Sampling Survey

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Abstract

With the process of modernization, the original family structure in China has undergone tremendous changes. Traditional big families are scattered all over the country. People began to make interpersonal relationships through interests rather than blood, and it has became a trend to Bai-Nian to friends. And with the rise of the Internet, at the same time due to the impact of distance and the epidemic factors, online Bai-Nian through video and other methods have also became popular. This report reflects the preferences of contemporary college students on willingness and way of Bai-Nian from the perspective of SUSTech students around us. We mainly focus on three research objectives, namely (1) investigate whether SUSTech students are willing to Bai-Nian during the Spring Festival, (2) investigate the way of SUSTech students will choose and (3) try to find the objective reasons that affect the subjective evaluation of SUSTech students. After the focus interview and pre-test, we finally distributed our final questionnaires through approximately simple random sampling. According to the design structure of our questionnaire and the characteristics of the collected data, we mainly used the statistical methods of *Kolmogorov-Smirnov test*, *Kruskal-Wallis rank-sum test* and *ordinal multinomial logistic regression* to analyze our data. In this report, we show that (1) most SUSTech students are willing to go to Bai-Nian, and students of different grades have significantly different subjective wishes. (2) Most of SUSTech students do not think online Bai-Nian are a good alternative, but those who have experienced online Bai-Nian may have different opinions. (3) We analyze the objective reasons that will significantly affect the subjective evaluation of SUSTech students on Bai-Nian.

Contents

1 Introduction and Research Objectives

1.1 Background

With the process of modernization, many people moved out of their hometowns into cities and dispersed to all parts of the country due to the needs of work and life. So Bai-Nian sometimes mean long journeys. After the traditional big familes were broken up and reorganized into small familes, people began to make interpersonal relationships through interests rather than blood, and it has became a trend to Bai-Nian to friends. At the same time, with the rise of the Internet, online Bai-Nian with video and other methods have also began to appear. After experiencing the impact of the COVID-19 epidemic, the way of Bai-Nian has undergone further changes.

These changes may be particularly evident among college students who have not yet formally entered the society and are more willing to accept new things. Therefore, our sample survey is to analyze the preferences of contemporary college students on willingness and way of Bai-Nian they will choose from the perspective of SUSTech students around us.

In this survey, we specifically used the pinyin ”Bai-Nian” to describe the action defined as a exchange of festive greetings to their relatives and friends, either offline visits or online video wishes, during the traditional Spring Festival holidays, from the New Year's Day to the Lantern Festival.

1.2 Research Objectives

In this sample survey, our research will focus on three objectives:

1. Investigate whether SUSTech students are willing to Bai-Nian during the Spring Festival (for relatives and friends).

2. Investigate the SUSTech students' views and attitude on online Bai-Nian.

3. Try to find the objective reasons that affect the subjective evaluation of SUSTech students on Bai-Nian.

1.3 Study Plan

Focus Group Interview: Conduct focus group interview to learn how participants think about the initial questions we set, and explore what information in the discussions does reflect our research goals. Prepare the initial questionnaire based on the results of the focus group interview.

Pretest: Use the initial questionnaire to conduct a pilot survey among the people around us to check whether the questions are constructed appropriately. Obtain a further revision of the questionnaire (final questionnaire) according to the information got in the pilot study.

Samping Scheme: Using the final questionnaire to take the sample survey. Since our research subjects are SUSTech students, we plan to collect information by simple random sampling within the school.

Data Analysis: Analyze the obtained data through both qualitative and quantitative methods. List the main findings and summarize the conclusions of this sample survey. Finally, try to discuss the shortcomings of our experiment and the improvement plan.

2 Focus Group Interview

2.1 Outline

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Topic: A survey on the willingness and way of college students of SUSTech
   for traditional habits of Bai-Nian during the Spring Festival.
Interview time: 21:00 - 22:30 03/27/2022
Interview participants: Wu Yifan, Wu Yulun, Mo Xuancheng, Mao Wenhui, Xu
   Boqing, Kuang Haowei, Li Jiaxin, Gu Junyi, Li Xuanming.
Interview venue: Tencent meeting (online)
Task allocation:
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a.Pei Yankai (moderator)
b.Niu Shengjie (recorder)
c.Yuan Haocheng (assistant moderators)
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Reasons of invitation:

a. All participants are undergraduate students of Southern University of Science and Technology and meet the requirements of the research subjects.

b. All the participants are relatively unfamiliar with each other as well as our research team.

c. All participants meet homogeneity, basically belong to the same age interval, and have the same educational background.

d. Participants belonged to various regions, which is a great benefit for the generalization effect on results.

2.2 Typical procedures and Major findings

Discussion issues: We mainly discuss the willingness of SUSTech students on Bai-Nian, the views and attitude on online Bai-Nian, and their preference for visiting objects (relatives or friends). Then try to discuss the objective reasons that affect the subjective evaluation of SUSTech students on Bai-Nian.

Question development. Based on research objectives and the prior information, a series of transition and key questions were developed to ensure orderly and logical sequencing of questions. Since it is an online focus interview, we firstly gave each participant a certain amount of time to recall the relevant details of Bai-Nian to make the discussion smoother.

Group composition and recruitment. Our research objects are SUSTech students aroud us. To realize that all the participants are relatively unfamiliar with each other as well as the research team, we randomly contacted a certain number of students from different majors and different regions through corporate WeChat. All of students we con-

tacted meet the basic requirements of our research subjects and meet the homogeneity from the perspective of educational level and age range. A personalized letter to the students followed the initial contact. Each participant was contacted by telephone one day before the focus group meeting to serve as a reminder. We will provide each participant with a red envelope and a specially prepared small gift as incentives. Although our interviews are only available online, we can ensure that every participant will have ample opportunity to speak up and encourage them to actively share their views. The final focus interview had a total of nine participants, and all have willingness to participate. All the participants are from Southern University of Science and Technology, but it is interesting that they come from different regions of China, have different customs, and each participants has different views on Bai-Nian. Each participant shared their own understanding of Bai-Nian and thinking about the meaning of the Bai-Nian through discussion.

Interview protocol and logistics. Members of our group acted as the moderator, recorder, and assistant moderator of this interview. Although all of us are undergraduates and have no experience in this area, we carefully studied the slides published on the blackboard, and learned about the tasks that the moderator and research assistant should be responsible. Fortunately, the members of our group are all statistical students with some experience in data collection and processing. All the contents were audiotaped and videotaped. Immediately following focus group interview, the moderator reviewed the assistant moderator's notes during a debriefing session, and the assistant moderator provided clarification when necessary.

Major findings. From our prior knowledge, the customs of Bai-Nian are different in distinct regions. At the same time, the epidemic situation in recent years had huge impact on the Bai-Nian. According to the focus group interview, most of the participant will perform Bai-Nian during the Spring Festival, the only one who don't take any actions is owing to the serious epidemic situation. In addition, the way of Bai-Nian of most participants' choice are family-family, we also found that participants who chose multiply

families lived in less developed cities, which reflect that the traditional way of multiply families maybe be blocked by the modern city. Furthermore, most of the participants will only visit local relatives and a considerable number of participants do not accept online greetings, which means that distant relatives are easily overlooked. Finally, most of participants prefer to visit friends rather than relatives during Spring Festival, but they always visit relatives because of their parents. And they mostly think that such relatives who do not communicate much in daily life, such annual Bai-Nian cannot improve the relationship between relatives, which was in line with our group's perception of our generation's young people's blood relationship. However, there are still some participants who firmly believe in the importance of blood ties and believe that the annual gathering has an irreplaceable role in maintaining the relationship. Due to the relatively small number of participants in our focus group interview, this conclusion does not have high credibility. Further discussion on this issue needs to be analyzed through more data obtained from the sample survey.

