

Statistical Examination of Status Quo and Potential Problems of College Students Participating Gig Economy in China

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Abstract: The flexibility of the gig economy allows it to attract considerable attention during the COVID-19 pandemic. This form of economic activity, however, has long existed in China. This article studies the status quo and the potential problems with contemporary college students participating in the Chinese gig economy. By collecting samples from different Chinese regions and dissimilar types of college students, the study discusses their large-scale gig economy participation rate regardless of regions and higher education levels. The study also analysed the fulfilment of expectations among college students and discovered that the current state of satisfaction is not favourable and necessitates improvement for the future sustainment and prosperity of the gig economy. The article offers several suggestions for improvement, including adopting more reassurance in the areas with a lesser participation rate and improving the accuracy of matching between students and job positions to satisfy their expectations. However, these solution proposals need further investigation to explore their optimal use.

Keywords: gig economy, college students, statistical examination, economic activity, China

1. Introduction

In the post-COVID era, the gig economy, a flexible form of economic activity, attracts considerable attention as to its importance. Since the gig jobs only emphasise the characteristics of temporary work and the individual project, it does not require fixed contracts between employers and employees [1]. Compared to the traditional form of working, gig jobs are more suitable when the COVID-19 pandemic requires social distancing and self-isolation. Though the gig economy concept is new, this form of economic activity has existed for decades in China. The earliest form of the gig economy can be traced back to 1958 when the Chinese government proposed regulations that encouraged students to combine their learning with practical work skills [2]. Subsequently, many college students participated in the Qin Gong Jian Xue work-study programme. At that time, education was an enormous financial burden for most families. Due to the great famine in 1950s to 1960s, many people were killed, not to mention supporting kids to school [3]. Also, at that time, there was an emphasis on participating in work for practical skills. Therefore, students participating in the work-study programme help alleviate the economic pressure on their families. With most Chinese families being able to afford higher education, the varieties of gig working among students are primarily part-time jobs for a better living and job preparation standard. When China transformed into a market economy, more gig workers were not constrained to just college students appearing for manufacturing [4]. One

example is from Jiuyanqiao, Chengdu. In the 1990s, workers from rural areas held placards displaying their skills. If employers needed their specific skills, they would approach them and welcome those with their preferred abilities. These workers did not have employment contracts or a fixed working time. As long as they finish their tasks and get paid, they will continue to search for other suitable jobs.

Therefore, the shape of the Chinese gig economy derives from college students who became gig workers during their leisure time. Because the college students, including associate college, undergraduate and postgraduate, are a big group of 42 million in 2020, their participation in the gig market are an essential part of the indispensability within the Chinese economy [5, 6]. This article will discuss the status quo of Chinese college students' participation in the gig economy. The author will analyse the current proportion of college students engaged in odd jobs and their experience satisfaction. Additionally, it will also reveal the potential problems of the continued growth of China's gig economy and put forward some improvement suggestions to meet the expectations of students. Such analysis and suggestion may induce certain changes that allow college students persistently contribute to the gig economy. Their participation may potentially offer more vitality and backup forces to the economy even when pandemic is approaching. This implication makes college students non-neglectable in driving the sustainable economic prosperity in a nation.

2. The Status Quo and Potential Problems

It will also investigate the current circumstances of college students participating in the Chinese gig economy. The study investigates a sample proportion of college pupils that are gig workers. In addition, the study also separates college students into different groups by their level of education and the regions where they study. The process of the study will be discussed in later sections.

2.1. Methodology

This study uses a multi-stage sampling method to represent the population – college students in China – as illustrative as possible. The study first used cluster sampling with region types as a group. In China, cities are divided into different levels [7]. The first-tier cities are most developed, like Beijing and Shanghai. Therefore, with the higher tier, the cities will be less developed. In this study, there are three clusters; first-tier, second tier and third-to-fifth-tier. Stratified sampling was adopted in each cluster to divide college students into three groups; associate college, undergraduate and postgraduate. The multi-staged sampling method better conforms to simple random sampling, making it more generally applicable to the population [8].

2.2. Results

The results show that most college students in China are currently contributing to the gig economy. Among the 636 samples collected, 82.34% of college students are participating in the gig economy. Specifically, among the 297 junior college students, 73.06% are engaged in odd jobs. Amongst 275 undergraduates, odd jobs accounted for 77.09%, while 78.13% of the 64 graduate students are currently odd jobbers. Therefore, it is reasonable to conclude that many college students are still participating in the gig economy in contemporary China. When it comes to different regions, the data also shows that Chinese college students participating in the gig economy are significant. In the first-tier cities, 66.96% of college students engage in gig jobs, while 81.00% of second-tier cities are in gig job positions. In the third-to-fifth tier cities, the gig economy accounts for 76.18% of participants.

Though the proportion of college students engaged in gig jobs is sizeable, the attainment from their working experience warrants concern. Only 49.06% of the students think their working experience matches their expectations, such as improving living conditions, knowing more people

and accumulating work experience. Also, only 46.54% of college students continue to participate in the gig work.

