

Article

Pursuing Sustainable Higher Education Admission Policy Reform: Evidence from Stakeholders' Perceptions in China's Pilot Provinces

Jian Li and Eryong Xue *

China Institute of Education Policy, Faculty of Education, Beijing Normal University, Beijing 100875, China

* Correspondence: eryongxue@bnu.edu.cn

Abstract: This study aimed to examine sustainable higher-education admission policy reform and stakeholders' attitudes toward the implementation of a new education policy. We collected 1071 questionnaires exploring stakeholders' attitudes regarding a new higher-education admission policy. We found that administrators at provincial education bureaus, managers from admission offices at universities and colleges, and teachers at local high schools held relatively positive attitudes toward the education policy of the new college entrance exam, specifically regarding reform directions, enrollment allocations, examination contents and methods, and means of admission. During the process of implementing the new educational policy, despite encountering some critiques regarding the formation and implementation of the new policy, the general reform direction was positively accepted by administrators, managers, and teachers at different levels. Moreover, attitudes toward the reform direction and the equity evaluation were positively associated with individuals' reform engagement. The implications are discussed to illustrate the rationale and context of the implementation of the new policy in contemporary China.

Keywords: policy reform; reform directions; higher-education policy; China's higher-education assessment



Citation: Li, J.; Xue, E. Pursuing Sustainable Higher Education Admission Policy Reform: Evidence from Stakeholders' Perceptions in China's Pilot Provinces. *Sustainability* **2022**, *14*, 11936. <https://doi.org/10.3390/su141911936>

Academic Editor: Gazi Mahabubul Alam

Received: 19 August 2022

Accepted: 8 September 2022

Published: 22 September 2022

Publisher's Note: MDPI stays neutral with regard to jurisdictional claims in published maps and institutional affiliations.



Copyright: © 2022 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

1. Introduction

Sustainable higher-education admission policy reform is closely related to stakeholders' contextual perceptions of policy implementation. The focus of sustainable higher-education admission policy is the high-quality equity-based development of admission standards, admission processes, and admission outcomes. In China, the National College Entrance Examination (NCEE), which is the standardized admission and unified examination system of national higher-education institutions, plays a significant role in the admission system of Chinese universities and colleges [1]. Along with the goal of building world-class universities and the principles embodied in the current Chinese higher-education system, in 2014, a policy reform aimed at shaping China's NCEE system was jointly released by the Ministry of Education and the State Council, entitled "Opinions on the Implementation of Deepening the Reform of Examination Enrollment System" (2014 Opinions). Subsequently, this policy reform, entitled "The New College Entrance Examination," designated Zhejiang and Shanghai as the initial two pilot provinces in which to implement a series of educational policies, including shaping reform directions, enrollment allocations, and examination contents and methods of the NCEE [2]. In 2017, students who enrolled in the fall of 2014 in Zhejiang and Shanghai participated in the first new NCEE. The initial implementation of the new NCEE launched smoothly. Four additional pilot provinces and municipalities (i.e., cities under the direct control of the central government), specifically Shandong, Beijing, Tianjin, and Hainan, joined the second round of comprehensive reforms of the new NCEE. In 2018, the Hebei, Liaoning, Guangdong, Jiangsu, Fujian, Anhui, Hunan, Hubei, and Chongqing provinces were added to the third-round list of pilot provinces for the new NCEE [2]. However, during the periodic implementation of policy reform

of the new NCEE, an increasing number of critiques and suggestions have emerged. For example, the balancing of different groups' interests to allocate disparate proportions of enrollments in pilot provinces is a controversial aspect of the policy. Different stakeholders hold a range of attitudes regarding the implementation of China's new NCEE according to their specific roles and interests. For example, most teachers found that the new NCEE imposed a substantial additional burden on their daily teaching workload [3].

Over the past 40 years, since the restoration of the NCEE, continuous improvement has been made to a relatively complete examination and enrollment system, which has made substantial contributions to the growth of students, talent selection by the state, and social equity. A talent selection path with Chinese characteristics that is broadly in line with China's national conditions has been successfully set out [4]. The authority and fairness of this system are generally recognized by society. However, the system involves several problems that are widely acknowledged by the public, such as the "only score theory," which affects students' all-round development, and the "one test for life," which results in an excessive learning burden for some students. As a major political task set by the CPC Central Committee, the new round of reform of the examination and enrollment system includes a major set of changes directly led and promoted by the CPC Central Committee and the State Council. We will proceed with the reform of the examination and enrollment system and explore different operating mechanisms whereby enrollment and examination are separated, students are able to choose multiple examinations, schools recruit students independently in accordance with the law, professional institutions organize and implement examination and enrollment, the government conducts macro-management, and the public takes part in supervision, to fundamentally solve the problems arising from a system in which one test determines the course of a person's life [5]. The comprehensive evaluation and multiple admission mechanisms based on unified college entrance examination and high-school academic level examination results will be gradually implemented in ordinary colleges and universities. We plan to explore ways to reduce the number of subjects in the national unified examination and extend the number of socialized examinations in subjects such as liberal arts, science, and foreign languages to 1 a year. To further implement the requirements of the Third Plenary Session of the 18th CPC Central Committee on promoting the reform of the examination and enrollment system, the State Council issued the Implementation Opinions of the State Council on Deepening the Reform of the Examination and Enrollment System on 4 September 2014. Additional "decisions" and "opinions" on the comprehensive reform of the university entrance exam have led to its comprehensive and systematic deployment, with clear requirements of promoting test enrollment system reform, exploration, and relative separation. Accordingly, students will sit a multiple-choice exam at the school in accordance with the independent recruitment of students, with professional institutions responsible for organizing the implementation, the government responsible for macro management, and the social operation mechanism responsible for supervision, thereby fundamentally solving the shortcomings of "only score theory" and "one test for life" [6]. In 2014, Shanghai and Zhejiang provinces were the first to launch a pilot program for the new Gaokao, indicating that, by 2021, there would be four new Gaokao students in Shanghai and Zhejiang. In 2020, four more provinces, namely Beijing, Tianjin, Shandong, and Hainan, entered the first year of the new Gaokao [7].