2.3 Improvement of Questionnaire

Based on the information from the focus interview, we made the following improvements to our initial questionnaire:

Deletion of questions: (1) We removed some questions that were not very strongly related to research setting goals($Q3, Q4, Q5, Q8-4$). (2) We removed the subjective answer questions ($Q18$). (3) We removed some questions that were very repetitive to existing questions and did not provide valuable information. ($Q8-2, Q9-2$).

Addition of questions: We added some questions to make our quantitative research easier($Q7, Q9, Q10$).

Changes in options: (1) We removed the "Other" option in all multiple-choice questions. (2) For some questions where the option was originally "Yes/No", we changed the

format of the question and the option to represent the degree of willingness.

Conclusion: In general, we removed some unnecessary questions, added some questions for quantitative analysis, and made the formulation of the questions clearer. All questions in the final questionnaire are multiple-choice questions so that participants can complete within three minutes.

3 Sampling Scheme and Data Preprocessing

3.1 Sampling Scheme

There are two main ways for us to distribute questionnaires: (1) Distribute our questionnaires on some public platforms of SUSTech. (2) Distribute our own questionnaires in our respective circles of friends.

Our expected sampling method is simple random sampling, but later we noticed that the data collected by the second method are mostly from students of the same grade. But fortunately, the number of questionnaires obtained by the second way is small, so we can approximate that our data is collected by simple random sampling.

3.2 Data Preprocessing

In this sample survey, we collected a total of 192 questionnaires, and obtained 188 valid questionnaires after selection. We screen invalid questionnaires mainly through the following two criteria: finish the 27 questions within 50s and the information answered is inconsistent, that is, logically contradictory at the same time.

After that, we performed the following preprocessing on the collected data.

1. Mark the output results of all single-choice questions with serial numbers (for example, labeled as $1, 2, 3 \cdots$).

2. Convert the output result of all multiple-choice questions into dummy variables, record as 1 if selected, and as 0 if not selected.

3. For some results that can represent the degree and can be sorted, convert it into an ordinal factor. (For example, the options for question 16, the options range from completely disagree to completely agree, which can be regarded as seven gradually increasing levels, then we convert into an ordered factor from 1 to 7). This is also to meet the needs of our later ordinal multinomial logistic regression.

4. Due to the conditional question in the questionnaire, not all the questions can be answered, which leads to the structural missing values. These missing values are displayed

as ”-3” in the data exported from the software, questionnaire star. For the convenience of subsequent data analysis, we will re-convert them to NA values.

The above is the section of data preprocessing. Next, we will analyze the data for each objective separately.

4 Data Analysis and Main finding

4.1 Objective 1: Willingness

Our first objective was a study of respondents' willingness for Bai-Nian, which were further divided into relatives' willingness and friends' willingness.

Overview

First of all, let's take a look at the overview of willingness. It is divided into 7 levels from top to bottom, which represent ”very unwilling to Bai-Nian” to ”very willing to Bai-Nian”. We can think that the respondents in the 5th to 7th levels are willing to Bai-Nian, those in 1th to 3th levels are not willing to go Bai-Nian, and those in level 4 are neutral.

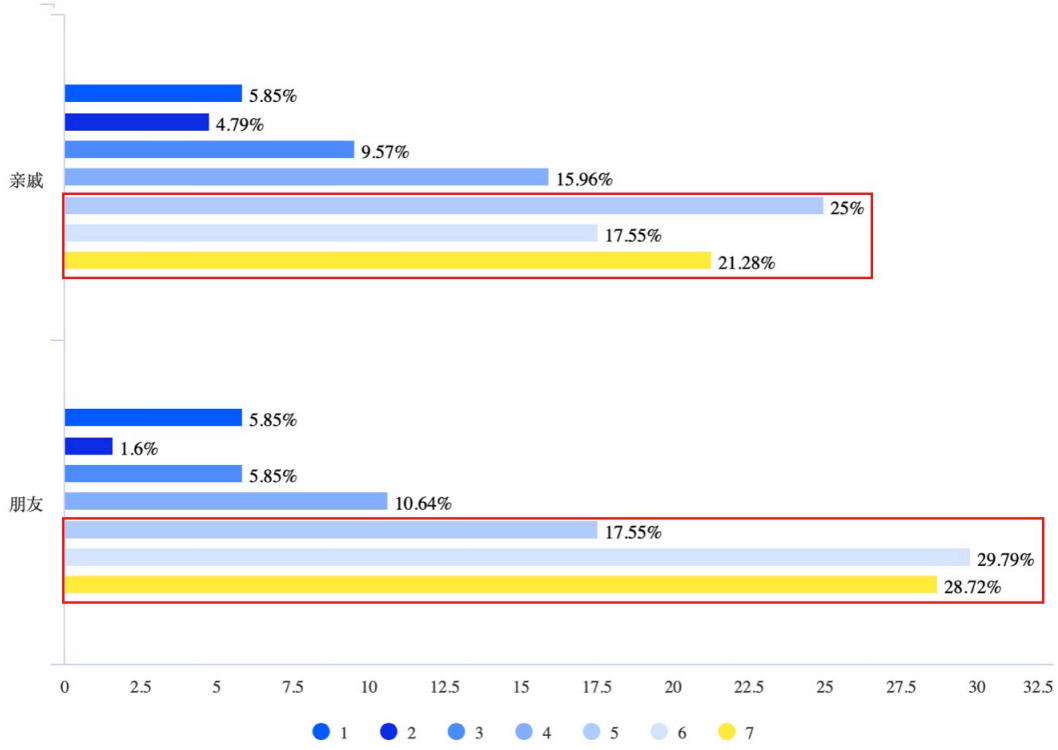

Figure 1: The overview of willingness of Bai-Nian

Thus, we have that if the objects of Bai-Nian are relatives, there are 63.83% of respon-

dents are more willing to Bai-Nian, 15.96% of respondents remain neutral, and 20.21% are reluctant to Bai-Nian. And if the objects of Bai-Nian are friends, there are 76.06% of respondents are more willing to Bai-Nian, 10.64% of respondents remain neutral, and 13.3% are reluctant to Bai-Nian.

It can be seen that more than half of the respondents are willing to Bai-Nian, and the willingness to visit friends is relatively high.

