0.496	210,628	0.500	0.500
Retake students (students who retake the exam = 1)	41,473	0.716	0.451	210,628	0.594	0.491
Admission score	41,473	417.5	90.26	210,628	414.9	85.79
Home-college distance	41,473	659.4	772.9	210,628	906.3	793.1
NHAR (Ningxia = 1)	41,473	0.502	0.500	210,628	0.351	0.477
Northwestern provinces (northwest = 1)	41,473	0.633	0.482	210,628	0.468	0.499
Yangtze/Pearl River Delta (Y/P River Delta = 1)	41,473	0.0500	0.218	210,628	0.0677	0.251
Coastal provinces (coastal = 1)	41,473	0.130	0.337	210,628	0.176	0.381
GDP per capita of the province of the college	41,473	20,704	14,345	210,628	19,593	13,702
GDP per capita of the capital of the province of the college	41,473	36,452	16,606	210,628	36,492	17,127
HDI of the province of the college	41,473	0.748	0.0418	210,628	0.750	0.0400
HDI of the capital of the province of the college	41,473	0.775	0.0297	210,628	0.779	0.0308
Students from specialized I&PP-EM included						
Gender (male = 1)	58,426	0.518	0.500	210,628	0.503	0.500
Academic orientation (science = 1)	58,426	0.635	0.481	210,628	0.681	0.466
Household registration (urban = 1)	58,426	0.432	0.495	210,628	0.500	0.500
Retake students (students who retake the exam = 1)	58,426	0.702	0.457	210,628	0.594	0.491
Admission score	58,426	422.0	83.50	210,628	414.9	85.79
Home-college distance	58,426	593.2	744.3	210,628	906.3	793.1
NHAR (Ningxia = 1)	58,426	0.534	0.499	210,628	0.351	0.477
Northwestern provinces (northwest = 1)	58,426	0.667	0.471	210,628	0.468	0.499

(continued)

Table 2. (continued)

Variables	Hui students			Han students		
	Observation	Mean	Standard deviation	Observation	Mean	Standard deviation
Yangtze/Pearl River Delta (Y/P River Delta = 1)	58,426	0.0420	0.200	210,628	0.0677	0.251
Coastal provinces (coastal = 1)	58,426	0.106	0.308	210,628	0.176	0.381
GDP per capita of the province of the college	58,426	19,876	14,158	210,628	19,593	13,702
GDP per capita of the capital of the province of the college	58,426	35,701	16,419	210,628	36,492	17,127
HDI of the province of the college	58,426	0.745	0.0421	210,628	0.750	0.0400
HDI of the capital of the province of the college	58,426	0.774	0.0289	210,628	0.779	0.0308

Note. NHAR = Ningxia Hui Autonomous Region; I&PP-EM = institutions and preparatory programs for ethnic minorities; GDP = gross domestic product; HDI = Human Development Index.

and in the third regression analysis, *coastal provinces* and *Yangtze/Pearl River Delta* were the DVs, and the logit model was used. *i* symbolizes a specific student, and *t* symbolizes a specific admission year.

Hui indicates whether the student was of Hui ethnicity and *Minority_other* indicates whether the student was from other ethnic minority groups. In this study, the Han students were used as the reference group. *Urban* indicates whether the student had an urban *hukou*. *Track* indicates whether the student was in STEM track (non-STEM track as reference). *CEE* indicates the college entrance examination score of the student (including any extra points added due to various reasons). *Non-repeaters* indicates whether the student is freshly graduated from senior high school as students who retake the college entrance examination may have different college choice behaviors than non-repeaters. *Year* is a set of dummy variables used to control unobservable time effects, such as the sudden expansion of enrollment of students from Ningxia in a remote institution in a given year.

In the second step, the causes of the interprovincial migration pattern of the Hui students were explored. Based on previous field observations and interviews, we hypothesized that dietary habits were the main motive for the migration pattern of the Hui students. This hypothesis was then tested from three perspectives:

Firstly, the disadvantaged economic status of the Hui people could influence the migration of the Hui students. Therefore, we further controlled for the financial status of the students' family to examine the significance level of the estimated coefficient of *Hui*. Since the data provided by the

Department of Education in Ningxia did not include the annual household income of the students, this study introduced the per capita GDP of the county where the student's hometown was located (hometown county) as a proxy variable. The corresponding equation of the model is as follows

$$Y_{it} = \beta_0 + \beta_1 Hui_{it} + \beta_2 Minority_other_{it} + \beta_3 Urban_{it} + \beta_4 Track_{it} + \beta_5 CEE_{it} + \beta_6 Non-reapters_{it} + \beta_7 Year_t + \beta_8 County_gdppc_i + u_{it} \quad (2)$$

where *County_gdppc* is the GDP per capita of students' hometown county.

Secondly, other unknown and unobservable variables could cause the Hui students' migration patterns. To eliminate such potential bias, we used instrumental variable methods by employing several instrumental variables that were related to *Hui*, but not related to the DVs (such as home-college distance and the location variables of the institution). The instrumental variables included the proportion of the Hui population in the students' hometown county and the proportion of cattle and sheep from within the general livestock production of the county.