Reform engagement refers to whether this policy has been successfully implemented or has met different stakeholders' interests and requirements. In the context of Chinese centralized education, the administrators at provincial education bureaus, managers from admission offices at universities and colleges, and local high-school teachers serve as key stakeholders influencing the implementation of the new NCEE at the provincial, institutional, and local school levels [8]. Ultimately, their differential attitudes toward the new NCEE may result in various degrees of engagement in the new NCEE. A small number of studies on the NCEE have predominantly focused on a given aspect of attitudes toward the new NCEE, such as the equality of enrollment allocation, the social stratification of college access, gender differences in enrollment rates, and students' satisfaction with college

quality embedded in the policy formation and implementation of the NCEE. However, given the multidimensional nature of attitudes toward the new NCEE, a comprehensive understanding of them is not yet clear from various stakeholders' perspectives, along with its relation to stakeholders' reform engagement in the new NCEE [9,10].

To address this critical gap, the current study aimed to examine a comprehensive set of attitudes toward the policy reform of the new NCEE from the perspectives of educational administrators at provincial education bureaus, managers from admission offices at universities and colleges, and teachers at local high schools. Thus, the research question focuses on the attitudes of these stakeholders toward the policy reform of the new NCEE. The remainder of this paper is organized as follows: Section 1 reviews the literature on China's policy reform related to implementing the new NCEE; Section 2 employs quantitative methods to investigate the four components of attitudes toward the new NCEE; Section 3 provides findings to uncover the barriers and difficulties involved; Section 4 offers conclusions and remarks, with a discussion on the findings related to contextually implementing the policy reform of the new college entrance exam.

2. Literature Review

2.1. A Brief History of the Introduction of the NCEE: Reform Direction

Since 2014, a series of educational reforms with regard to reconstructing and refining the orientation, distribution, content, and approach of the NCEE have been incrementally released and implemented in pilot provinces. Reform direction, enrollment allocation, and examination content and methods were the major components of the new NCEE. To advocate for the general directional principle of "Giving Priority to a Comprehensive Assessment-based Policy and Promoting Equality among Different Regions," the 2014 Opinion further concentrated on improving the equality of the enrollment allocation to increase the enrollment rate in mid-west regions and large population provinces by continually implementing a series of proposed policies, which are entitled *National Collaborative Plan for Enrollment in Mid-west Regions* and *National Special Plan for Directional Enrollment in Rural and Poverty-stricken Regions*. Both documents involve a series of compensatory policies for rural areas and mid-west regions, which are focused on recruiting students in poverty-stricken areas [11]. In 1977, Chinese universities and colleges enrolled promising students, especially at some key universities, medical colleges, normal colleges, and agricultural colleges. The initial purpose of implementing the bonus policy was to recruit minority students, young people from Hong Kong, Macao, and Taiwan, and returned overseas Chinese students. Since the release of the 2014 Opinion, to eliminate the phenomenon of social corruption, which affected social fairness and justice, strict control of the administration of the bonus policy for college entrance exams was implemented step by step. In 2015, the bonus policy related to sports and art was cancelled. In 2018, the Notice on Enrollment Work in Universities and Colleges was released to abolish the extra bonuses for sports-specialty students, Olympics, science and technology competition winners, excellent provincial students, and students performing outstanding deeds in ideological and political morality. Thus, the incremental abolition of the bonus policy has been considered to be a pivotal policy reform of the new NCEE [12].

2.2. The Enrollment Allocation of the NCEE

The enrollment allocation of the new NCEE was finalized by means of implementing groups of special plans. These special plans were implemented by Chinese governmental agencies, which hierarchically include the national special plan, the local governmental special plan, and the institutional special plan for specific colleges and universities. Specifically, the national special plan aims to recruit more than 10,000 candidates annually from colleges and universities affiliated with the central government in poverty-stricken areas of China to increase the educational opportunities for students in these areas. The special plans for local colleges and universities aimed to construct enrollment plans for senior high schools in remote, poverty-stricken, and ethnic minority areas. These plans were arranged

by central government-affiliated universities or other pilot universities to enroll students independently, with an enrollment plan covering more than 2% of the annual enrollment scale. The exam content and methods offer a specific lens to examine the policy reform of the new NCEE in the pilot provinces. Since 1977, the construction and refinement of exam content and methods has been controversial, including the subject settings, examination contents, and proposition methods of the NCEE. However, two changes have been implemented to gradually revise exam content and methods toward integration [13]. To formulate the basic requirements of comprehensive learning outcomes, China's education policy focuses on speeding up classified examinations with the "major subjects + vocational skills" evaluation model. There are also some major differences in the implementation of pilot schemes in different parts of the country [14].

2.3. The Admission Principles of the NCEE: Exam Content and Methods, and Means of Admission

Under the new college entrance examination system, high school students are required to choose subjects according to the 3 + 1 + 2 model. Students can choose from a total of 12 components. Candidates can choose subjects according to their academic performance, interests, hobbies, and professional tendencies. The new college entrance examination refers to a change in the college entrance examination model, wherein the original liberal arts and science model is referred to as the "3 + 2 + 1" model of college entrance examination subjects. In the "3 + 2 + 1" model, "3" is the national unified college entrance examination subjects of Chinese, mathematics, foreign language, "1" is the preferred subject from the two required subjects (physics and history), and "2" means that two subjects should be chosen for re-selection out of the following four subjects: ideology and politics, geography, chemistry, and biology. All majors at the university require students to take physics or history courses. "Physics only" means that students whose preferred subject is physics can apply for the examination, and the relevant majors are only arranged under the category of physics. "History only" means that candidates whose first choice of subject is history are eligible to apply, and the relevant majors are only eligible for admission under the history category; "Physics or history can be both" means that candidates whose preferred subject is physics or history can register for the examination, and colleges and universities should coordinate related majors in physics and history under the category of the enrollment plan [15].