2.3. Analysis of Differences in Participation Rate in a Gig Economy

Though the sample results show postgraduate students have the highest proportion of gig economy participation and associate college students have the lowest, it is unclear whether such a difference between different higher education levels is statistically significant. Therefore, the study constructs three proportional tests of variance to examine whether a difference in participation rate exists between associate college, undergraduate and postgraduate students.

The author first conducts a two-sample proportion test of differences between associate college and undergraduate students (Table 1). The null hypothesis is there is no difference in the gig economy participation rate between associate college students and undergraduate students. In contrast, the alternative hypothesis is associate college students obtains a lower participation rate. The test gives a p-value of 15.51%. Thus, if the null hypothesis is true, the probability of obtaining our result is 15.51%. Under the significance level of 5%, this p-value is significant enough for us to accept the null hypothesis. From the result, we conclude that there is no statistically significant difference in the gig jobs engagement rate between associate college and undergraduate students in China.

Table 1: Two-sample proportional test of difference between associate college and undergraduate students.

prop.1 (associate college)	73.06%
prop.2 (undergraduate)	77.09%
95% confidence interval	-1.00 ~ 0.02
X-squared	1.03
df	1
p-value	0.1551

Similar tests can be conducted between undergraduate and postgraduate student participation rates and associate college and postgraduate students. The test for difference between undergraduate and postgraduate students (Table 2) yields a p value of 49.51%, and the test between associate college and postgraduate students (Table 3) yields a p-value of 24.83%. In these two tests, under the 5% significance level, there are statistically no significant differences.

Table 2: Two-sample proportional test of difference between undergraduate and postgraduate students.

prop.1 (postgraduate)	78.13%
prop.2 (undergraduate)	77.09%
95% confidence interval	-0.09 ~ 1,00
X-squared	0.00
df	1
p-value	0.4951

Table 3: Two-sample proportional test of difference between associate college and postgraduate students(continue).

prop.1 (postgraduate)	78.13%
prop.2 (associate college)	73.06%
95% Confidence Interval	-0.05 ~ 1.00
X-squared	0.46
df	1
p-value	0.2483

Consequently, from the three tests conducted, although differences are existing between associate college, undergraduate and postgraduate students, these are not statistically significant. Therefore, it is reasonable to conclude that participation in the gig economy is extensive regardless of the student's higher education level.

Aside from diverse education levels, different regions also produce a specific result for engagement in gig jobs. Therefore, the subsequent three tests aim to examine whether there is a statistically significant difference in different regions. The first test examines the difference between first-tier and second-tier cities (Table 4), which produces a p value of 1.53%. This value indicates the following. If the null hypothesis is true, if there is no difference between the first-tier cities in proportions of college students participating in the gig economy, then the results collected by the author in the sample are not valid. Therefore, under the premise of rejecting the null hypothesis, the author found that compared with first-tier cities, the proportion of college students in second tier cities participating in the gig economy is higher.

Table 4: Two-sample proportional test of difference between first-tier and second-tier cities.

prop.1 (first-tier cities)	66.96%
prop.2 (second-tier cities)	81.00%
95% Confidence Interval	-1.00 ~ -0.03
X-squared	4.67
df	1
p-value	0.0155

Similarly, the test of the difference between first-tier and third-to-fifth-tier cities (Table 5) yields a lesser p-value of 3.13%. Therefore, under the significance level of 5%, it is reasonable to conclude that the proportion of college students in third-to-fifth cities is significantly higher than those in the first-tier. However, the tests between second-tier and third-to-fifth-tier cities (Table 6), with a p-value of 18.41%, indicates no significant difference in engagement in the gig economy between second-tier and third-to fifth-tier cities.

Table 5: Two-sample proportional test of difference between first-tier and third-to-fifth-tier cities.

prop.1 (first-tier cities)	66.96%
prop.2 (third-to-fifth-tier cities)	76.18%
95% Confidence Interval	-1.00 ~ -0.01
X-squared	3.468
df	1
p-value	0.0313

Table 6: Two-sample proportional test of difference between second-tier cities and third-to-fifth-tier cities.

prop.1 (second-tier cities)	81.00%
prop.2 (third-to-fifth-tier cities)	76.18%
95% Confidence Interval	-0.03 ~ 1.00
X-squared	0.81
df	1
p-value	0.1841

From three comparison tests between different regions, although the overall participation of college students in the gig economy is extensive, the first-tier cities display significantly lower participation in gig work compared to second and third to fifth cities. Also, there is no statistically significant difference between second tier and third to-fifth-tier cities.

2.4. Analysis of Expectation and Continuity

Although the participation scale is considerable, the satisfaction of student expectations is not promising. From Table 7, it is easy to observe that in each region, the students satisfied by their experience of participating in a gig economy is roughly the same. Although there is a slight difference between the answer ‘Yes’ and ‘No’, the chi-square contribution in each corresponding cell is small. This indicated no significant difference between students in different regions when considering whether their psychology of participating in the gig economy is in line with expectations. Also, a comparison between the actual and expected value reveals another potential problem. In the first-tier cities, the number of students satisfied is smaller than the projected value. In second-tier and third-to-fifth-tier cities, there are more unsatisfied students than expected.

