

How Hukou Affects Precarious Employment: A Quantitative Analysis of the 2017 Chinese General Social Survey

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Abstract: Technological advancement and economic globalization have made jobs increasingly precarious worldwide, including in China. Those precarious workers often suffer from employment insecurity, income inadequacy, and lack of protection. According to the 2021 National Bureau of Statistics, 200 million jobs in the Chinese labor market fall in the category of precarious employment, accounting for 22.2% of the total labor force. The Chinese household registration system (*hukou*), one critical factor in the Chinese labor market, can play an essential role in shaping precarious employment. However, less literature has quantitatively studied the relationship between *hukou* and precarious employment. Based on the 2017 Chinese General Social Survey (CCGS), this study divides “precariousness” into two indicators—employment status and part-time job status—and uses binary logistic regression models to examine the association between *hukou* and precarious employment. The results show that people holding agricultural *hukou* are more likely to be in precarious employment. These findings suggest that policies on employment, compulsory education, and vocational training should be gradually decoupled from the *hukou* status in order to break the rural-urban divide.

1 INTRODUCTION

With technological advancement and economic globalization, jobs have become increasingly precarious in China and worldwide. The term “precarious employment” refers to irregular and insecure work arrangements, including insufficient salary, hazardous working conditions, low-income security, and vulnerable labor relations (Kreshpaj et al., 2020; Rönnblad et al., 2019). Precarious employment was a distinguished feature in developed and industrialized countries since the 19th century, and in developing countries after World War II, the prosperous economy and new legislation protecting workers legal rights led to a new form of labor market—the increase of precarious employment (Tompa et al., 2007). In China alone, according to the 2021 National Bureau of Statistics¹, there are a total of 900 million labor force, among which the number of precarious employment has reached 200 million, accounting for a large proportion (Guo, 2021). During the COVID-19 pandemic, the number of

precarious workers would continue to increase due to the unstable and rapidly changing labor market (Yueping et al., 2021). Most literature has examined the characteristics and the consequences of precarious employment in developed countries, such as Germany, America, and Canada (Cranford et al., 2003; Kalleberg & Vallas, 2018; Vosko, 2006). This is because those developed countries have a long history of precarious employment. Since the industrialization era, they gradually built mature legislations of the labor market and had mature labor union systems, which were more advanced than developing countries (Tompa et al., 2007). Thus, it is worth studying precarious employment in China because it is the largest developing country, which hasn’t been studied thoroughly in this aspect.

This paper examines the characteristics of precarious employment in the Chinese labor market, and in particular, the association between household registration status and precarious employment. The household registration in China, named the *hukou* system, is one major factor in unequal access to employment in the labor market. In history, *hukou*

¹ http://www.stats.gov.cn/tjsj/sjjd/202201/t20220117_1826479.html. Access on October 25, 2022.

was used to control population mobility, separating workers between urban areas and rural areas. Even though now the government gradually breaks down such segregation by liberalizing the restriction that *hukou* caused, the labor market divide is rooted in the society. In particular, the *hukou* system created deformed citizenship, which discouraged migrants from moving, working, and truly integrating into cities, finally causing them to work in an unstable situation and to be precarious workers (Ngai, 2010). So far, most studies on this topic took a qualitative approach, thus it is useful to examine the association through a quantitative analysis.

To explore these questions, we use the data from 2017 Chinese General Social Survey (CGSS). CGSS is one commonly used national representative survey in social science research, and the 2017 wave is the most recent one publicly available. Logistic regression results show that people with agricultural *hukou* are more likely to be precarious workers, who have statistically significant lower wages and education levels than people with non-agricultural *hukou*. These findings suggest *hukou* not only causes the wage discrimination which most of existing literature has proposed but also leads to the unequal access to precarious employment in the labor market.