3. Empirical Studies on the New NCEE Policy

Few studies have examined the history of the Chinese NCEE. The small body of research on the NCEE mainly focuses on equity of college access, which can be largely summarized into the following two major components: rural urban gaps and regional differentiation. The regional imbalanced development in higher education directly causes the differential implementations of the NCEE. Some scholars have argued that the regional differences increase the inequity in college access [16]. It is widely accepted that students in developed regions are more likely to achieve higher educational attainment than their counterparts from underdeveloped areas. In addition, the imbalanced development in China's higher education is reflected in differences in the higher education budgets and funding allocated to support higher education development. The education funding allocation is calculated on the basis of the number of enrollments; thus, some high schools in high-poverty areas and less developed provinces may receive a smaller educational funding allocation because of the relatively low enrollment rate, which may ultimately result in low educational quality. Thus, geographic inequity plays a critical role in the undergraduate admission process. In addition, the learning condition gaps between urban and rural areas have further increased the imbalance in the enrollment allocation of the NCEE. Furthermore, the household registration system is closely related to college admission and enrollment allocation in the NCEE [17]. Compared with other countries, including Western countries and Eastern countries, the higher education entrance examination policy in China is considered to be a particularly important equity issue in different contexts. During the

coronavirus disease 2019 (COVID-19) outbreak, the quality of education recommendations made by the United Nations (UN) through the Sustainable Development Goals (SDGs) of the 2030 Agenda made it necessary to analyze the elements we consider to be essential in the current educational context [18].

4. The Analytic Framework: Integrating Top-Down and Bottom-Up Models

The implementation of the new NCEE policy is considered to be a process of interaction between the setting of goals and the actions designed to achieve them. Specifically, policy implementation involves the connection between policy intention and actual outcomes. As a key process of the policy cycle, policy implementation involves the relationship between the establishment of an apparent intention and the ultimate influences on behavior. Policy implementation focuses on how the setting of policy decisions contributes to putting the policy into effect. In other words, the process of policy implementation involves decisions and activities, which are carried out with the intention of creating, influencing, or controlling the following three dimensions: the constitution of a policy network, the conception of an implementation strategy, and the decisions and activities that are directly addressed by target groups [19].

The analytical framework of the policy implementation vision of the new NCEE integrates “top-down” and “bottom-up” perspectives. In particular, the top-down perspective focuses on the governmental-central policy formation process of policy goals and decisions with political and administrative authorities. Compared with top-down policy implementation, the bottom-up perspective is focused on identifying the main actors involved in public policy, from the street level to the highest level, with the simultaneous consideration of actors. In addition to the real policy implementation of new college entrance exams, a new hybrid model related to analyzing the policy implementation of new college entrance exams is proposed to bridge the gap between top-down and bottom-up models to avoid the conceptual weaknesses of each. Thus, a linkage model between the top-down policy formation related to the policy of new college entrance exams and bottom-up policy implementation involving key relevant administrative stakeholders at various levels was constructed to present an analytical framework of the policy implementation of new college entrance exams. Specifically, this framework is proposed to examine stakeholders’ perspectives on the formation and implementation of new policy reform at pilot provinces [20]. In the bottom-up version, stakeholders’ attitudes and perceptions regarding the policy reform of new college entrance exams include those of the administrators at provincial education bureaus, managers from admission offices at universities and colleges, and teachers at local high schools. In the top-down version, the policy reform for NCEE contains the following four major components: reform direction, enrollment allocation, examination content, and methods of NCEE [21].

Along with the proposed analytic framework of the top-down and bottom-up models, the educational policy implementation of the new NCEE is considered as a typical top-down policy formulation and the stakeholders’ attitudes toward the new higher education admission policy are regarded as part of a bottom-up model to examine various participants’ understandings and reflections on this policy implementation in different contexts. Therefore, the current study integrated top-down and bottom-up perspectives to examine the overall landscape of China’s new NCEE.

5. Methods

Participants and Procedures: The present study was approved and monitored by the Institutional Review Board at Beijing Normal University. The sample was obtained from a six-province-wide survey covering the North, South, West, and Central regions of mainland China. A representative sample of administrators at provincial education bureaus, managers from admission offices at universities and colleges, and local high school teachers was obtained. The study was designed to examine attitudes toward the implementation of China’s new college entrance exam policy at pilot provinces from various stakeholders’

perspectives. We collected a sample comprising 1071 participants (59.1% female). Most of the participants were of Han ethnicity (914, 98.2%) and the rest were members of minority ethnic groups. Participants' average age was 37.41 years old (standard deviation [SD] = 7.15). Except for a small portion of participants with a community college degree (5.5%), most participants (74.5%) had a bachelor's degree. Approximately one third of the participants were from cities (68.8%), approximately one fifth were from small towns (12.9%), and the rest were from villages (8.4%).

Measures: The four dimensions (i.e., reform direction, enrollment allocation, examination contents and methods, and means of admission) of attitudes toward the NCEE were based on the concept of college entrance examination equality indices. Two rounds of surveys and interviews were conducted to collect relevant information about the four dimensions of attitudes toward the NCEE from administrators at provincial education bureaus, managers from admission offices at universities and colleges, and local high school teachers. Finally, 14 items were retained for the final questionnaire. The items were rated on a five-point Likert scale ranging from 1 = strongly disagree to 5 = strongly agree. This questionnaire was not a standardized instrument with known psychometric properties, and it was constructed on the basis of the research questions in this study. We used Mplus 8.8 software and SPSS.21.0, (Statistical Product Service Solutions), which created by IBM and Stanford University to analyze these data.