The willingness of Bai-Nian among respondents of different grades

Afterwards, we wanted to investigate the differences in the willingness of Bai-Nian among respondents of different grades. Two figures about relatives and friends are given below:

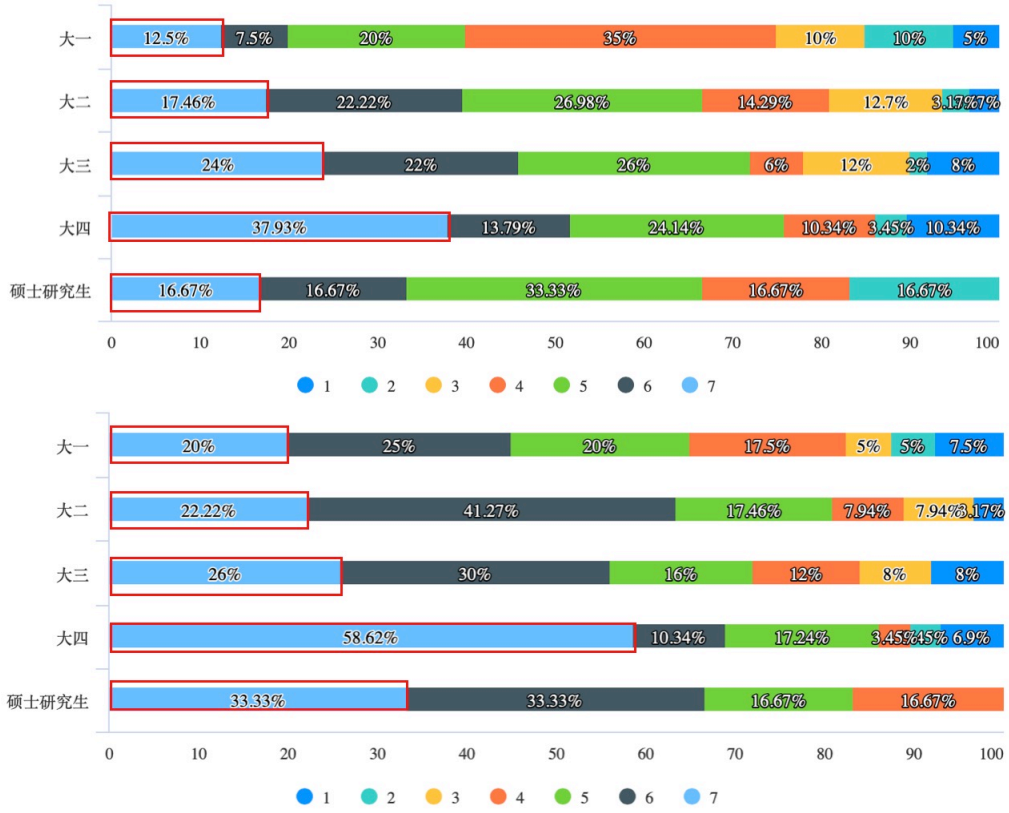

Figure 2: The willingness of Bai-Nian among respondents of different grades

The ordinates of above two figures represent the grades of the respondents, and each histogram represents the proportion of respondents with different degrees of willingness of Bai-Nian. If we only look at the blue part on the far left, i.e., the proportion of respondents who are very willing to go to Bai-Nian. We can find that the proportion of

respondents who are very willing to Bai-Nian is gradually increasing from freshman year to senior year, regardless of whether the object of Bai-Nian are relatives or friends.

However, conclusions based on trends in figures alone are not convincing enough, so we plan to conduct variance analysis. The relevant test results are listed in the table below:

Table 1: The results of one sample K-S test and K-W test

Test	Relatives	Friends
One sample Kolmogorov-Smirnov test	<2.2e-16	<2.2e-16
Kruskal-Wallis ranks sum test	0.03942	0.04506

According to the result of the *one sample Kolmogorov-Smirnov test*, we found that regardless of whether the object of Bai-Nian are relatives or friends, the willingness of Bai-Nian do not conform to the normal distribution, which means we cannot use the ANOVA test.

Therefore, we used the nonparametric test: *Kruskal-Wallis ranks sum test*, and from the significant results, we can find that there are significant differences in the willingness of Bai-Nian among respondents of different grades regardless of relatives or friendss.

The general trend is that regardless of relatives or friends, respondents in higher grades tend to have higher willingness of Bai-Nian.

Other subjective questions of interest

For the study of willingness of Bai-Nian, in addition to the direct subjective questions like Q12 and Q13, we also set up several other subjective questions that we are interested in, namely (1) the necessity of Bai-Nian to maintain relationships, (2) the degree of happiness of Bai-Nian, and (3) whether the object of Bai-Nian is a person who is often in contact with.

The following group of figures can comprehensively show our results. The abscissa of the figures represents the grade of the respondents. The wider the bottom of the column, the more respondents belong to this grade. On the bar chart, it represents the proportion

of respondents of this grade who have different options to specific subjective questions.

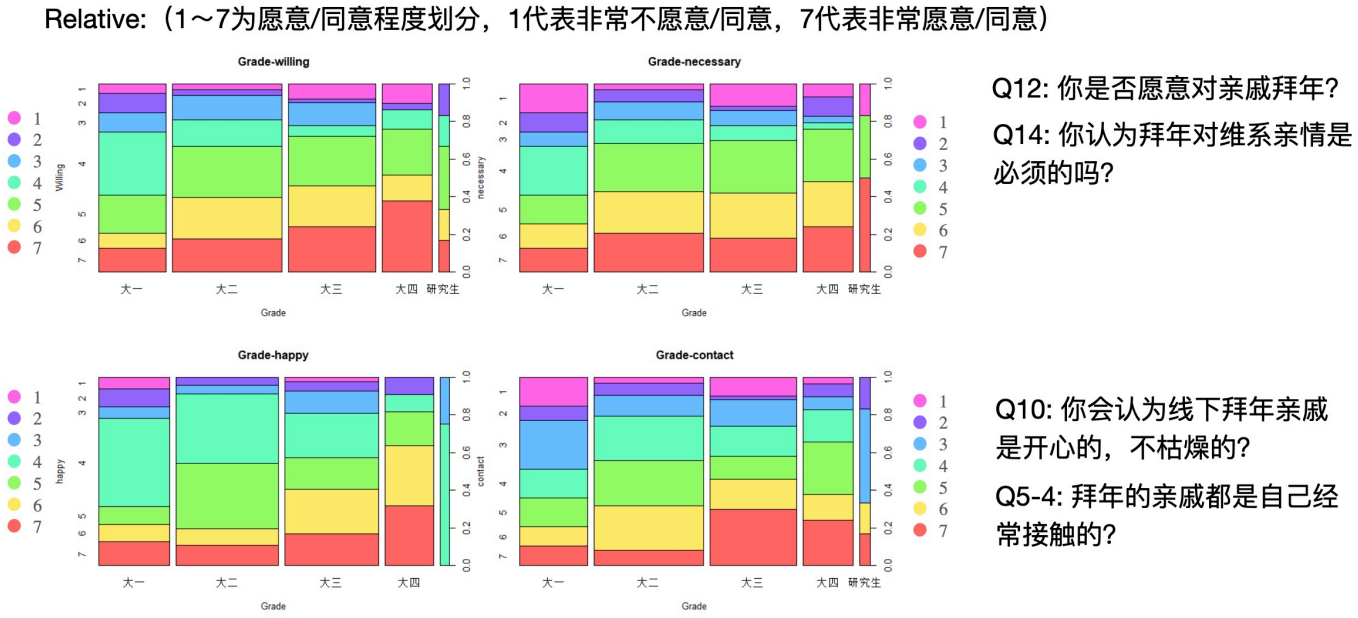

Figure 3: The willingness of Bai-Nian to relatives among respondents of different grades