Thirdly, the data from Guangxi Zhuang Autonomous Region (GZAR) were used as a placebo test of whether the Zhuang students showed a similar migration pattern to that of the Hui students. The Zhuang people do not have similar restricted dietary habits; their dietary habits are almost identical to those of the Han people in Guangxi. For that reason, an insignificant coefficient of *Zhuang* could suggest that the differences in the migration pattern between the Hui and Han students are caused by the Hui people's dietary habits rather than them being an ethnic minority group.

In the last step, the welfare losses due to the interprovincial migration pattern of the Hui students were calculated. Based on equation (1), this study used the GDP per capita of the provinces in which the institutions were located and the corresponding provincial capital, the average years of schooling and life expectancy of the corresponding provinces, and the HDI of the corresponding province and provincial capitals as the DVs individually to test the regression results. Negative coefficients of *Hui* suggest that the interprovincial migration of the Hui students could lead to welfare losses.

The interprovincial migration of the Hui students: Characteristics

Table 3 presents the regression results based on equation (1), with the home-college distance and the logarithm of home-college distance as the DVs. The results showed that the home-college distance of the Hui students was shorter than that of the Han students, which was consistent with the findings of the descriptive analysis.

Specifically, the DVs of Models A1 and A2 were the home-college distance and those of Models A3 and A4 were the logarithm of the home-college distance. Models A1 and A3 did not include the data of the students who were admitted to the specialized I&PP-EM, while Models A2

Table 3. Regression results of home–college distance.^a

Variables	(A1)	(A2)	(A3)	(A4)
	Home–college distance	Home–college distance	Logarithm of home–college distance	Logarithm of home–college distance
Hui	−250.17 (3.99)***	−326.83 (3.39)***	−1.13 (0.02)***	−1.44 (0.02)***
Other ethnic minorities	−8.14 (12.37)	−102.80 (10.69)***	−0.13 (0.05)**	−0.51 (0.05)***
Gender	132.59 (3.08)***	129.64 (2.95)***	0.65 (0.01)***	0.63 (0.01)***
Household registration	91.17 (3.05)***	94.66 (2.93)***	0.42 (0.01)***	0.44 (0.01)***
Academic orientation	30.14 (3.36)***	30.41 (3.20)***	0.19 (0.01)***	0.18 (0.01)***
Admission score (10)	25.50 (0.16)***	25.76 (0.16)***	0.13 (0.00)***	0.13 (0.00)***
Non-retake students	60.56 (3.16)***	65.24 (3.03)***	0.34 (0.01)***	0.37 (0.01)***
Constant	−415.48 (10.07)***	−432.98 (9.65)***	−1.66 (0.04)***	−1.87 (0.04)***
Observation	255,920	274,220	255,920	274,220
R ²	.11	.12	.14	.14

^aThe figures in the brackets are the robust standard errors.

* $p < .1$. ** $p < .05$. *** $p < .01$.

and A4 included these data. In Models A1 and A2, the regression coefficients of *Hui* were −250.17 and −326.83, respectively, indicating that, compared with the Han students, the average home–college distance of the Hui students was shorter by 250.17 and 326.83 km, respectively. In Models A3 and A4, the regression coefficients of *Hui* were −1.13 and −1.44, respectively, indicating that the average home–college distance of the Hui students was closer than that of the Han students by 113% and 144%, respectively. All findings were statistically significant ($p < .01$).

In addition, the coefficients of the other ethnic minority groups (relative to the Han students) were −8.14, −102.80, −0.13, and −0.51, respectively, suggesting that being a student from an ethnic minority group has a negative impact on the home–college distance ($p < .01$), but in a much smaller magnitude compared with the Hui students. The coefficients of male students (relative to female students) were 132.59, 129.64, 0.65, and 0.63, respectively. The coefficients of urban *hukou* (relative to rural *hukou*) were 91.17, 94.66, 0.42, and 0.44, respectively. The coefficients of the students who chose science as their academic orientation (relative to liberal arts) were 30.14, 30.41, 0.19, and 0.18, respectively. The coefficients of the score received in the college entrance

Table 4. Regression results of NHAR and northwestern provinces.^a

Variables	(B1)	(B2)	(B3)	(B4)
	NHAR	NHAR	Northwestern provinces	Northwestern provinces
Hui	0.43 (0.01)***	0.55 (0.01)***	0.46 (0.01)***	0.58 (0.01)***
Hui: dy/dx	0.15 (0.00)***	0.18 (0.00)***	0.17 (0.00)***	0.21 (0.00)***
Other ethnic minorities	0.05 (0.02)**	0.21 (0.02)***	0.01 (0.02)	0.16 (0.02)***
Gender	-0.27 (0.01)***	-0.26 (0.01)***	-0.23 (0.01)***	-0.23 (0.01)***
Household registration	-0.18 (0.01)***	-0.18 (0.01)***	-0.21 (0.01)***	-0.22 (0.01)***
Academic orientation	-0.09 (0.01)***	-0.08 (0.01)***	-0.07 (0.01)***	-0.07 (0.01)***
Admission score	-0.05 (0.00)***	-0.05 (0.00)***	-0.05 (0.00)***	-0.05 (0.00)***
Non-retake students	-0.17 (0.01)***	-0.18 (0.01)***	-0.10 (0.01)***	-0.11 (0.01)***
Constant	2.22 (0.02)***	2.30 (0.02)***	2.29 (0.02)***	2.35 (0.02)***
Observation	255,920	274,220	255,920	274,220

Note. NHAR = Ningxia Hui Autonomous Region.