2 LITERATURE REVIEW

2.1 The Characteristics and the Consequence of Precarious Employment

According to the International Labor Organization, “precarious work is a means for employers to shift risks and responsibilities onto workers. It is work performed in the formal and informal economy and is characterized by variable levels and degrees of objective (legal status) and subjective (feeling) characteristics of uncertainty and insecurity.” However, as the development of labor markets worldwide, the definition ILO proposed is too broad to use, thus the academic area does not have a common definition now. Hence, this study will examine some core characteristics of precarious employment first.

There are several definitions of precarious work in the literature. The characteristics of precariousness in the labor relation can be concluded in three dimensions: employment insecurity, income inadequacy, and lack of protection (Kreshpaj, 2020). Burgess and Campbell (1998) used a comprehensive

perspective to define precariousness so that it can assess all kinds of precarious employment, finding that precariousness is featured in the discontinued, unprotected job, which is excluded from standard-employment benefits. Under the definition, the word “precarious” infers casual, family work, fixed-term contracts, self-employed, or temporary work. Simultaneously, it described the condition of such work, like insufficient salary, hazardous working conditions, low-income security, and vulnerable labor relations (Kreshpaj et al., 2020; Rönnblad et al., 2019). In addition to the study above, lots of literature also examines the descriptions of precarious employment. Quinland (2012) demonstrated that the term “precarious employment” is often used to describe irregular and insecure work arrangements. Tompa (2007) supposed that it should be defined as an unstable, unprotected, insecure, and vulnerable working status. In addition, Benach (2000) considered precarious employment as temporary work or insecure and informal jobs. Through all these descriptions, we can conclude that precarious employment is defined by some key features, such as casual, family work, fixed-term contracts, self-employed, or temporary work, poor working conditions, and lack of legal or insurance protections.

Besides, based on the comprehensive characteristics and features of precarious employment, lots of literature studied the consequences of it. Some research shows that there is a strong association between precarious employment and unideal health outcomes, including physical health and mental health. It was found that precarious employment caused a significant decline in workers’ well-being and mental health due to the unstable nature of the jobs (Gunn et al., 2021; Rönnblad et al., 2019). Benach and Muntaner (2007) believed that many characteristics attached to precarious employment, like low credentials, low salary, and identity of migrants, are the main factors that cause workers’ adverse health outcomes. In addition to the findings of the relationship between health situations and precarious employment, Oddo (2021) discovered that people who have lower income or are female, racialized, or less educated are more likely to be precarious workers in America. The scoping review of Gray (2021) also supported this conclusion and added that the identity of migrant workers may cause workers to be precarious and fall into the secondary labor market, known as an insecure working situation, low income, and lack of protection. However, according to Brady and Biegert (2017), in Germany, variables like demographic, education/skill, job/work characteristics, and region cannot successfully explain

the growth of precarious employment, so institutional alternation looks like the most credible illustration.

2.2 Hukou and Precarious Employment in China

The work of precarious employment in China has been cumulating in recent years, and most of the literature focus on labor relations, legal risks, social security, and their impacts on workers' well-being (Benach et al., 2000; Liu et al., 2022; Ding, 2017; Liu, 2022; Du, 2020; Zhang, 2022; Qi et al., 2022; Wang, 2021; Zhao, 2022; Shao, 2022; Guo, 2021). For example, Liu (2022) explored the identity of precarious workers. She found that departed from traditional "employer-employee" labor relations precarious workers often have part-time jobs, weak dependence, less monitoring, and a lower degree of working sustainability. In addition, Shao (2022) did comprehensive research on the tax risks of precarious workers from the perspective of both workers and companies. Discovering the lack of compliance with tax rules, such as false invoicing, tax evasion, and ambiguity taxing, Shao proposed some practical and valuable suggestions on precarious employment, like standardizing invoice mechanisms and building external tax risk management. Like most of the existing literature on precarious employment, Zhang and Ding (2017; 2020) studied precarious workers' willingness to join social security and old-age insurance. They revealed that the mode of participation and transfer and the incentive method are the problems that restrict precarious employees from taking part in insurance. Hence, they suggested improving the accessibility of insurance policies and fostering the propaganda of insurance. In conclusion, precarious workers often suffer from an insecure working situation, low income, and lack of protection, known as the secondary labor market.