Table 7: Cross tabulation of regions and satisfaction of expectations.

		Regions		
		First-tier Cities	Second-tier Cities	Third-to-Fifth-tier Cities
Satisfaction of Expectations	Yes	53	53	206
		54.94	49.06	208.00
		0.07	0.32	0.02
		16.99%	16.99%	66.02%
	No	20	27	119
		29.23	26.10	110.67
		2.92	0.03	0.628
		12.05%	16.27%	71.68%
	N/A	39	20	99
27.82		24.84	105.33	
4.49		0.94	0.38	
24.68%		12.66%	62.66%	
Column Total		112	100	424

Cell Contents

Count
Expected Value
Chi-square Contribution
Row Percent

The analysis of the relationship between the level of higher education and satisfaction of expectations also yields similar results. In Table 8, the author studied whether in each level of higher education students will tend to think their expectations are satisfied or unsatisfied. From the Table, the chi-square contributions are negligible. In other words, there is no tendency to think they are satisfied by their experiences or unsatisfied in each level of higher education. For undergraduate and postgraduate students, the number of students satisfied is slightly more than expected, but for associate college students, the amount fulfilled is less than the expected value. Also, for postgraduate and associate college students, the numbers unsatisfied are more than expected.

Table 8: Cross tabulation of levels of higher education and satisfaction of expectations.

		Levels in Higher Education		
		Associate College	Undergraduate	Postgraduate
Satisfaction of Expectations	Yes	142	138	32
		145.70	134.91	31.396
		0.09	0.07	0.01
	No	45.51%	44.23%	10.26%
		79	69	18
		77.519	71.78	16.70
	N/A	0.03	0.11	0.10
		47.59%	41.57%	10.84%
		76	68	14
Column Total	73.783	68.32	15.90	
	0.07	0.00	0.23	
	48.10%	43.04%	8.86%	
Column Total		297	275	64

Cell Contents

Count
Expected Value
Chi-square Contribution
Row Percent

In sum, the analysis of student satisfaction expectations reveals two problems. Firstly, college students have no strong tendency to think they are satisfied by their experience in participating in the gig economy. Secondly, there are less than expected to be satisfied and more than expected to be unfulfilled in some regions and levels of education.

3. Suggestions for Improving the Status Quo of the Gig Economy

Although the existing scale of college students participating in the gig economy, the study shows that the participation rate in the first-tier cities is significantly lower than other counterparts. Therefore, to further stimulate the market, the government can encourage more in the first-tier cities because the gig economy works. According to a 2020 journal entitled the Report on the Employability of Chinese College, the employment campaign among college students in the first-tier cities is the most drastic [9]. Thus, encouragement for companies to hire more college students is needed in the first-tier cities. Furthermore, participating in odd jobs during the study period may harm the student's academic performances enough to cause public concern. However, only roughly 20% of the college students in China report feelings of academic pressure [10]. In other words, about 80% of Chinese college

students can manage their studies well and can participate in extracurricular activities. Suppose the engagement scale in first tier cities can catch up with second and third-to-fifth-tier cities. In that case, the scale of college student's participation in the gig economy will be larger, resulting in a more prosperous economy.

The problems related to the satisfaction of student expectations are worth noting since it affects the continuity of gig economy participation. In the research, only 46.54% of students are willing to engage in the gig economy continually. Therefore, it is essential to increase their satisfaction expectations as temporary workers. Specifically, most students want to accumulate work experience (63.44%) and improve living standards (47.97%) within gig jobs. Therefore, the company should provide more detailed career information to help students match their job requirements and gain more work experience. Furthermore, the government can also provide subsidies to students participating in odd jobs to help them improve their living standards. These efforts can ultimately contribute to the sustainability and prosperity of the gig economy, which further guarantees the long-term economy.

4. Conclusion

From the previously mentioned research and analysis, numerous Chinese students are currently engaging in the gig economy. Regardless of the level of the college students – associate college, undergraduate or postgraduate – and their regions, the students located in first, second or third-to-fifth-tier cities illustrate their proportions engaging in gig jobs is more considerable. This significant participation rate contributes to the prosperity of the gig economy in China. However, the sustainability of such prosperity is potentially at risk. There is no significant tendency in any area or level of higher education to regard expectations satisfied by participation in the gig economy. Also, in some areas and levels of education, more students than expected are unsatisfied while less than expected are satisfied. The government and related institutions should improve student attainments from work experience and higher living standards to satisfy their expectations. Although the gig economy is a new worldwide concept, its long existence in China keeps the economy distinctive from western economies and is imperative in decades past. Therefore, the improvement in the Chinese college students gig economy needs further future investigations for imperfections. Other developing countries can study this unique economy model for future development and by western economies for retaining financially viable activities for unforeseeable pandemics.

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