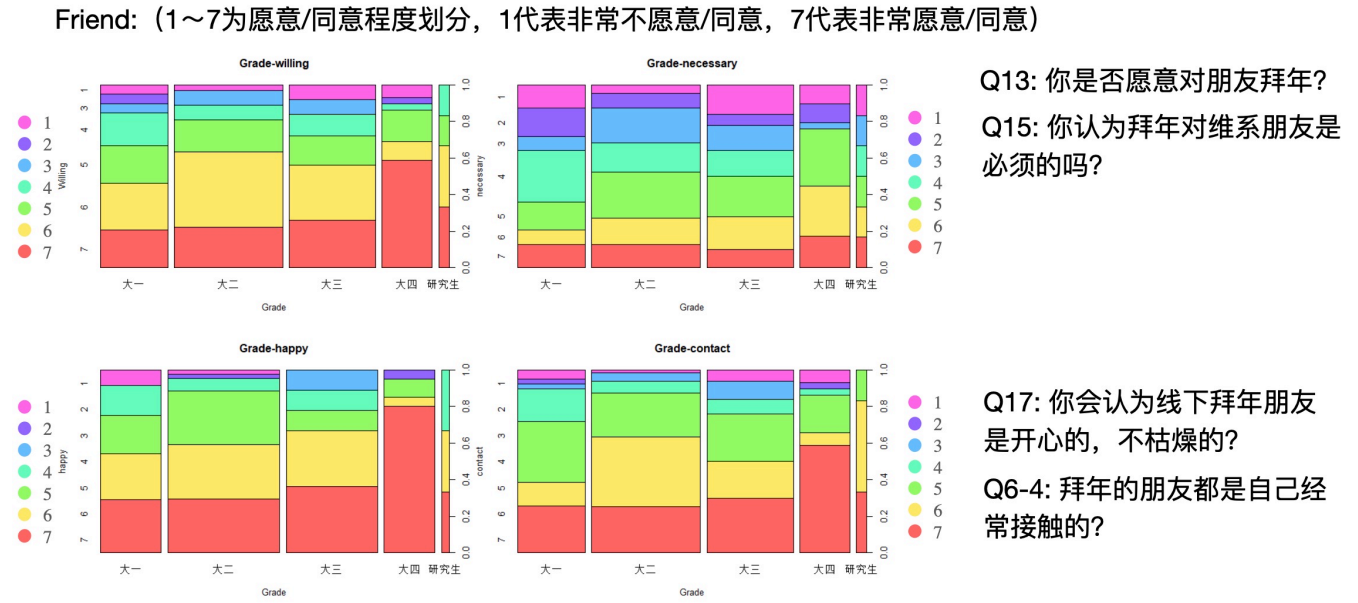

Figure 4: The willingness of Bai-Nian to friends among respondents of different grades

The set of figures on the left is of relatives, and the set of figures on the right is of friends.

In the same way, we performe non-parametric tests on these data quantitatively again. Our grouping variable are different grades, and the response variable are the answers to four subjective questions of relatives and friends, respectively. We summarize the p-

values for the test in the following table:

Table 2: The results of one sample K-S test and K-W test

(Kruskal-Wallis)	Willingness	Necessity	Happiness	Contact
Relatives	0.03942	0.07084	0.00385	0.02753
Friends	0.04506	0.2379	0.01581	0.06447

And in terms of significance we get the following findings:

1. The willingness factor is significant for both relatives and friends, and we find that respondents in higher grades tend to have higher willingness of Bai-Nian.

2. The necessity factor is not significant for both relative and friend, which means that there is no significant difference between respondents of different grades in regard to the necessity of Bai-Nian to maintain relationships.

3. The happiness factor is significant for both relative and friend, and we find that respondents in higher grades tend to be happier during Bai-Nian.

4. The contact factor is significant for only relative, respondents in higher grade tend to think that their visiting relatives are more closely related to them.

Will you take your children to Bai-Nian?

In addition to the research on the above four subjective questions, our questionnaire also raises a question that we are very interested in: will you take your children to Bai-Nian?

We attach great importance to this question, because we believe that the answer of respondents to this question actually reflects whether the custom of Bai-Nian can continue to be passed down in the future. Here we mainly analyse the connections between the results of Q18 and four subjective questions mentioned earlier.

The following group of figures can comprehensively show our results. The vertical axis of the pictures represents whether the respondents will take their children to Bai-Nian, and the horizontal axis represents the proportion of respondents who chose different degrees to specific subjective questions.

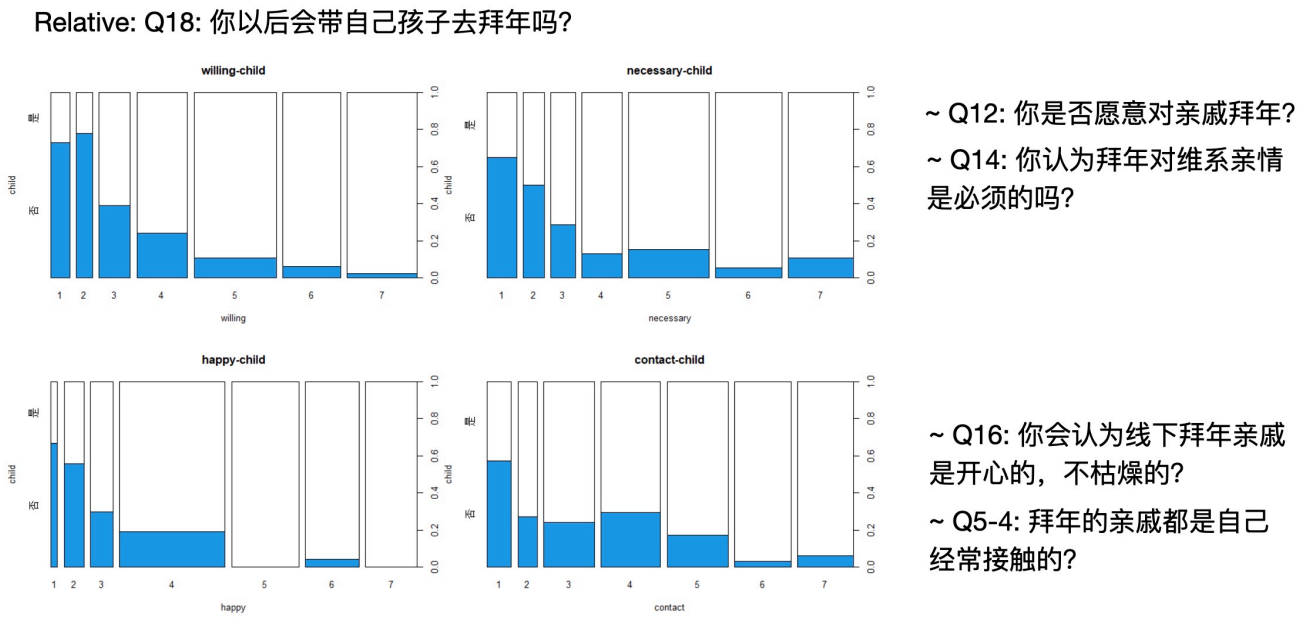

Figure 5: Proportion of respondents that will take their children to visit relatives