In China, in addition to the factors and consequences above that influence precarious employment, household registration status (*hukou*) is a critical structural force shaping the labor market outcomes, partly explaining the income inequality and vocational separation in the labor market. *Hukou* is an institution with the capacity to monitor and control population migration and access to public services (Wu & Zhang, 2014). Personal *hukou* for all Chinese citizens is divided into two categories: *hukou* type and *hukou* location. The *hukou* type is classified as agricultural *hukou* or non-agricultural *hukou*, usually referring to rural or urban *hukou*, respectively (Knight et al., 1999). Another category is *hukou* location, which means each person is also classified based on

where he or she registered for *hukou*.

So how does *hukou* influence the labor market? Abundant literature shows that *hukou* discrimination exists in the labor market, leading to differences in income and vocations between people with agricultural *hukou* and people with non-agricultural *hukou*. On the one hand, *hukou* discrimination makes it difficult for people with agricultural *hukou* to enter specific sectors, industries, and occupations. On the other hand, different departments and industries have different requirements for human capital, which may lead to the clustering of people with agricultural *hukou* with low average human capital and urban workers with relatively high human capital in different departments, industries, and occupations (Xie, 2012). Hence, by combining these two approaches, *hukou* discrimination exists in the labor market, and people with agricultural *hukou* have lower wages than non-rural *hukou* holders. This result was also supported by other research (Chen et al., 2016; Zhang & Wang, 2011). For example, Liu (2005), using data from a Chinese household survey, discovered that people obtaining urban *hukou* later in their lives are more probably to be self-employed or unemployed than people who born with urban *hukou*. Song (2014) also pointed out that people with rural *hukou* face labor discrimination in cities, including wage discrimination, hiring discrimination, and pre-market discrimination. Xu (2004), in his paper, suggested that *hukou* discrimination in the labor market was caused by political restriction, which was rooted in the planned economy, path independence, education segregation, and information asymmetry. Based on the statistical examination, Xu proposed that human resources cannot explain the income inequality between people with agricultural *hukou* and people with non-agricultural *hukou*. Therefore, consistent with the analysis of the dual labor market, the *hukou* segregation embodied in the labor market may be caused by institutional factors, like the *hukou* type or the current trend of the Chinese labor market. Ngai (2010) did a case study on female labor in Shenzhen, China, showing that the *hukou* system created deformed citizenship, which discouraged migrants from moving, working, and truly integrating into cities, finally causing them to work in an unstable situation and to be precarious workers. Mrs. Dong is one of the examples. However, we need to note that she failed to quantitatively examine the relationship between *hukou* and precarious employment. All in all, according to the analysis above, due to the institutional effects, people with agricultural *hukou* often end up in the secondary labor market, the same as precarious workers.

In light of the research mentioned above, it can be seen that there is a lot of literature exploring the impact of the *hukou* system on the Chinese labor market, especially on job discrimination, labor-market segmentation, internal labor migration, labor welfare policy, labor mental health, and labor integration (Benach et al., 2000; Dulleck et al., 2012; Fields & Song, 2020; Guo & Iredale, 2004; T. Liu et al., 2022; Meng, 2012; Rönnerblad et al., 2019; Song, 2014). However, precarious employment, exploding recently and now representing a vital part of urban employment, has not been quantitatively carefully studied in the context of the *hukou* system. Hence, as a new but important aspect of the labor market, the relationship between precarious employment and *hukou* is worth further exploration and discovery

2.3 Hypothesis

From abundant existing studies of the *hukou* system and dual labor market, it can be concluded that precarious jobs, which are featured in low income, lack of protection, and dangerous working situations, most likely appear in the secondary labor market. Coincidentally, people with agricultural *hukou* also usually end up secondary market, so they are likely to be employed precariously and unstably. Therefore, I proposed the hypothesis below:

Hypothesis: People with agricultural *hukou* are more likely to be in precarious employment than people with non-agricultural *hukou*.