Data analytic approach: A confirmatory factor analysis (CFA) was conducted using SPSS.20.0 to examine the construct validity of attitudes toward new college policy reform. We evaluated model adequacy using the following indices (Kline, 2015): the Chi-Square statistic (χ^2), the comparative fit index (CFI; acceptable > 0.90, good > 0.95), the root-mean-square error of approximation (RMSEA; acceptable < 0.08, good < 0.05), and the standardized root-mean-square residual (SRMR; acceptable < 0.08, good < 0.05). In addition, multivariate analyses of variance (MANOVA) were used to examine differences in the dimensions of attitudes toward new college policy reform across gender, age, ethnicity, region, province, education attainment, and workplace.

6. Results

We performed CFAs to examine whether an a priori factor structure fit the data (i.e., the construct validity). Four of the five factors were latent constructs (i.e., reform directions, enrollment allocations, test contents and methods, and means of admission). A total of 15 items were used to assess the four latent constructs and the manifest constructs (i.e., equality evaluation). Cronbach's α values were calculated to assess the reliability of the subscales. The following fit indices for the five-factor model were acceptable: χ^2 (71) = 411.63, $p < 0.001$, CFI = 0.91, RMSEA = 0.07 (90% CI, 0.066, 0.079), SRMR = 0.0. Factor loadings ranged from 0.68 to 0.74 for reform directions, 0.78 to 0.79 for enrollment allocations, from 0.61 to 0.73 for test contents and methods, and 0.51 to 0.74 for means of admission. Cronbach's α coefficients for the four first-order factors were acceptable and were around 0.76.

To examine the differences in attitudes toward new college policy reform as a function of gender, age, ethnicity, region, province, education attainment, and workplace, we conducted seven-way MANOVAs for the five first-order constructs. Female participants expressed greater approval of enrollment allocation (mean [M] = 1.61, SD = 0.75 for males; M = 1.79, SD = 0.85 for females) compared with male participants. There were no differences in approval by ethnicity (i.e., Han and ethnic minorities) or region (i.e., cities, towns, and rural areas) for all five constructs. Regarding differences across age groups, participants over 60 years old generally reported greater approval of reform directions (M = 3.78, SD = 0.53 for participants over 60 years old, M = 2.21, SD = 0.07 for 41–50-year-old participants, M = 2.04, SD = 0.06 for 31–40-year-old participants, M = 2.01, SD = 0.11 for 26–30-year-old participants, M = 2.35, SD = 0.21 for 18–25-year-old participants), enrollment allocations (M = 3.33, SD = 0.45 for participants over 60 years old, M = 1.18, SD = 0.06 for 41–50-year-old participants, M = 1.67, SD = 0.05 for 31–40-year-old participants, M = 1.66, SD = 0.10

for 26–30-year-old participants, $M = 1.71$, $SD = 0.18$ for 18–25-year-old participants), examination contents and methods ($M = 3.50$, $SD = 0.45$ for participants over 60 years old, $M = 2.07$, $SD = 0.06$ for 41–50-year-old participants, $M = 1.94$, $SD = 0.05$ for 31–40-year-old participants, $M = 1.98$, $SD = 0.10$ for 26–30-year-old participants, $M = 2.01$, $SD = 0.18$ for 18–25-year-old participants), means of admission ($M = 3.33$, $SD = 0.33$ for participants over 60 years old, $M = 1.59$, $SD = 0.05$ for 41–50-year-old participants, $M = 1.52$, $SD = 0.04$ for 31–40-year-old participants, $M = 1.56$, $SD = 0.07$ for 26–30-year-old participants, $M = 1.53$, $SD = 0.13$ for 18–25-year-old participants), and equity evaluation ($M = 3.67$, $SD = 0.55$ for participants over 60 years old, $M = 2.10$, $SD = 0.08$ for 41–50-year-old participants, $M = 1.86$, $SD = 0.07$ for 31–40-year-old participants, $M = 1.80$, $SD = 0.12$ for 26–30-year-old participants, $M = 2.00$, $SD = 0.22$ for 18–25-year-old participants). However, there were no significant differences between either of the two age groups below 60 years of age on any of the five first-order constructs.

Regarding differences across provinces, participants from Zhejiang Province expressed greater approval of the reform directions than those from Shanghai and Shandong ($M = 2.32$, $SD = 0.80$ for Zhejiang, $M = 1.98$, $SD = 0.81$ for Shanghai, and $M = 2.02$, $SD = 0.98$ for Shandong). However, there was no significant difference between any pair of provinces (Beijing, Shanghai, and Shandong). Participants from Zhejiang Province and Shanghai Province expressed greater approval of exam content and methods compared with participants from Shandong or Beijing ($M = 2.30$, $SD = 0.77$ for Zhejiang, $M = 2.13$, $SD = 0.78$ for Shanghai, $M = 1.83$, $SD = 0.75$ for Shandong, $M = 1.90$, $SD = 0.75$ for Beijing). Regarding equity evaluation, participants from Zhejiang and Beijing reported more agreement than those from Shanghai and Shandong ($M = 2.23$, $SD = 1.03$ for Zhejiang, $M = 1.72$, $SD = 0.90$ for Shanghai, $M = 1.80$, $SD = 0.88$ for Shandong, $M = 2.13$, $SD = 1.01$ for Beijing). Moreover, participants with high-school degrees only expressed more approval of reform directions ($M = 3.56$, $SD = 1.71$ for those with high-school degrees only, $M = 2.11$, $SD = 1.23$ for those with specialist qualifications) and equity ($M = 3.00$, $SD = 1.73$ for those with high-school degrees only, $M = 1.33$, $SD = 0.49$ for those with specialist qualifications) compared with those with specialist qualifications. Participants with high-school degrees ($M = 2.47$, $SD = 2.20$) only expressed greater approval regarding the means of admission than participants with college degrees ($M = 1.55$, $SD = 0.58$). In addition, participants who worked in middle schools ($M = 2.08$, $SD = 0.80$) reported greater approval of exam content and methods compared with those who worked at universities ($M = 1.62$, $SD = 0.82$) (See Figure 1).