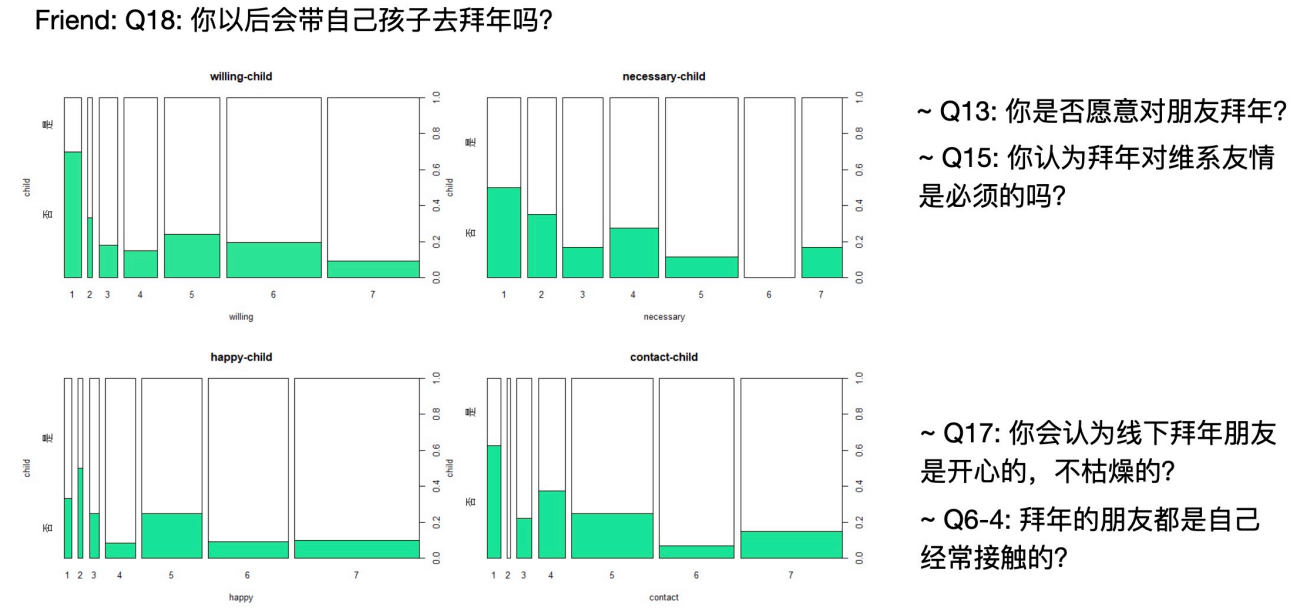

Figure 6: Proportion of respondents that will take their children to visit friends

Next, we quantitatively conduct non-parametric test on these data. The response variable is a binary factor, that is, whether you will take your children to Bai-Nian in the future. The independent variables are the ordered factors obtained from four subjective questions$(1 \sim 7)$. We summarize the p-values of these tests in the following table:

Table 3: The results of one sample K-S test and K-W test

(Kruskal-Wallis)	Willingness	Necessity	Happiness	Contact
Relatives	2.199E-10	1.619E-06	7.004E-06	0.0004514
Friends	0.002152	4.124E-04	0.2928	0.003943

And in terms of significance we get the following findings:

1. The willingness factor is significant for both relatives and friends, the willingness of Bai-Nian will affect whether respondents choose to bring their children to Bai-Nian.

2. The necessity factor is significant for both relatives and friends, which means that if respondents think Bai-Nian are very important to maintain friendship, they are more likely to bring their children with them.

3. The happiness factor is only significant for relative, which means the degree of happiness with relatives does affect whether respondents will bring their children to Bai-Nian.

4. The contact factor is significant for both relative and friend, which means the degree of connection with objectives does affect whether respondents will bring their children to Bai-Nian.

Relative or Friend

In the previous results, we found that when the objects of Bai-Nian are different, the significant results and findings are also different. So we wanted to do a comparative study on relatives and friends here, and we used a line chart like figure 7, which can visually show the trend of changes in willingness to relatives and friends. The line chart is given as below:

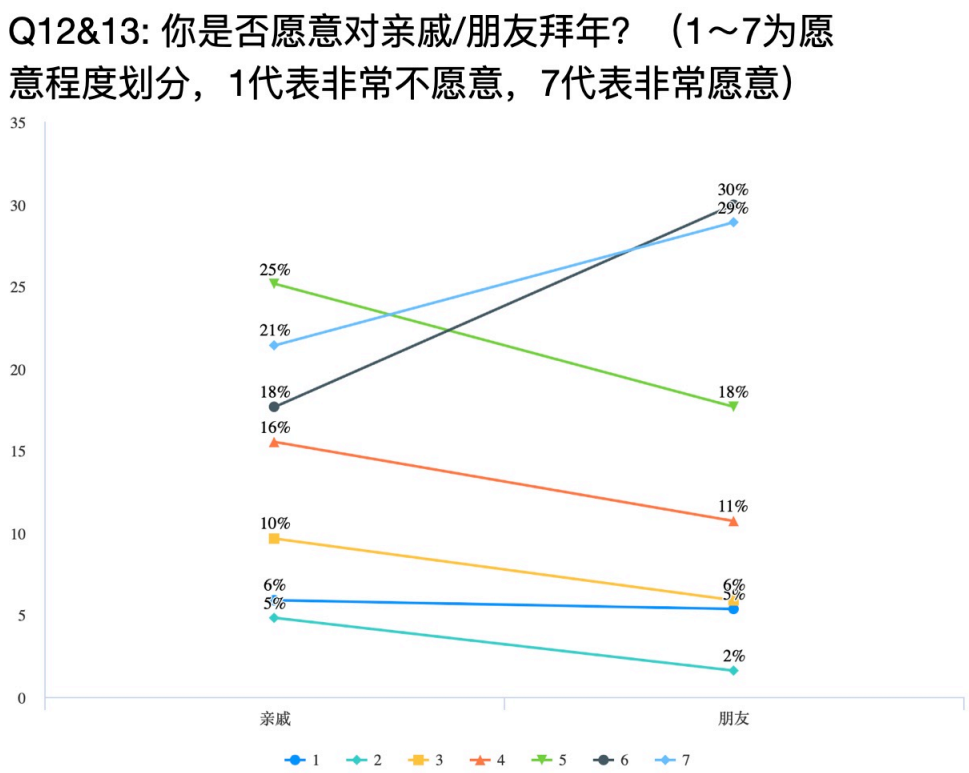

Figure 7: Comparison of willingness of Bai-Nian between relatives and friends

Compared with relatives, when the object of Bai-Nian are friends, more people are very willing to Bai-Nian; fewer people are unwilling to Bai-Nian. This trend can make us think that SUSTech students are more willing to Bai-Nian to friends.

At the same time, we also did a non-parametric test on the data, and we get that the p-values of Kolmogorov-Smirnov test and Kruskal-Wallis test are less than 2.2e-16 and 0.001528 respectively, which shows that the object of Bai-Nian does have a significant impact on the willingness of Bai-Nian.

We believe that those who stay in school have almost no chance to Bai-Nian offline. Thus, we are more concerned about the reasons why those respondents who have the opportunity to Bai-Nian do not choose to offline Bai-Nian. We obtained the data of respondents who did not stay in school this year through the Q2, and investigated why respondents do not visit relatives and friends respectively through Q5-1 and Q6-1.The consequences are given below:

Table 4: comparison between normal and ridge bagging

(Object)	Epidemic	Online Bai-Nian	workstudy reasons	health issues	No intention of Bai-Nian
Relatives	45.16%	3.23%	3.23%	0%	48.39%
Friends	37.25%	17.65%	13.73%	0%	31.37%

Compare the reasons why they did not choose to offline Bai-Nian and found that when the object of Bai-Nian were relatives, the proportion of respondents who do not go to Bai-Nian because they have no intention to Bai-Nian was 48.7%. And when the object of Bai-Nian was friends, the proportion was reduced to 31.37%. This shows that when the object of Bai-Nian are friends, the proportion of respondents who do not go Bai-Nian because they have no intention to Bai-Nian is relatively small.