3 DATA AND MEASURES

3.1 Data

Data were collected from the Chinese General Social Survey (CGSS), the first nationwide, comprehensive, and continuous large-scale social survey program in China. By collecting data from various aspects of Chinese society systematically, CGSS aims to summarize the trend of social change, promote the openness of domestic social science research, and provide data for government decision-making (link:<http://www.cnsda.org/index.php?r=projects/view&id=94525591>). This paper uses the 2017 wave because it is the most recent database of CGSS, which was released on October 10, 2020. There are 12,582 valid samples that were completed in CGSS 2017 in total, and the data published online contains 783 variables.

This study imposed several restrictions on the analytical sample. First of all, the research object is

limited to a population sample aged 16-60 years (N=7441). Second, the paper drops the cases that do not report dependent variables and key independent variables such as education status, annual labor income, and working years. Finally, 6372 samples were obtained in this research.

3.2 Measures

The main dependent variable of this paper is precarious employment, including two dimensions, employment status, and part-time job status. Each dimension would measure whether the sample belongs to precarious employment or not (Precarious=1, Not Precarious=0). Following Kong (2010), this study extracts the two most important features or dimensions of precarious workers, which are employment status and part-time job status. Employment status demonstrates one's labor identity, like whether he or she is self-employed or family worker or another form of labor. Part-time job status indicates the "precariousness" or "informality" of a worker by examining whether this worker has one or several jobs simultaneously.

Employment status. I use the question "Which of the following situations is more suitable for your current work status?" to measure precarious employment. Following Liu and Zhong (2005), precarious employment (coded=1) is classified as self-employed labor (with fewer than seven employees), temporary employment, dispatched labor, family workers, or freelancers. If the respondents answered none of those categories, they would be coded 0.

Part-time job status. The second dimension of precarious employment is part-time job status, which means that precarious employment is confirmed if they participate in several part-time jobs (Part-time Status=1). To measure part-time job status, the research uses the question, "What is the nature of your present job?" If the respondents answered that they work full time, they would be considered non-precarious employees (Part-time Status=0). Otherwise, if the respondents answered they worked part-time, they would be considered precarious employees (Part-time Status=1).

Hukou. The independent variable is the type of household registration (Hukou status), which is divided into agricultural household registration (Hukou=1) and non-agricultural household registration (Hukou=0). Referring to other scholars' analysis of respondents' household registration in CGSS, this study decided to use the item "What is your current household registration status" to distinguish the type of the respondent's hukou.

Control variables include gender (male=1, female=0), age, education level, annual labor income (LnInc), marital status (married=1, not married=0), working years, and the square of working years (Yang, 2012). These are commonly used variables to examine human resources (Xie, 2012). The annual labor income is measured by the question, “What was your personal occupation/labor income last year (2016)?” and I take the logarithm as the variable value to make it more normally distributed. Instead of using monthly income as the variable, the study can avoid data errors due to the unsteady income of precarious workers. Therefore, it is likely to examine the correlation between variables more accurately. Besides, the

education level of respondents is measured by the question, “What is your highest education degree?” The respondents chose from “never received any education=1, literacy class=2, primary school=3, junior high school=4, vocational high school=5, senior high school=6, technical secondary school=7, technical school=8, junior college (Adult higher education)=9, junior college (Formal higher education)=10, Undergraduate (Adult higher education)=11, Undergraduate (Formal higher education)=12, Graduate and above=13.” This study makes the assumption that the education level increases in the order above.

Table 1: Descriptive statistics.