Moreover, we examined reform direction, enrollment allocation, exam content and methods, means of admission, and equity evaluation in relation to reform engagement. Age, gender, province, workplace, household registration, and education attainment were controlled as covariates. Although a non-significant chi-square result would be preferable, the chi-square test revealed a significant result because of the large sample size of χ^2 (161, $N = 1071$) = 562.59, $p < 0.001$. On the basis of the criteria suggested by Little (2013), the following model fits were acceptable: CFI = 0.90, RMSEA = 0.052 (90% confidence interval [CI], 0.047, 0.056), SRMR = 0.04. Reform direction ($\beta = 0.29$, $p < 0.001$) and equity evaluation ($\beta = 0.15$, $p < 0.01$) were positively associated with reform engagement. Enrollment allocation, exam content and methods, and means of admission were not associated with reform engagement (see Figure 2).

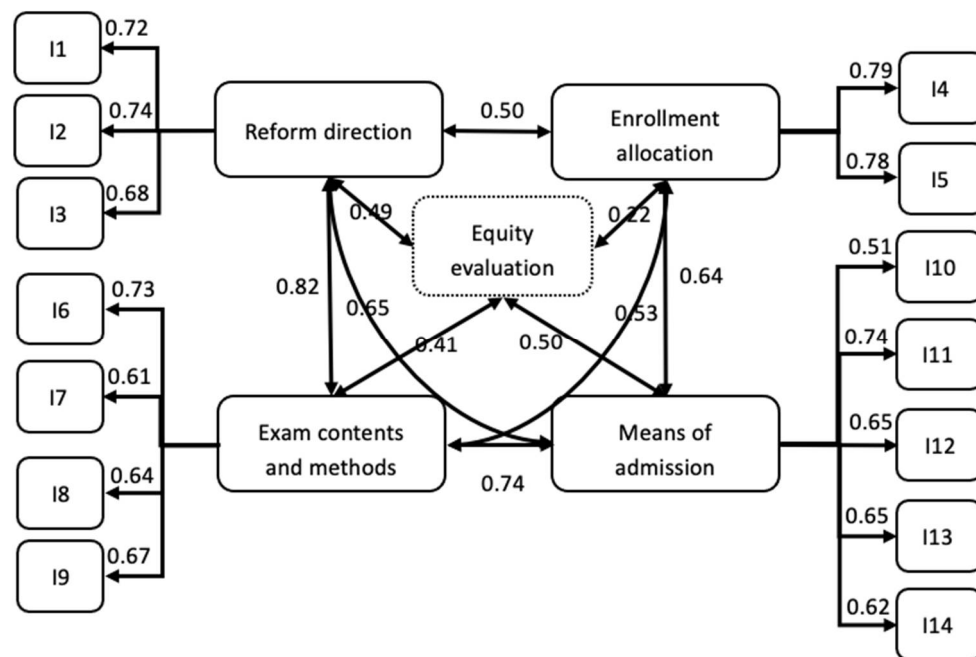


Figure 1. The five-factor model of attitudes toward new college policy reform. All of the factor loadings and correlations were significant at $p < 0.001$.

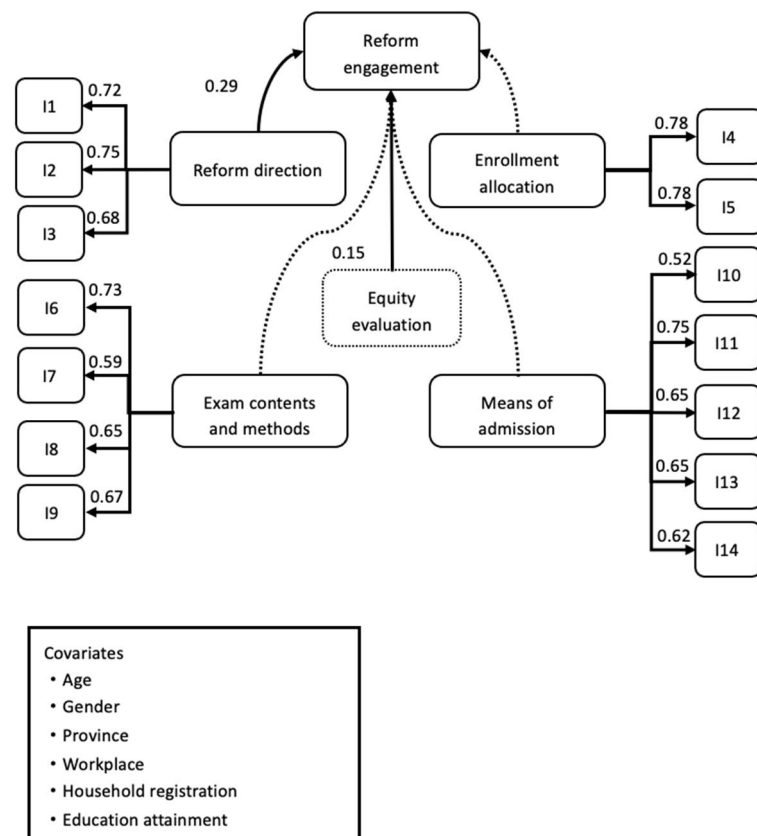


Figure 2. Structural equation model testing the relationships between five first-order factors and reform engagement.