^aThe figures in the brackets are the robust standard errors.

* $p < .1$. ** $p < .05$. *** $p < .01$.

examination (10 points) were 25.50, 25.76, 0.13, and 0.13, respectively. The coefficients of the non-retake students (relative to the retake students) were 60.56, 65.24, 0.34, and 0.37, respectively. All these factors were found to have a positive impact on the home-college distance ($p < .01$).

Table 4 presents the regression results based on equation (1), with *NHAR* and *northwestern provinces* as the DVs. The results showed that the probability of the Hui students choosing an institution in NHAR and northwestern provinces was higher than that of the Han students, which was consistent with our hypothesis and the findings of the descriptive analysis.

Specifically, the DVs of Models B1 and B2 were *NHAR* and that of Models B3 and B4 were *northwestern provinces*. Models B1 and B3 excluded the data of the students who were admitted to the specialized I&PP-EM, while Models B2 and B4 included the corresponding data. In addition, the probit regression was adopted to estimate the regression results. In Models B1 and B2, the coefficients of *Hui* were 0.43 and 0.55, respectively, and the marginal effects were 0.15 and 0.18, respectively, indicating that the probability of the Hui students choosing an institution in NHAR was greater than that of the Han students by 15% and 18%, respectively. In Models B3 and B4, the coefficients of *Hui* were 0.46 and 0.58, respectively, and the marginal effects were 0.17 and 0.21, respectively, indicating that the probability of the Hui students choosing an institution in

Table 5. Regression results of Yangtze/Pearl River Delta regions and coastal provinces.^a

Variables	(C1)	(C2)	(C3)	(C4)
	Yangtze/Pearl River Delta	Yangtze/Pearl River Delta	Coastal provinces	Coastal provinces
Hui	-0.21 (0.01)***	-0.29 (0.01)***	-0.23 (0.01)***	-0.36 (0.01)***
Hui: dy/dx	-0.02 (0.00)***	-0.03 (0.00)***	-0.05 (0.00)***	-0.08 (0.00)***
Other ethnic minorities	0.07 (0.03)**	-0.05 (0.03)*	0.07 (0.02)***	-0.08 (0.02)***
Gender	0.03 (0.01)***	0.04 (0.01)***	0.08 (0.01)***	0.09 (0.01)***
Household registration	0.31 (0.01)***	0.31 (0.01)***	0.29 (0.01)***	0.28 (0.01)***
Academic orientation	0.10 (0.01)***	0.10 (0.01)***	0.11 (0.01)***	0.11 (0.01)***
Admission score	0.04 (0.00)***	0.04 (0.00)***	0.03 (0.00)***	0.03 (0.00)***
Non-retake students	0.10 (0.01)***	0.10 (0.01)***	0.07 (0.01)***	0.08 (0.01)***
Constant	-3.74 (0.03)***	-3.76 (0.03)***	-2.64 (0.02)***	-2.66 (0.02)***
Observation	255,920	274,220	255,920	274,220

^aThe figures in the brackets are the robust standard errors.

* $p < .1$. ** $p < .05$. *** $p < .01$.

northwestern provinces was greater than that of the Han students by 17% and 21%, respectively. All findings were statistically significant ($p < .01$).

Moreover, the coefficients of other ethnic minority groups (relative to the Han students) were 0.05, 0.21, 0.01, and 0.16, respectively, suggesting that being a student from an ethnic minority group has a positive impact on one's selection of institutions in Ningxia and northwestern provinces ($p < .01$). The coefficients of male students (relative to female students) were -0.27, -0.26, -0.23, and -0.23, respectively. The coefficients of urban *hukou* (relative to rural *hukou*) were -0.18, -0.18, -0.21, and -0.22, respectively. The coefficients of students who chose science as their academic orientation (relative to liberal arts) were -0.09, -0.08, -0.07, and -0.07, respectively. The coefficients of the score received in the college entrance examination (10 points) were -0.05, -0.05, -0.05, and -0.05, respectively. The coefficients of the non-retake students (relative to retake students) were -0.17, -0.18, -0.10, and -0.11, respectively. All these factors were found to have a negative impact on students' selection of institutions in Ningxia and northwestern provinces ($p < .01$).

Table 5 exhibits the regression results based on equation (1), with *Yangtze/Pearl River Delta* and *coastal provinces* as the DVs. The results showed that the likelihood of the Hui students choosing an institution in the Yangtze/Pearl River Delta regions and coastal provinces was less than that of the Han students, which was consistent with the findings of the descriptive analysis.