Variables	Mean	Std.Dev.	Min	Max
Employment Status	0.26	0.438	0	1
Part-time Status	0.10	0.296	0	1
Hukou	0.65	0.477	0	1
Gender	0.47	0.499	0	1
Age	44.73	10.629	23	60
Annual Labor Income	46630.39	254513.127	0	9980000
LnInc	10.259	1.164	5.70	16.12
Education Level	6.04	3.391	1	13
Marital Status	0.94	0.246	0	1
Working Years	2.40	6.641	0	97
Working Years ²	49.87	215.035	0	9409

3.3 Analytical Strategy

The dependent variables, including employment status and part-time job status, are binary categorical variables (precarious=1, not precarious=0), and they are influenced by k factors $X_1, X_2, X_3, \dots, X_k$ so the binary logistic regression model was chosen to explore the relationship between hukou type on precarious employment. The model is presented below:

$$\ln \frac{p}{1-p} = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_k X_k \quad (1)$$

In the model above, p represents the probability of being precarious workers; $\beta_0, \beta_1, \beta_2, \beta_k$ represent the regression coefficients. According to these, OR (odds ratio) or exp(b) can be deduced:

$$\frac{p}{1-p} = e^{\beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_k X_k} \quad (2)$$

Hence, the equation of p can be inferred:

$$p = \frac{e^{\beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_k X_k}}{1 + e^{\beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_k X_k}} \quad (3)$$

By implementing the Hausman Test, the significance is higher than 0.05, and the overall accuracy of prediction in the crosstab is more than 70%, suggesting that the binary logistic regression model fits very well.

4 RESULTS

4.1 Descriptive Analysis

Table 2: Descriptive Analysis between two different hukou types.

Variables	Agricultural hukou	Non-agricultural hukou
Employment Status*	0.293	0.197
Part-time Status*	0.116	0.062
Gender	0.463	0.477
Age*	43.88	45.19
Annual Labor Income*	36207.23	65830.80
LnInc*	9.9565	10.7878
Education Level*	4.82	8.29
Marital Status	0.941	0.924
Working Years*	2.11	2.94
Working Years ² *	37.48	72.93

*: p<0.05. t-test or chi-square test

In this study, the hukou type was used as a categorical variable to analyze other variables in a crosstab. Because employment status, part-time job status, gender, and marital status are categorical variables, chi-square analysis was performed on them in this study. According to the results of SPSS, the significance of Pearson’s chi-square values of the above four variables are 0.000, 0.000, 0.283, and 0.007, respectively. Hence, the marital status, part-time status, and marital status were significantly different between the two types of hukou ($\text{sig} < 0.05$), indicating that the two indexes of precarious employment were significantly higher in the agricultural hukou than in the non-agricultural hukou.

Besides, age, annual labor income, LnInc, education level, working years, and the square of working years are continuous variables, so they are processed by t-tests to analyze the difference between agricultural hukou and non-agricultural hukou. The result shows that the significance of t-tests of those six variables are all 0.000, indicating that they are all

significantly different in the two types of hukou. Specifically, the age, annual labor income, education level, working years, and the square of working years in people with non-agricultural hukou are significantly higher than in people with agricultural hukou. Therefore, in light of the analysis above, the indexes of precarious employment have a significantly higher value in agricultural hukou people, and the indexes of controlled variables (human resources) are higher in non-agricultural hukou.

4.2 Hukou And Employment Status

Then binary logistic regression model is used to examine the hypothesis, controlling for gender, age, LnInc, Education Level, Marital Status, Working Years, and the square of Working Years. Results are shown in Table 3.

Table 3: Employment Status

	Model1	Model2
Hukou (agriculture=1)	0.063***	0.161*
Gender (male=1)		0.509***
Age		-0.008*
LnInc		-0.184***
Education Level		-0.162***
Marital status		-0.048
Working Years		0.094***
Working Years ²		-0.003***

Note: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

Model 1 of Table 3 is a simple model that examines the association between hukou type and employment status. It shows that the association between hukou and precarious employment is positive and significant ($b = .063, p < .001$). Model 2 of Table 3 includes not only hukou but also other control variables which may affect the result, such as Gender, Age, LnInc, Education Level, Marital Status, Working Years, and the square of Working Years. Importantly, the regression coefficient of hukou is 0.161, and therefore, it can be calculated that the odds ratio, $\exp(b)$, equals 1.175. That is, the probability of being precarious workers in people with agricultural hukou is 1.175 times higher than that in people with non-agricultural hukou. The results confirm/support H1.