7. Discussion

7.1. The Key Findings of Stakeholders' Attitudes toward Policy Reform

Significant differences were found in stakeholders' attitudes toward the policy reform of NCEE based on gender, age, ethnicity, region, province, education attainment, and workplace. Female teachers, managers, and administrators expressed more positive attitudes toward the implementation of the policy of enrollment allocation compared with their male counterparts. However, there were no statistically significant differences in approval by ethnicity (Han versus ethnic minorities) or region (cities and towns, versus rural areas) in terms of creating and implementing the new NCEE. Interestingly, regarding significant differences across age groups, participants that were over 60 years old generally expressed more positive attitudes regarding the reform directions of the new NCEE compared with their counterparts from other age groups. Older participants tend to have more insightful and objective individual learning experiences and judgments regarding the policy transformation of Chinese college entrance examinations compared with their younger counterparts. Broadly speaking, the results appeared to demonstrate that older/senior participants, who had a sophisticated understanding of the issue, generally expressed prudent attitudes regarding the reform directions of college entrance exams, suggesting that the general directions and orientation of policy reform are consistent with the contemporary trends of Chinese college entrance exams [22,23].

7.2. Analyses of Various Participants

Older participants who have witnessed the historical trends of policy reform might feel that the general direction of policy reform is fundamentally consistent with the historical direction of reforms. Specifically, in 1977, the NCEE aimed to give priority to key universities and colleges to select promising candidates. In 1984, *Opinions on Reforming the Enrollment Source Plan of Institutions of Higher Education* (1984 Opinion) was released by the Chinese Ministry of Education, which outlined a general direction of selective admission, allocating 30%–35% of the annual enrollment plan to high-quality candidates. To further narrow the enrollment gap between rural and urban areas, in 2006, the Ministry of Education released a new admission direction, entitled "Promoting Equality among Different Regions" [24,25]. Since then, the general admission direction of the NCEE has consistently tended to provide an increased proportion of the admission quota to candidates from developing provinces, regions, and/or rural areas, and poor counties. Since the release of the 2014 Opinion, two programs have been implemented to increase the admission quota of students from rural and developing locations [26]. For example, the Collaborative Plan for Enrollment in the Central and Western Regions suggests enrolling students from both mid-west regions and rural and poverty-stricken areas. Thus, the transformation of reform direction from efficiency-driven to equity-driven values embodies the policy of incremental change regarding reconstructing and reshaping the development of China's NCEE. Moreover, participants from Zhejiang Province reported more positive attitudes toward the reform directions of the new NCEE compared with their counterparts from Shanghai and Shandong. As one of the most developed provinces, the overall higher education system of Zhejiang Province developed more rapidly compared with the systems of other provinces in terms of enrollment rates and graduation rates. Historically, people in Zhejiang Province have held more positive and active perceptions of implementing new educational policies, which are related to faculty development, higher education financial allocation, and talent cultivation since the reform and opening policy [27,28]. In addition, in terms of the interpretation of age, region, gender or ethnicity, we found that different regional allocation, gender distribution, and ethnicity have clearly impacted attitudes toward educational policy implementation. For example, participants in highly developed regions tend to hold positive attitudes toward the development of higher education admission policy and participants from low-developing regions, such as rural areas, tend to hold negative or critical perspectives on the implementation of new admission policy, depending on the context.

7.3. The Regional Contextual Analysis of Selected Provinces

Comprehensive scores are composed of scores on the unified college entrance examination, senior high school entrance examinations, and the comprehensive quality evaluation [29,30]. This approach applies specialty enrollment plans by which colleges are required to assess students' abilities through unified examinations, and general high school academic proficiency examinations and interviews (or skills tests). Comprehensive quality evaluation is performed by observing, recording, and analyzing students' overall development, including their ideological and moral character, academic level, physical and mental health, artistic accomplishments, and social practice. Additionally, this evaluation approach considers students' social responsibility, innovative spirit, and practical ability. Comprehensive assessment scores include the content, standards, forms, and methods of assessment in colleges and universities, which are determined by the pilot universities according to their training objectives and the requirements of their disciplines and specialties, reflecting the assessment of their professional qualities and potential [31]. Thus, economic development plays an inevitable role in influencing perceptions of the equity evaluation of the new NCEE [32]. It is worth noting that participants who are administrators with high-level degrees more frequently expressed support for the reform directions of the new NCEE than their counterparts with specialist qualifications. Participants with high-level degrees also held more positive attitudes toward admission approaches and exam content than managers at the admission offices in universities and colleges. In this sense, since the release of the 2014 Opinion, administrators at provincial education bureaus may have reached widespread agreement regarding the accessibility and feasibility of implementing the policy of the new NCEE, especially regarding the admission approach and exam content [33–37]. The structural equation modeling results suggest that the reform direction, enrollment allocation, exam content and methods, means of admission, and equity evaluation all contribute to predicting the key stakeholders' perspectives and attitudes, supporting the rationale of the proposed conceptual framework described previously [38].

7.4. The Limitations and Future Study

However, the current study has several limitations. First, a larger sample size would be helpful in future studies to improve the robustness of statistical analyses. Second, conducting more interviews might offer a clearer contextual background to explain stakeholders' attitudes and engagement in implementing higher education admission policy. Third, more case studies should be obtained to analyze the enrollment allocation, exam contents and methods, and the means of admission, which failed to predict the reform engagement. This finding indicates the prevalence of critiques and disagreements regarding how to construct and implement specific educational policies [39,40]. In future studies, larger samples of respondents from specific provinces may be useful for exploring various stakeholders' perspectives on higher education admission policy development contextually.

Debates regarding sustainable higher education and sustainability in higher education typically have two dimensions [41,42]. While the first dimension expresses discourse that supports the development of a robust higher education system to deliver timely higher education, the second describes the complexity of environmental factors and their incorporation in higher education [43]. Specifically, higher-education institutional sustainable development is considered to be a critical concept to promote global sustainable education development. The development of sustainable higher education includes multiple aspects, including economic, ecological, and social factors and dimensions. In addition, from a technological perspective, creating sustainable higher education is also closely associated with the promotion and distribution of quality education through technological innovation and advances. For example, Alam (2022) argue that "COVID-19 appears to have been utilized by the HE system as an excuse to exacerbate the "diploma disease crisis," a scenario that must be resolved by developing a proper policy framework that allows HE to play the necessary role in an emergency" [44–46]. Therefore, achieving sustainable higher education and sustainability in higher education requires complicated and multi-dimensional factors

to be embraced, so as to continuously shape a more inclusive and efficient global higher educational system.