Specifically, the DVs of Models C1 and C2 were *Yangtze/Pearl River Delta* and that of Models C3 and C4 were *coastal provinces*. Models C1 and C3 excluded the data of the students who were admitted to the specialized I&PP-EM, while Models C2 and C4 included these data. Moreover, probit regression was adopted to estimate the regression results. In Models C1 and C2, the coefficients of *Hui* were -0.21 and -0.29 , respectively, and the marginal effects were -0.02 and -0.03 , respectively, indicating that the probability of the Hui students selecting an institution in Yangtze/Pearl River Delta regions was less than that of the Han students by 2% and 3%, respectively. In Models C3 and C4, the coefficients of *Hui* were -0.23 and -0.36 , respectively, and the marginal effects were -0.05 and -0.08 , respectively, indicating that the probability of the Hui students choosing an institution in the coastal provinces was less than that of the Han students by 5% and 8%, respectively. All findings were statistically significant ($p < .01$).

In addition, the coefficients of the other ethnic minority groups (relative to the Han students) were 0.07, -0.05 , 0.07, and -0.08 , respectively, indicating that the influence of being a student from an ethnic minority group on the selection of an institution in Yangtze/Pearl River Delta regions and coastal provinces was not consistent. The coefficients of male students (relative to female students) were 0.03, 0.04, 0.08, and 0.09, respectively. The coefficients of urban *hukou* (relative to rural *hukou*) were 0.31, 0.31, 0.29, and 0.28, respectively. The coefficients of students who chose science as their academic orientation (relative to liberal arts) were 0.10, 0.10, 0.11, and 0.11, respectively. The coefficients of the score received from the college entrance examination (10 points) were 0.04, 0.04, 0.03, and 0.03, respectively. The coefficients of the non-retake students (relative to retake students) were 0.10, 0.10, 0.07, and 0.08, respectively. All these factors were found to have a positive impact on students' selection of institutions in the Yangtze/Pearl River Delta regions and coastal provinces ($p < .01$).

The interprovincial migration of the Hui students: Causes

This section investigates the mechanisms behind the interprovincial migration pattern of the Hui students. We hypothesized that the distinctive dietary habits were the main cause of such a migration pattern. To test the hypothesis, three different regression analyses were performed: Firstly, the GDP per capita of students' hometown county was introduced to the regression model to control for the influence of the economic factors of their families. Secondly, the two instrumental variables related to *Hui* (proportion of the Hui population in students' hometown county and proportion of cattle and sheep in the large livestock production of the county) were introduced, and a two-stage least squares (2SLS) method was adopted to minimize omitted-variable biases. Thirdly, the GZAR students were used as the control group to test whether similar migration patterns exist among the Zhuang students. The results showed that, after controlling for GDP per capita of students' home county and the application of the 2SLS method, the values of the

Table 6. Regression results of home–college distance (GDP per capita, instrumental variables, and GZAR samples).^a

	(A1-1, 2, and 3)	(A2-1, 2, and 3)	(A3-1, 2, and 3)	(A4-1, 2, and 3)
Variables	Home–college distance	Home–college distance	Logarithm of home–college distance	Logarithm of home–college distance
Models including the GDP per capita of students' hometown county				
	(A1-1)	(A2-1)	(A3-1)	(A4-1)
Hui	−249.18 (4.00)***	−324.92 (3.41)***	−1.12 (0.02)***	−1.42 (0.02)***
Observation	255,920	274,220	255,920	274,220
R ²	.11	.12	.14	.14
Models using 2SLS				
	(A1-2)	(A2-2)	(A3-2)	(A4-2)
Hui	−368.75 (11.86)***	−453.25 (9.15)***	−1.78 (0.05)***	−2.14 (0.04)***
Observation	255,920	274,220	255,920	274,220
R ²	.10	.11	.13	.14
Models using samples from GZAR				
	(A1-3)	(A2-3)	(A3-3)	(A4-3)
Zhuang	12.78 (1.24)***	6.01 (1.21)***	0.03 (0.01)***	−0.00 (0.00)
Observation	1,459,365	1,510,446	1,459,365	1,510,446
R ²	.15	.15	.16	.16

Note. GDP = gross domestic product; GZAR = Guangxi Zhuang Autonomous Region; 2SLS = two-stage least squares.

^aThe figures in the brackets are the robust standard errors.

* $p < .1$. ** $p < .05$. *** $p < .01$.

coefficients of *Hui* remained unchanged. However, similar results were not observed when using the data of the GZAR.

In Tables 6 to 8, the suffix “-1” indicates the results following the introduction of GDP per capita of students' home county, “-2” indicates the results following the application of the 2SLS, and “-3” indicates the results following the introduction of the GZAR data. Due to the restriction of word count, only the coefficients of *Hui* and *Zhuang* are exhibited.