4.2 Objective 2: Online or Offline

The second objective is the study of way, that is, whether SUSTech students believe that online Bai-Nian can replace offline Bai-Nian

Overview

First of all, let's look at the overview of the answers of all respondents.

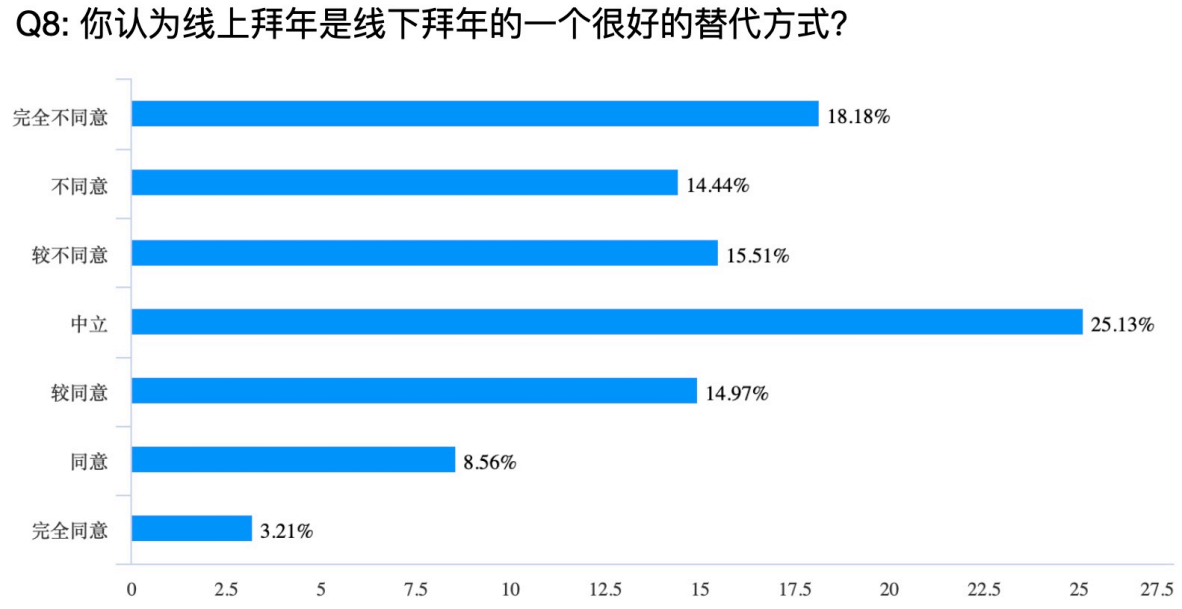

Figure 8: The overview of the views on online Bai-Nian

There are 26.74% of respondents agree that online Bai-Nian are a good alternative to offline Bai-Nian, 25.13% of respondents remain neutral, and 48.13% are reluctant to go to Bai-Nian.

The views of respondents who conducted online Bai-Nian

We consider that those who have tried online Bai-Nian may be more aware of the convenience of online Bai-Nian, so we added the filter condition Q8 to study the views of respondents who have performed online Bai-Nian this year on this question. The result is given below:

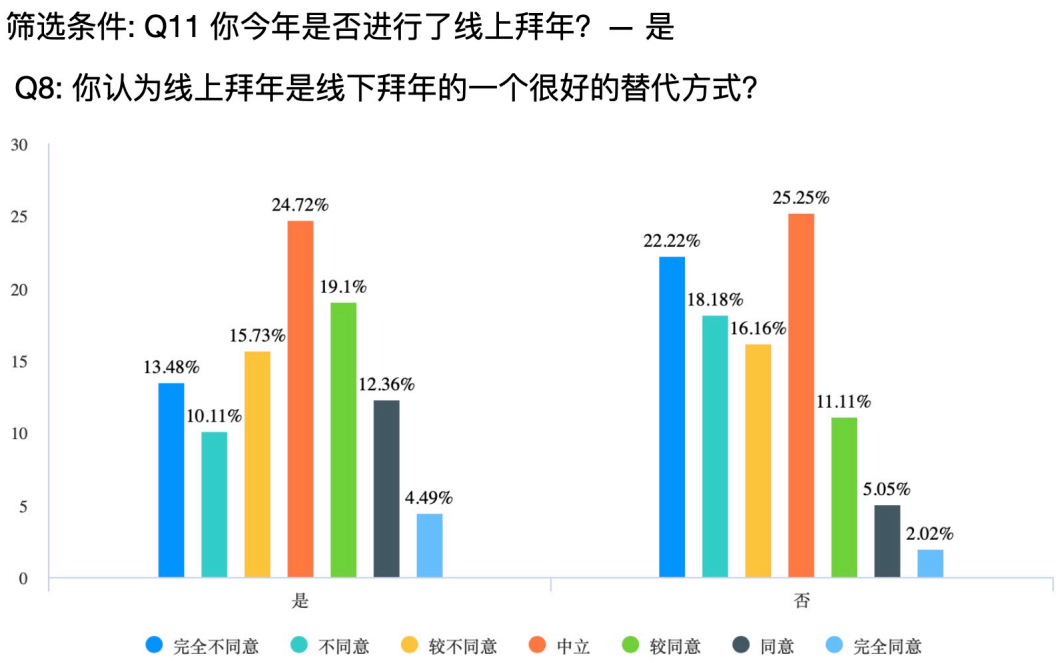

Figure 9: The views on online Bai-Nian for both respondents

It can be found that among the respondents who have conducted online Bai-Nian, a higher proportion of respondents believe that online Bai-Nian are a feasible solution.

So what are the advantages of online Bai-Nian? The responses of respondents who have conducted online Bai-Nian are given below:

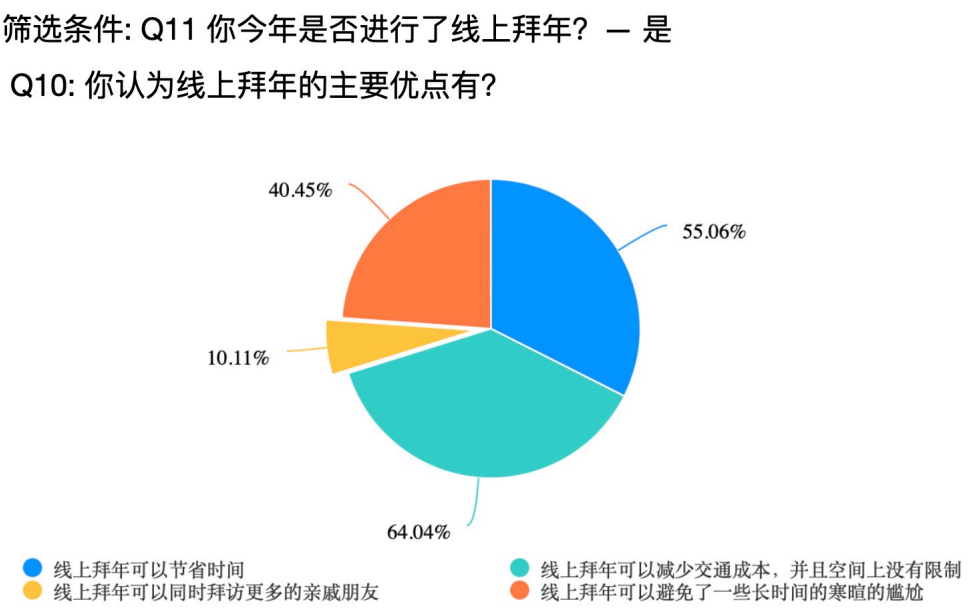

Figure 10: The main advantages of online Bai-Nian

From figure 10 we can find that respondents who conduct online Bai-Nian mostly think online Bai-Nian can solve the problem of long distance and lack of time and mostly do not think that visiting more relatives and friends is an advantage of online Bai-Nian.