8. Conclusions

The results of the current study revealed that administrators at provincial education bureaus, managers from admission office at universities and colleges, and teachers at local high schools hold relatively positive attitudes toward the education policy of the new college entrance exam, specifically regarding reform directions, enrollment allocations, examination content, and the methods and means of admission. During the process of implementing the educational policy of the new NCEE, although the policy received some critique regarding the formation and the implementation of the NCEE, the general reform direction was widely approved of by administrators, managers, and teachers at different levels. In future studies of this topic, regional differences and differences related to socioeconomic status should be investigated in further depth. Meanwhile, the shift to online admission processes and examinations during the COVID-19 pandemic may necessitate a new direction for future policy design and policy formation regarding advancing the quality of the higher education admission process. Thus, promoting various basic digital competencies for students is considered to be an important part of an appropriate action plan.

Author Contributions: Conceptualization, J.L. and E.X.; data curation, E.X.; formal analysis, J.L. and E.X.; investigation, J.L. and E.X.; methodology, J.L.; project administration, J.L. and E.X.; resources, E.X.; supervision, J.L.; visualization, J.L.; writing—original draft, J.L.; writing—review and editing, J.L. All authors have read and agreed to the published version of the manuscript.

Funding: This research was funded by National Social Science Foundation Youth Topics in Education “Study on Process Tracking and Effect Evaluation of Policy Implementation of Excellent Teacher Plan in Ministry-affiliated Normal Universities” (Project No.: CIA220282).

Institutional Review Board Statement: Ethical approval received.

Informed Consent Statement: The study was conducted in accordance with the Declaration of Helsinki and approved by the Institutional Review Board (or Ethics Committee) of Faculty of Education of Beijing Normal University.

Data Availability Statement: Not applicable.

Conflicts of Interest: The authors declare no conflict of interest.

References

1. Wang, J. Chinese parental academic socialization prior to college entrance examination: Insights from urban and rural areas. *J. Fam. Stud.* **2021**, 1–18. [\[CrossRef\]](#)
2. Zhong, X.; Wang, W. Consistency of Zhejiang Provincial College Entrance Examination Questions and Curriculum Standards Based on Knowledge Map Construction. *Math. Probl. Eng.* **2022**, 2022, 3959688. [\[CrossRef\]](#)
3. Dang, G.; Guo, Y. A Creative Design Framework for Math Exam Questions Concerning Inequalities and Zeros of Functions with an Unknown Parameter in China National College Entrance Examination. *Mathematics* **2022**, *10*, 1618. [\[CrossRef\]](#)
4. Wang, X. China national college entrance examination brings new changes to high schools. *J. Contemp. Educ. Res.* **2021**, *5*, 11–17. [\[CrossRef\]](#)
5. Zuo, J. Three dimensional structure of college entrance examination function and its new era turn. *Front. Educ. Res.* **2022**, *5*, 11–18.
6. Chen, B. On the complexity of Immigration College Entrance Examination Policy: A Content Analysis Based on Plans of 30 Provinces. *Educ. Sci.* **2015**, *31*, 223–234.
7. Chen, J.; Ding, Y.; Ye, X. Cause and effects of school choice of the students of senior high school in China. *Educ. Res. Mon.* **2014**, *5*, 36–45.
8. Chen, F.; Ye, Z. A new reform of the college entrance examination: To create an environment for improving student comprehensive development. *Mod. Teach.* **2015**, *31*, 5–8.
9. Davey, G.; De Lian, C.; Higgins, L. The university entrance examination system in China. *J. Furth. High. Educ.* **2007**, *31*, 385–396. [\[CrossRef\]](#)
10. Duan, J. College entrance examination reform: Change the symptoms not the disease. *J. Hubei Univ. Educ.* **2010**, *27*, 107–109.
11. Elmore, R.F. Forward and backward mapping: Reversible logic in the analysis of public policy. In *Policy Implementation in Federal and Unitary Systems*; Hanf, K., Toonen, T.A.J., Eds.; Martinus Nijhoff Publishers: Dordrecht, The Netherlands, 1985; pp. 33–70.