The regression results of home–college distance and the logarithm of home–college distance are presented in Table 5. In Models A1-1, A2-1, A3-1, and A4-1, the coefficients of *Hui* were

Table 7. Regression results of NHAR and northwestern provinces (GDP per capita, instrumental variables, and GZAR samples).^a

Variables	(B1-1, 2, and 3) NHAR	(B2-1, 2, and 3) NHAR	(B3-1, 2, and 3) Northwestern provinces	(B4-1, 2, and 3) Northwestern provinces
Models including the GDP per capita of students' hometown county				
	(B1-1)	(B2-1)	(B3-1)	(B4-1)
Hui	0.43 (0.01)***	0.55 (0.01)***	0.46 (0.01)***	0.57 (0.01)***
Hui: dy/dx	0.14 (0.00)***	0.18 (0.00)***	0.16 (0.00)***	0.20 (0.00)***
Observation	255,920	274,220	255,920	274,220
Models using 2SLS				
	(B1-2)	(B2-2)	(B3-2)	(B4-2)
Hui	0.67 (0.02)***	0.81 (0.02)***	0.75 (0.02)***	0.86 (0.02)***
Hui: dy/dx	0.22 (0.00)***	0.27 (0.01)***	0.27 (0.01)***	0.30 (0.01)***
Observation	255,920	274,220	255,920	274,220
Models using samples from GZAR				
	(B1-3)	(B2-3)	(B3-3)	(B4-3)
Zhuang	0.00 (0.00)	0.02 (0.00)***	-0.03 (0.00)***	-0.02 (0.00)***
Zhuang: dy/dx	0.000 (0.001)	0.004 (0.001)***	-0.007 (0.001)***	-0.003 (0.001)***
Observation	1,459,365	1,510,446	1,459,365	1,510,446

Note. NHAR = Ningxia Hui Autonomous Region; GDP = gross domestic product; GZAR = Guangxi Zhuang Autonomous Region; 2SLS = two-stage least squares.

^aThe figures in the brackets are the robust standard errors. Column B3 and B4 for GZAR used "Central and South Provinces" as the outcome variable.

* $p < .1$. ** $p < .05$. *** $p < .01$.

-249.18, -324.92, -1.12, and -1.42, respectively. In Models A1-2, A2-2, A3-2, and A4-2, the coefficients of *Hui* were -368.75, -453.25, -1.78, and -2.14, respectively. All results were statistically significant ($p < .01$). These findings suggested that, when all other conditions remain unchanged, being a Hui student has a negative impact on home-college distance, which was consistent with the previous results. However, the coefficients of *Zhuang* in Models A1-3, A2-3, A3-3, and A4-3 were 12.78, 6.01, 0.03, and -0.00, respectively. In addition to the differences in the values and significance levels of the results, the absolute values of the coefficients were also very small. These findings showed that the migration pattern of the Zhuang students was different from that of the Hui students.

Table 8. Regression results of Yangtze/Pearl River Delta regions and coastal provinces (GDP per capita, instrumental variables, and GZAR samples).^a

Variables	(C1-1, 2, and 3)	(C2-1, 2, and 3)	(C3-1, 2, and 3)	(C4-1, 2, and 3)
	Yangtze/Pearl River Delta	Yangtze/Pearl River Delta	Coastal provinces	Coastal provinces
Models including the GDP per capita of students' hometown county				
	(C1-1)	(C2-1)	(C3-1)	(C4-1)
Hui	-0.20 (0.01)***	-0.28 (0.01)***	-0.22 (0.01)***	-0.35 (0.01)***
Hui: dy/dx	-0.02 (0.00)***	-0.03 (0.00)***	-0.05 (0.00)***	-0.08 (0.00)***
Observation	255,920	274,220	255,920	274,220
Models using 2SLS				
	(C1-2)	(C2-2)	(C3-2)	(C4-2)
Hui	-0.34 (0.03)***	-0.41 (0.03)***	-0.44 (0.02)***	-0.56 (0.02)***
Hui: dy/dx	-0.04 (0.00)***	-0.05 (0.00)***	-0.11 (0.01)***	-0.13 (0.00)***
Observation	255,920	274,220	255,920	274,220
Models using samples from GZAR				
	(C1-3)	(C2-3)	(C3-3)	(C4-3)
Zhuang people	-0.04 (0.00)***	-0.09 (0.00)***	-0.01 (0.00)***	-0.03 (0.00)***
Zhuang: dy/dx	-0.003 (0.000)***	-0.008 (0.000)***	-0.002 (0.001)***	-0.007 (0.001)***
Observation	1,459,365	1,510,446	1,459,365	1,510,446

Note. GDP = gross domestic product; GZAR = Guangxi Zhuang Autonomous Region; 2SLS = two-stage least squares.

^aThe figures in the brackets are the robust standard errors.

* $p < .1$. ** $p < .05$. *** $p < .01$.