4.3 Objective 3: Reasons

In this part, we try to study what kind of objective factors lead to the subjective evaluation of respondents on Bai-Nian, that is, the differences in willingness, happiness, necessity, and contact. Therefore, we adopted the ordinal multinomial logistic model, with objective factors as explanatory variables, and subjective evaluations as 4 response variables to observe the significance of objective factors.

The objective factors here include the (1) grade of the respondent, (2) whether to stay in school, (3) whether the place of respondent is affected by the epidemic, (4)comparison of the frequency of Bai-Nian before and after the epidemic, (5) Number of Bai-Nian, (6) the distance to distination of Bai-Nian, (7) the degree of voluntariness to Bai-Nian, and (8) the things to do during Bai-Nian. Among them, the things to do during Bai-Nian include nine options, which can be seen in the following table.

Significance results obtained using ordinal multinomial logistic regression are summarized in the table below:

For Relatives:

Significance	Grade	At School	Epidemic	Comparison	Number	In City	Out city	Out Prov	voluntary
Willingness		✓			✓		✓		✓
Happiness	✓	✓			✓		✓		✓
Necessity	✓				✓	✓	✓	✓	✓
Contact		✓							✓

Significance	聚餐	居家电视	电子游戏	传统游戏	唠嗑	家乡习俗	外出游玩	红包	炮竹
Willingness	✓		✓	✓		✓			
Happiness	✓	✓				✓		✓	
Necessity			✓					✓	✓
Contact						✓			✓

Figure 11: Significance results of objective factors for relatives

For Friends:

Significance	Grade	At school	Epidemic	Comparison	Number	In city	Out city	Out prov	voluntary
Willingness				✓		✓			✓
Happiness	✓								✓
Necessity	✓	✓		✓		✓			✓
Contact									

Significance	聚餐	居家电视	电子游戏	传统游戏	唠嗑	家乡习俗	外出游玩	红包	炮竹
Willingness		✓	✓	✓	✓	✓	✓	✓	
Happiness									
Necessity						✓			✓
Contact				✓					

Figure 12: Significance results of objective factors for friends

Due to space reasons, here we only explain the case where the dependent variable is the willingness of Bai-Nian to relatives, and the rest of the dependent variables are similar.

We found that whether to stay in school, the number of visits, whether destination of Bai-Nian is outside the city, the degree of voluntariness to Bai-Nian, and doing what to do

during Bai-Nian are significant, among the things, dinner parties, video games, traditional games such as mahjong poker, as well as the traditional customs of the hometown have a significant impact on their willingness of Bai-Nian when the object is relative. The same analysis process is true for visiting friends.

We find that the level of willingness to visit relatives is objectively significantly affected by whether the respondents stay in school, the number of families visited, the distance to the destination of Bai-Nian, the degree of voluntariness to Bai-Nian, and what they do during the Bai-Nian; while the willingness to visit friends was affected by the epidemic, the change of frequency of Bai-Nian after epidemic, distance to destination, the degree of voluntariness to Bai-Nian and what to do.

5 Conclusion

Overview

This is a cultural and social survey, so we will not give follow-up recommendations. With anomaly observation deleted according to the time the respondent filling out the questionnaire and other benchmarks, 188 samples were used for this study.

Both the response and predictor are ordinal or nominal variables, that is, all of variables are factors, and the normality of response variable is poor. Therefore, Kruskal-Wallis rank-sum test are used in most hypothesis tests.

Next, we summarize our findings based on each of our objective.

Willingness

1. Most respondents are willing to Bai-Nian, and they are more willing to Bai-Nian to friends.

2. Grades have a significant impact on the willingness of Bai-Nian, and respondents in higher grades tend to have higher willingness of Bai-Nian both for relatives and friends.

3. Grade has a significant impact on the happiness of Bai-Nian, and respondents in higher grades tend to be happier during Bai-Nian both for relatives and friends.

4. When the object of Bai-Nian are relatives, all of the willingness of the Bai-Nian, the necessity of the Bai-Nian, the degree of happiness of the Bai-Nian, and whether the Bai-Nian's object is often in contact will have a positive impact on bringing children to the Bai-Nian in the future.

5. When the object of the Bai-Nian is friend, the happiness of the Bai-Nian will not significantly affect respondents taking the children to the Bai-Nian in the future.

Online or Offline

1. Most of respondents don't think online Bai-Nian is a good alternative to the offline one, or stay neutral about it.

2. Respondents who have performed online Bai-Nian tend to agree that online Bai-Nian can replace offline Bai-Nian.

3.Respondents who conduct online Bai-Nian mostly think online Bai-Nian can solve the problem of long distance and lack of time.

Reasons

The willingness to visit relatives is objectively significantly affected by whether the respondents stay in school, the number of families visited, the distance to the destination, the degree of voluntariness to Bai-Nian, and what they do during Bai-Nian.

The willingness to visit friends is objectively signifcantly affected by the epidemic, the change of Bai-Nian's frequency after epidemic, distance to destination, the degree of voluntariness to Bai-Nian and what they do during Bai-Nian.

6 Disscussion

Questionnaire Design

When respondents were asked what they did during BaiNian, the options set included

some common activities with universality, such as receiving red packets and having a dinner party, that is to say, they would do such activities regardless of whether their willingness of Bai-Nian. So in the statistical models, these options have no significant effect on the willingness of BaiNian. However, when it was clear that these activities would not be carried out, respondents' willingness also decreased. In terms of the exploration of the relationship between the willingness of respondents and these activitives about Bai-Nian, it may be better to directly ask respondents' subjective attitude towards these activities rather than what they have done.

When setting the choice rule of multiple choice questions, we only set the maximum of two options the respondents can select. However, considering the convenience of data analysis, the number of options that respondents can select should be fixed, or divide these options into separate questions with binary answers.

Sampling Scheme

Some questionnaires are collected from our WeChat Moments, so the respondents tend to be highly homogenous, which indicates that actually the respondents of the survey are pre-filtered. The randomness of questionnaire survey is greatly reduced, and thus it is not simple random sampling in fact. The results of the survey may not be universal and representative without the hypothesis of homogeneity of the college students.

Logistic Regression

In the logistic regression to the willingness, which is a ordinal variable with seven levels, interaction terms and dimension reduction methods should be conducted. In this part, we didn't do these processes since there's no packages for dimension reduction of the logistic regression for the polytomous data as I known. Actually we tried the sliced inverse regression, a sufficient dimension reduction method, but it didn't work very well.