12. Feng, Y. National college entrance examinations: The dynamics of political centralism in China's elite education. *J. Educ.* **1999**, *181*, 39–57. [\[CrossRef\]](#)
13. Jiang, C. Theory on abolition of the College Entrance Examination: A beautiful mandala. *High. Educ. Res. Eval.* **2007**, *2*, 62–64.
14. Jiang, G. Adhere to strengthening moral education and cultivating people as the core, and to deepen the reform of the content of the College Entrance Examination. *China High. Educ.* **2015**, *51*, 31–34.
15. Jacob, W.J.; Mok, K.H.; Cheng, S.Y.; Xiong, W. Changes in Chinese higher education: Financial trends in China, Hong Kong and Taiwan. *Int. J. Educ. Dev.* **2018**, *58*, 64–85. [\[CrossRef\]](#)
16. Zong, X.; Zhang, W. Establishing world-class universities in China: Deploying a quasi-experimental design to evaluate the net effects of Project 985. *Stud. High. Educ.* **2019**, *44*, 417–431. [\[CrossRef\]](#)
17. Kline, R.B. *Principles and Practice of Structural Equation Modeling*, 3rd ed.; Guilford: New York, NY, USA, 2015.
18. Otero, J.M.; Ortega, J.H. Los objetivos de desarrollo sostenible. *Aportes Desde La Investig. Educ. Comprometida* **2020**, *24*, 149–173. [\[CrossRef\]](#)
19. Li, Q. The revolution of teaching and learning under new curriculum: My thoughts on understanding Hengshui High School educational revolution. *Chin. Sci. Technol. Econ. News Database* **2016**, *4*, 7.
20. Li, S. The Preparation of National College Entrance Examination (NCEE) in China. In Proceedings of the Comparative and International Education Society (CIES) Annual Meeting, Beijing, China, 25 April–2 May 2021.
21. Liu, A.; Xie, Y. Influences of monetary and non-monetary family resources on children's development in verbal ability in China. *Res. Soc. Stratif. Mobil.* **2015**, *40*, 59–70. [\[CrossRef\]](#)
22. Liu, L. An Overview of Development of Higher Education Access in China. *High. Educ. Stud.* **2012**, *2*, 107–113. [\[CrossRef\]](#)
23. Liu, Z. Institution and inequality: The hukou system in China. *J. Comp. Econ.* **2005**, *33*, 133–157. [\[CrossRef\]](#)
24. Muthén, L.K.; Muthén, B.O. *Mplus User's Guide*, 7th ed.; Springer: Los Angeles, CA, USA, 1998–2015.
25. Mok, K.H.; Lo, Y.W. The impacts of neo-liberalism on China's higher education. *J. Crit. Educ. Policy Stud.* **2007**, *5*, 316–348.
26. OCED. Education at a Glance 2008. Available online: <https://www.oecd.org/education/skills-beyond-school/41284038.pdf> (accessed on 2 June 2020).
27. O'Toole, L.J. Rational Choice and Policy Implementation: Implications for Interorganizational Network Management. *Am. Rev. Public Adm.* **1995**, *25*, 43–57. [\[CrossRef\]](#)
28. Paudel, N. A Critical Account of Policy Implementation Theories: Status and Reconsideration. *Nepal. J. Public Policy Gov.* **2009**, *25*, 36–54.
29. Pulzl, H.; Treib, O. Implementing public policy. In *Handbook of Public Policy Analysis: Theory, Politics and Methods*; Frank, F., Miler, G.J., Sidney, M.S., Eds.; Routledge: London, UK, 2006.
30. Ross, H.; Wang, Y. Reforms to the College Entrance Examination in China: Key Issues, Developments, and Dilemmas. *Chin. Educ. Soc.* **2010**, *46*, 3–9. [\[CrossRef\]](#)
31. Wang, Y. Study on the Setting up of College Entrance Examination of Physical Education Specialty in Jiangxi Province. Ph.D. Thesis, Soochow University, Suzhou, China, 2013; pp. 5–8.
32. Xu, J.; Yi, X. Can the Increase in Public Expenditure on Education Alleviate the Second-Generation Phenomenon? An Analysis of Intergenerational Income Mobility Based on CHNS. *J. Financ. Econ.* **2014**, *40*, 17–28.
33. Zhang, Y. History and Future of the National College Entrance Exam (NCEE) in China. In *National College Entrance Exam in China*; Springer: Singapore, 2016; pp. 1–15.
34. Zhang, H.; Wang, X. Equity Issues in China's College Entrance Examination Policy. In *Equality in Education*; Sense Publishers B.V.: Rotterdam, The Netherlands, 2014; pp. 79–93.
35. Zhang, Y.; Chen, D.S.; Wang, W. The heterogeneous effects of ability grouping on national college entrance exam performance—evidence from a large city in China. *Int. J. Educ. Dev.* **2014**, *39*, 80–91.
36. Zhang, Y.; Zhou, X. Can Higher Household Education Expenditure Improve the National College Entrance Exam Performance? Empirical Evidence from Jinan, China. *Curr. Issues Comp. Educ.* **2017**, *19*, 8–32.
37. Zheng, R.; Wan, Y. The problem of unified College Entrance Examination and evaluation of its causes. *J. Cent. China Norm. Univ.* **2015**, *54*, 154–160.
38. Zhou, B. Discussion about the lack and promotion of educational function in the College Entrance Examination system. *Theory Pract. Educ.* **2009**, *29*, 17–21.
39. Zhu, Y. The division system of liberal arts and science, the cancer in Chinese education. *Educ. Sci. Res.* **2004**, *15*, 61.
40. Zivin, J.G.; Song, Y.; Tang, Q.; Zhang, P. Temperature and high-stakes cognitive performance: Evidence from the national college entrance examination in china. *J. Environ. Econ. Manag.* **2020**, *104*, 102365. [\[CrossRef\]](#)
41. Günther, J.; Overbeck, A.K.; Muster, S.; Tempel, B.J.; Schaal, S.; Schaal, S.; Kühner, E.; Otto, S. Outcome indicator development: Defining education for sustainable development outcomes for the individual level and connecting them to the SDGs. *Glob. Environ. Change* **2022**, *74*, 102526. [\[CrossRef\]](#)
42. Celikdemir, D.Z.; Gunay, G.; Katrinli, A.; Alpbaz, S.P. Defining sustainable universities following public opinion formation process. *Int. J. Sustain. High. Educ.* **2017**, *18*, 294–306. [\[CrossRef\]](#)
43. Daniela, L.; Gutiérrez-Braojos, C.; Lytras, M.D.; Visvizi, A. Sustainable Higher Education and Technology-Enhanced Learning (TEL). *Sustainability* **2018**, *10*, 3883. [\[CrossRef\]](#)

-
44. Alam, G.M.; Forhad MA, R. Sustainable achievement of selective KPIs of different players in education: An update for policy discourse and role of tertiary education. *Int. J. Learn. Chang.* **2021**, *14*, 137–158. [[CrossRef](#)]
 45. Alam, G.M. Does online technology provide sustainable HE or aggravate diploma disease? Evidence from Bangladesh—A comparison of conditions before and during COVID-19. *Technol. Soc.* **2021**, *66*, 101677. [[CrossRef](#)] [[PubMed](#)]
 46. Alam, G.M.; Roslan, S.; Al-Amin, A.Q.; Leal Filho, W. Does GATS' Influence on Private University Sector's Growth Ensure ESD or Develop City 'Sustainability Crisis'-Policy Framework to Respond COP21. *Sustainability* **2021**, *13*, 4520. [[CrossRef](#)]