The regression results of Ningxia and northwestern provinces are presented in Table 6. In Models B1-1, B2-1, B3-1, and B4-1, the coefficients of *Hui* were 0.43, 0.55, 0.46, and 0.57, respectively, and the marginal effects were 0.14, 0.18, 0.16, and 0.20, respectively. In Models B1-2, B2-2, B3-2, and B4-2, the coefficients of *Hui* were 0.67, 0.81, 0.75, and 0.86, respectively, and the marginal effects were 0.22, 0.27, 0.27, and 0.30, respectively. All results were statistically significant ($p < .01$). These findings suggested that when all other conditions remain unchanged, being a Hui student has a positive impact on the choice of institutions in NHAR and northwestern provinces, which was consistent with the previous results. However, the coefficients of *Zhuang* in

Models B1-3, B2-3, B3-3, and B4-3 were 0.00, 0.02, -0.03 , and -0.02 , respectively. In addition to the differences in the values of the coefficients, the absolute values of the marginal effects were smaller than 0.01. These findings showed that the migration pattern of the Zhuang students was different from that of the Hui students.

The regression results of the Yangtze/Pearl River Delta and coastal provinces are presented in Table 7. In Models C1-1, C2-1, C3-1, and C4-1, the coefficients of *Hui* were -0.20 , -0.28 , -0.22 , and -0.35 , respectively, and the marginal effects were -0.02 , -0.03 , -0.05 , and -0.08 , respectively. In Models C1-2, C2-2, C3-2, and C4-2, the coefficients of *Hui* were -0.34 , -0.41 , -0.44 , and -0.56 , respectively, and the marginal effects were -0.04 , -0.05 , -0.11 , and -0.13 , respectively. All results were statistically significant ($p < .01$). These findings suggested that when all other conditions remain unchanged, being a Hui student has a negative impact on the choice of institution in the Yangtze/Pearl River Delta regions and coastal provinces, which was consistent with the previous results. However, the coefficients of *Zhuang* in Models C1-3, C2-3, C3-3, and C4-3 were -0.04 , -0.09 , -0.01 , and -0.03 , respectively. Although the values of the coefficients were consistent with that of the Hui sample, the absolute values were much smaller. In addition, the absolute values of the marginal effects were smaller than 0.01. These findings showed that the migration pattern of the Zhuang students was different from that of the Hui students.

The interprovincial migration of the Hui students: Welfare loss

This section quantifies the welfare loss of interprovincial migration of the Hui students, using GDP per capita, average years of schooling, average life expectancy, and HDI of the provinces where the institutions were located. The results showed that, compared with the institutions to which the Han students were admitted, the provinces of the institutions that the Hui students were admitted to had significantly smaller GDP per capita, average years of schooling, average life expectancy, and HDI.

Table 9 shows the detailed regression results with the GDP per capita of the province of the institution and corresponding provincial capital as the DVs. Specifically, the DVs of Models D1 and D2 were the GDP per capita of the corresponding province and that of Models D3 and D4 were the GDP per capita of the corresponding provincial capital (the majority of the higher education institutions are located in provincial capitals). Models D1 and D3 did not include the data of the students who were admitted to the I&PP-EM, while Models D2 and D4 included these data. In Models D1 and D2, the regression coefficients of *Hui* were -293.61 and $-1,007.22$, respectively, indicating that, compared to the Han students, the average GDP per capita of the province of the institutions that the Hui students were admitted to was smaller by 293.61 and 1,007.22 yuan, respectively. In Models D3 and D4, the regression coefficients of *Hui* were $-2,068.57$ and $-2,602.95$, respectively, suggesting that the GDP per capita of the capital of the province where

Table 9. Regression results of GDP per capita.^a

Variables	(D1)	(D2)	(D3)	(D4)
	Per capita income of the province	Per capita income of the province	GDP per capita of the provincial capital	GDP per capita of the provincial capital
Hui	−293.61 (58.85)***	−1,007.22 (50.60)***	−2,068.57 (60.38)***	−2,602.95 (51.13)***
Other ethnic minorities	1,272.09 (203.52)***	242.85 (173.63)	617.05 (204.28)***	−264.27 (170.01)
Gender	772.00 (43.37)***	755.75 (41.97)***	1,303.60 (46.56)***	1,271.67 (44.57)***
Household registration	2,157.86 (42.49)***	2,105.64 (41.20)***	2,138.50 (46.07)***	2,130.97 (44.19)***
Academic orientation	1,189.15 (44.25)***	1,214.34 (42.77)***	837.68 (49.24)***	844.02 (46.92)***
Admission score	366.89 (3.04)***	375.43 (3.00)***	389.67 (2.84)***	394.55 (2.78)***
Non-retake students	1,657.97 (44.63)***	1,734.09 (43.05)***	1,238.85 (47.97)***	1,287.17 (45.91)***
Constant	−9,949.40 (156.88)***	−10,213.25 (152.86)***	−1,555.73 (143.34)***	−1,658.92 (138.55)***
Observation	255,920	274,220	255,920	274,220
R ²	.41	.41	.55	.56

Note. GDP = gross domestic product.

^aThe figures in the brackets are the robust standard errors.

* $p < .1$. ** $p < .05$. *** $p < .01$.

the Hui students' institutions were located was smaller than that of the Han students by −2,068.57 and −2,602.95 yuan, respectively. All findings were statistically significant ($p < .01$).