A Appendix

调查问卷

亲爱的同学：

您好！非常感谢您在百忙之中抽空填写这份调查问卷。

这是一份关于课程项目的调查问卷，主要为了调查和研究当代年轻人（仅限18到25岁之间的大学生和研究生）对于拜年行为的意愿以及影响他们意愿的一些因素。本问卷有20道左右的题目，且全部为选择题，填写用时约在3分钟以内。问卷采取匿名的方式作答，**您填写的答案将不会披露给您本人以外的任何个人或企业**，得到的信息仅作我校课程MA314《抽样调查》的分析之用，请您根据自己的实际情况回答。

感谢您的支持，祝您学业顺利，万事如意！

注：本次问卷调查的拜年代表的是在大年初一到正月十五期间带有庆祝新年意味的祝福行为，分为线下拜年和线上拜年。本问卷中所提及的线上拜年特指通过一定时间的电话和视频通话进行的祝福行为，不包含发信息问候或者发红包等较为简单的行为。

1. 你当前处于?

   ○ 大一 ○ 大二 ○ 大三 ○ 大四 ○ 硕士研究生 ○ 博士研究生

2. 今年春节期间是否留校?

   ○ 是 ○ 否

3. 今年春节期间你的居住地周围发生疫情了吗?

   ○ 是 ○ 否

4. 和疫情前相比，现在拜年?

   ○ 几乎没有机会

   ○ 次数大大减少

   ○ 机会大大减少但仍然会坚持去

   ○ 基本和疫情前一样

5. 今年春节你共拜访了几家亲戚(线下拜访)?

   ○ 0 ○ 1～3 ○ 4～6 ○ 7或者更多

   以下为问题5的子问题，将根据填写者对问题5的选项来投放子问题

   ◇ **如果问题5选择: ○ 0**

   5.1 为什么没有线下拜访亲戚?

   ○ 疫情因素 ○ 留校 ○ 认为线上拜年可以替代 ○ 工作或学习原因 ○ 身体原因 ○ 不想拜年

   ◇ **如果问题5选择以下选项: ○ 1～3 ○ 4～6 ○ 7或者更多**

   5.1 (多选)线下拜年亲戚的目的地在?

   ○ 市内 ○ 省内市外 ○ 省外

   5.2 线下拜年亲戚是出于:

   ○ 完全自愿 ○ 不是很自愿但也不抗拒，只是跟随家庭 ○ 抗拒但不得不跟随家庭

   5.3 (多选)线下拜年亲戚时主要会做以下哪些事情(最多选三项)?

   ○ 聚餐 ○ 居家看电视、电影 ○ 电子游戏 ○ 传统游戏(扑克和麻将等) ○ 和亲戚唠嗑、寒暄 ○ 做一些家乡的传统习俗 ○ 外出游玩(打电玩，去影院看电影，爬山等) ○ 收红包 ○ 放炮竹

   5.4 你会认为线下拜年亲戚是开心，不枯燥的?

○ 完全同意 ○ 同意 ○ 较同意 ○ 中立 ○ 较不同意 ○ 不同意 ○ 完全不同意

6. 今年春节你共拜访了几家朋友？(线下拜访)

○ 0 ○ 1～3 ○ 4～6 ○ 7或者更多

以下为问题6的子问题，将根据填写者对问题6的选项来投放子问题

◇ **如果问题6选择: ○ 0**

6.1 为什么没有线下拜年朋友?

○ 疫情因素 ○ 留校 ○ 认为线上拜年可以替代 ○ 工作或学习原因 ○ 身体原因 ○ 不想拜年

◇ **如果问题6选择以下选项: ○ 1～3 ○ 4～6 ○ 7或者更多**

6.1 (多选)线下拜年朋友的目的地在?

○ 市内 ○ 省内市外 ○ 省外

6.2 线下拜年朋友是出于:

○ 完全自愿 ○ 不是很自愿但也不抗拒，只是跟随其他朋友 ○ 抗拒但不得不和其他朋友保持一致

6.3 (多选)线下拜年朋友时主要会做以下哪些事情(最多选三项)?

○ 聚餐 ○ 居家看电视、电影 ○ 电子游戏 ○ 传统游戏(扑克和麻将等) ○ 和朋友唠嗑、寒暄 ○ 做一些家乡的传统习俗 ○ 外出游玩(打电玩，去影院看电影，爬山等) ○ 互发红包 ○ 放炮竹

6.4 你会认为线下拜年朋友是开心，不枯燥的?

○ 完全同意 ○ 同意 ○ 较同意 ○ 中立 ○ 较不同意 ○ 不同意 ○ 完全不同意

7. (多选)你认为线下拜年最有意义的事(最多选三项)?

○ 聚餐 ○ 居家看电视、电影 ○ 电子游戏 ○ 传统游戏(扑克和麻将等) ○ 和亲戚朋友唠嗑、寒暄 ○ 做一些家乡的传统习俗 ○ 外出游玩(打电玩，去影院看电影，爬山等) ○ 收红包/互发红包 ○ 可以放炮竹

8. 你认为线上拜年是线下拜年的一个很好的替代方式?

○ 完全同意 ○ 同意 ○ 较同意 ○ 中立 ○ 较不同意 ○ 不同意 ○ 完全不同意

9. (多选)你认为线上拜年的主要优点有(最多选择三项):

○ 线上拜年可以节省时间

○ 线上拜年可以减少交通成本,并且空间上没有限制

○ 线上拜年可以同时拜访更多的亲戚朋友

○ 线上拜年可以避免了一些长时间的寒暄的尴尬感

10. (多选)你认为线下拜年的主要优点有(最多选择三项):

○ 可以真切的看到自己亲戚和朋友

○ 线下拜年更有过年的气氛和仪式感

○ 可以进行更多的实地娱乐活动，可以一起出游

○ 可以前往其他地点和环境，是对自己的放松

11. 你今年是否进行了线上拜年?

○ 是 ○ 否

以下为问题11的子问题，将根据填写者对问题10的选项来投放子问题

◇ **如果问题11选择: ○ 是**

11.1 你线上拜年的对象是?

○ 亲戚 ○ 朋友 ○ 两者都有

11.2 (多选)选择线上拜年的主要原因(最多选择三项)?

○ 距离过远 ○ 疫情因素 ○ 线上较为方便，可以利用多元方式 ○ 时间紧迫，无法抽空线下拜年 ○ 工作或学习原因 ○ 身体原因 ○ 不想线下拜年

12. 是否愿意对亲戚拜年?

○ 完全愿意 ○ 愿意 ○ 较愿意 ○ 中立 ○ 较不愿意 ○ 不愿意 ○ 完全不愿意

13. 是否愿意对朋友拜年?

○ 完全愿意 ○ 愿意 ○ 较愿意 ○ 中立 ○ 较不愿意 ○ 不愿意 ○ 完全不愿意

14. 你会认为拜年对维系亲情是必须的吗?

○ 完全同意 ○ 同意 ○ 较同意 ○ 中立 ○ 较不同意 ○ 不同意 ○ 完全不同意

15. 你会认为拜年对维系友情是必须的吗?

○ 完全同意 ○ 同意 ○ 较同意 ○ 中立 ○ 较不同意 ○ 不同意 ○ 完全不同意

16. 拜年的亲戚都是自己经常接触的?

○ 完全同意 ○ 同意 ○ 较同意 ○ 中立 ○ 较不同意 ○ 不同意 ○ 完全不同意

17. 拜年的朋友都是自己经常接触的?

○ 完全同意 ○ 同意 ○ 较同意 ○ 中立 ○ 较不同意 ○ 不同意 ○ 完全不同意

18. 你以后会带自己的孩子去拜年吗?

○ 会 ○ 不会