Most control variables are in the expected direction. To be specific, male workers and younger workers are more likely to be precarious workers ($b = .509, p < .001$; $b = -.008, p < .05$). Education level is negatively associated with the likelihood of being

precarious workers ($b = -.162, p < .001$). Working years have a significantly positive relationship with the probability of being precarious workers, whereas the square of working years has a significantly negative relationship with it ($b = .094, p < .001$; $b = -.003, p < .001$).

4.3 Hukou and Part-Time Job Status

Table 4: Part-time Job Status

	Model1	Model2
Hukou	0.680***	0.267*
Gender		0.505***
Age		-0.010
LnInc		-0.237***
Education Level		-0.092***
Marital status		-0.087
Working Years		0.166***
Working Years ²		-0.005***

Note: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

Table 4 examines the effect of the type of household registration on the part-time job status of precarious workers. Model 1 includes only *hukou*, and Model 2 adds all the control variables. Most of the other variables fit the expectation from Table 1. People who are male and low-education are more likely to do part-time jobs. Particularly, Gender has a significantly positive relationship with Part-time Status ($b=.505$, $p<.001$), and Education Level has a significantly negative relationship with Part-time Status ($b=-.092$, $p<.001$). Besides, similar to the results in Table 3, the regression coefficient of working years is positive, and the regression coefficients of LnInc, education level, and the square of working years are significantly negative. , But Age and Marital Status do not have a significant relationship with the independent variable, which is not as same as a result in Table 2.

Table 4 shows that the type of Hukou has a significantly positive relationship with the likelihood of being precarious workers; that is, people who have agricultural household registration are more likely to have several part-time jobs in the labor market. Model 2 in Table 4 also shows that after controlling for these variables, there is a significant positive correlation between hukou and the dependent variable, proving this association is statistically significant. Being calculated from the coefficient of 0.267, $\exp(b)$ or the odds ratio is 1.306. That is, the probability of being precarious workers in people with agricultural hukou is 1.306 times higher than that of people with non-agricultural hukou. These results also support/confirm H1.

5 DISCUSSION AND CONCLUSION

Using the data of 6372 observations from CGSS 2017, this study applies a binary logistic regression model to analyze the impact of *hukou* type (type of household registration) on precarious employment. The findings show a significantly positive relationship between precarious employment and agricultural *hukou*. More specifically, people with agricultural *hukou* are more likely to be precarious workers; chances are also high that people who have agricultural *hukou* would work part-time, having an unstable working situation. The association holds even controlling for gender, age, education, and working years, suggesting an enduring impact of the hukou barrier in the Chinese labor market.

There are some limitations that must be considered in this study. First, this study adopts cross-sectional data from 2017. Although this is the most recent, publicly available survey, the situation of precarious employment could be worse during the current COVID-19 pandemic. Therefore, if new survey results are released, future studies can update the database and pay more attention to the changes that happened during the pandemic. Second, the definition of precarious employment has other dimensions that failed to be captured in this study due to the limitation of the questionnaire of CGSS 2017. Hence, other measurements, like contract status and working situation, can be used in future studies in order to have a better and more comprehensive picture of precarious employment.

Some practical policy recommendations can be drawn from this study. To begin with, noticing that people with agricultural *hukou* are more possibly to be precarious workers, the government needs to set clear rules in the labor market to reduce discrimination based on *hukou* status, which is the same as employment discrimination based on gender. However, the final source of this problem is the unequal resources based on *hukou* status; that is, people with agricultural *hukou* have fewer resources than people with non-agricultural *hukou*, from medical resources to educational resources, the most important part of human resources. Therefore, policies on employment, compulsory education, and vocational training should be gradually decoupled from the *hukou* status; instead, they should be based on personal competitiveness.

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