Table 10 presents the detailed regression results when average years of schooling and life expectancy of the province of the institution were the DVs. Specifically, the DVs of Models E1 and E2 were the average years of schooling of the province and that of Models E3 and E4 were the average life expectancy of the province. Models E1 and E3 did not include the data of the students who were admitted to the specialized I&PP-EM, while Models E2 and E4 included these data. In Models E1 and E2, the regression coefficients of *Hui* were −0.03 and −0.11, respectively, indicating that, compared to the Han students, the average years of schooling in the province of the institutions that the Hui students were admitted to was smaller by 0.03 and 0.11 years, respectively. In Models E3 and E4, the regression coefficients of *Hui* were −0.26 and −0.45, respectively, suggesting that the average life expectancy of the province that the Hui students' institutions were located in was smaller than that of the Han students by −0.26 and −0.45 years, respectively. All findings were statistically significant ($p < .01$).

Table 10. Regression results of years of schooling and life expectancy.^a

Variables	(E1)	(E2)	(E3)	(E4)
	Mean years of schooling of the province	Mean years of schooling of the province	Average life expectancy of the province	Average life expectancy of the province
Hui	-0.03 (0.00)***	-0.11 (0.00)***	-0.26 (0.01)***	-0.45 (0.01)***
Other ethnic minorities	0.06 (0.01)***	-0.04 (0.01)***	0.15 (0.03)***	-0.08 (0.03)***
Gender	0.07 (0.00)***	0.07 (0.00)***	0.23 (0.01)***	0.22 (0.01)***
Household registration	0.10 (0.00)***	0.10 (0.00)***	0.42 (0.01)***	0.41 (0.01)***
Academic orientation	0.08 (0.00)***	0.08 (0.00)***	0.22 (0.01)***	0.23 (0.01)***
Admission score	0.03 (0.00)***	0.03 (0.00)***	0.08 (0.00)***	0.08 (0.00)***
Non-retake students	0.13 (0.00)***	0.13 (0.00)***	0.33 (0.01)***	0.34 (0.01)***
Constant	6.49 (0.01)***	6.44 (0.01)***	67.83 (0.03)***	67.77 (0.03)***
Observation	255,920	274,220	255,920	274,220
R ²	.20	.20	.31	.31

^aThe figures in the brackets are the robust standard errors.

* $p < .1$. ** $p < .05$. *** $p < .01$.

Table 11. Regression analysis of the HDI.^a

Variables	(F1)	(F2)	(F3)	(F4)
	HDI of the province	HDI of the province	HDI of the provincial capital	HDI of the provincial capital
Hui	-0.003 (0.000)***	-0.007 (0.000)***	-0.004 (0.000)***	-0.006 (0.000)***
Other ethnic minorities	0.004 (0.001)***	-0.001 (0.001)**	0.002 (0.001)***	-0.001 (0.000)*
Gender	0.004 (0.000)***	0.004 (0.000)***	0.003 (0.000)***	0.003 (0.000)***
Household registration	0.008 (0.000)***	0.008 (0.000)***	0.005 (0.000)***	0.005 (0.000)***
Academic orientation	0.005 (0.000)***	0.005 (0.000)***	0.003 (0.000)***	0.003 (0.000)***
Admission score	0.001 (0.000)***	0.001 (0.000)***	0.001 (0.000)***	0.001 (0.000)***
Non-retake students	0.007 (0.000)***	0.007 (0.000)***	0.004 (0.000)***	0.004 (0.000)***
Constant	0.679 (0.001)***	0.678 (0.001)***	0.726 (0.000)***	0.724 (0.000)***
Observation	255,920	274,220	255,920	274,220
R ²	.115	.116	.112	.117

Note. HDI = Human Development Index.

^aThe figures in the brackets are the robust standard errors.

* $p < .1$. ** $p < .05$. *** $p < .01$.

Table 11 displays the detailed regression results when HDI of the province of the institution and corresponding provincial capital were the DVs. Specifically, the DVs of Models F1 and F2 were the HDI of the corresponding province and that of Models F3 and F4 were the HDI of the corresponding provincial capital. Models F1 and F3 did not include the data of the students who were admitted to the specialized I&PP-EM, while Models F2 and F4 included these data. In Models F1 and F2, the regression coefficients of *Hui* were -0.003 and -0.007 , respectively, indicating that, compared to the Han students, the average HDI of the province of the institutions that the Hui students were admitted to was smaller by -0.003 and -0.007 , respectively. In Models F3 and F4, the regression coefficients of *Hui* were -0.004 and -0.006 , respectively, suggesting that the HDI of the capital of the province in which the Hui students' institutions were located was smaller than that of the Han students by -0.004 and -0.006 , respectively. All findings were statistically significant ($p < .01$).

Conclusions

In China, admissions to higher education institutions in September each year cause the migration of millions of students, the elite human resources of the country. This large-scale college-induced migration has substantial impacts on the national and local labor markets in China. Therefore, it is of great significance to explore the factors that affect students' choice of institution and their interprovincial migration patterns. Existing studies have approached this subject from various angles; however, none of the past models has been able to explain the behavior of all students involved. One such example was the Ningxia Hui students, as they appeared to have a different migration pattern when compared to the Han students.

This article used the admission data of the college entrance examination in NHAR from 2001 to 2010 to study the interprovincial migration of the Hui students following the examination. The results are as follows: Firstly, after controlling for variables such as college entrance examination scores and personal characteristics, the Hui students were more likely to choose an institution that was closer to their hometown and preferred institutions located in Ningxia and northwestern provinces rather than the Yangtze/Pearl River Delta regions and coastal provinces. Secondly, the results confirmed that such a migration pattern was caused by the dietary habits of the Hui people. Specifically, after controlling for the economic conditions of students' family and using instrumental variables to minimize the omitted-variable biases, the results remained unchanged. In addition, the introduction of admission data of the Zhuang students from GZAR from 2009 to 2015 did not show a similar migration pattern. Lastly, the welfare losses of such a migration pattern were analyzed. The findings revealed that, compared to the Han students, the GDP per capita, average years of schooling, life expectancy, and the HDI of the province that the Hui students' institutions were located in (as well as that of the

corresponding provincial capitals) were less than that of more developed provinces. This indicated that the Hui students were more likely to choose institutions in underdeveloped areas, resulting in corresponding welfare losses.

Despite uncovering novel data and empirical findings, this article has certain limitations. Specifically, due to the unavailability of certain data, factors related to students' family background were not controlled accurately. Instead, the GDP per capita of students' hometown county was used. In addition, due to the limited samples of the Hui students in GZAR and the Zhuang students in NHAR, this study was not able to prove that the Hui students from GZAR also had a similar migration pattern, while the results from the Zhuang students from NHAR were taken from limited samples and would not be considered statistically robust.

This article has important policy implications. We supplement the classic college choice literature by documenting a special impact factor of geography that was previously unobserved by researchers. The results show the importance of looking deeply into the underlying mechanisms of why distance matters in college choice. There are substantial differences by race/ethnicity in the geographic inequality of college education in many countries. For example, Niu (2015) finds that, in the U.S., Hispanic and Asian students' low likelihood of going to college out-of-state is largely driven by students' choices of a few states where they are highly concentrated or their presence is substantial. Ignoring the geographic factors (and even largely omitted factors) fails to build a nuanced explanation of how students choose between colleges, and more importantly, informational policies in isolation of these factors (such as the College Scorecard and Financial Aid Shopping Sheet) may not achieve optimal results.

It is worth noting that, with the continuous implementation of various policies and the rapid development of the social economy, the halal canteens of most institutions can meet the basic needs of the Hui students. Moreover, off-campus restaurants that can satisfy the dietary habits of ethnic minority groups have gradually developed. The interprovincial migration patterns of the Hui students are not caused by a lack of corresponding halal food in Eastern China, Yangtze/Pearl River Delta regions, and coastal provinces, but rather information asymmetry and the Hui people's biased perception of a shortage of halal food in these regions. This was reaffirmed in an interview conducted in 2016, where the Hui students were found to have unnecessary concerns of the regions in question. Providing dietary information for the elimination of such concerns may have important policy impacts for improved college choice as well as human capital investment and poverty alleviation measures in Northwest China.

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Notes

1. It should be noted that the Chinese education system includes several institutions established for ethnic minorities, which mainly admit students from ethnic minority groups. For that reason, the provinces that have such institutions are more likely to have an aggregation of the Hui students. In addition, there are also preparatory programs dedicated to the ethnic minority groups, and provinces that provide such programs may also attract more Hui students. Therefore, Figure 1 exhibits the location quotients with and without considering the students in the specialized I&PP-EM, individually.
2. <http://www.seac.gov.cn/col/col248/index.html>.
3. Such as <http://www.seac.gov.cn/col/col543/index.html> (the Uighurs), <http://www.seac.gov.cn/col/col381/index.html> (the Dongxiangs), <http://www.seac.gov.cn/col/col489/index.html> (the Salar people), and so on.
4. <http://www.stats.gov.cn/tjsj/pcsj/rkpc/6rp/indexch.htm>.
5. http://www.thepaper.cn/asktopic_detail_10001994.
6. <http://iask.sina.com.cn/b/5eLgeexp3b.html>.
7. <http://iask.sina.com.cn/b/19055459.html>.
8. <http://www.gxufl.com/guestbook/213.jsp>.
9. <http://www.zhihu.com/question/47884897>.
10. <http://hqfw.gdut.edu.cn/sug/SuggestionArticle.asp?ID=1463>.
11. <http://www.tgcep.cn/show.asp?id=3816>.
12. <http://www.hnhqjj.cn/web/0/201103/31084458084.html>.
13. http://hgdxb.cuepa.cn/show_more.php?doc_id=257299.
14. http://www.gov.cn/gongbao/content/2001/content_60734.htm.
15. <http://210.73.66.144:4601/law?fn=chl377s186.txt>.
16. The Yangtze River Delta region in this article includes Shanghai, Jiangsu Province, and Zhejiang Province, while the Pearl River Delta region includes Guangdong Province.
17. It should be noted that there were 5,166 students from other ethnic groups other than the Han and Hui, accounting for only 1.88% of the total sample. Due to the limitation of the size of the table, the results were not included.

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