

The Impact of Subsistence Insurance on Employment

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Abstract This study investigates the impact of subsistence insurance on employment within China's urban social security and welfare network (SSWN), focusing on long-term dependency patterns and their underlying causes. Subsistence insurance is an essential constituent of the SSWN, however; its effect on employment remains underexplored. Prior research has primarily examined employment willingness, leaving gaps in understanding the role of "receipt duration" in fostering dependency. This study uses event history analysis to assess the relationship between subsistence insurance and employment outcomes, offering insights into welfare dependency in a rapidly transitioning economy. The study leverages data from the Urban Household Survey (2010-2020), analyzing employment status, demographic factors, and regional economic indicators. Regression and fixed-effects models reveal that while subsistence insurance provides crucial financial support, prolonged reliance may negatively impact labor market engagement. Regional disparities are also examined, with stronger negative employment effects in more developed areas. The findings have significant policy implications, suggesting that reforming welfare policies to promote long-term employability and reduce dependency is essential. This study contributes to the broader understanding of welfare mechanisms in transitional economies and informs policymakers on enhancing social support systems.

1 Introduction

It is identified that subsistence insurance is an important component of China's urban SSWN, while the effect of subsistence insurance on employment is still an open question. As of 2014, only three percent of the urban subsistence allowance recipients are employable. The average time of receiving subsistence allowances is 72 months, 89% of the families never drop out of the program, which reflects the chronic dependence [1]. Research indicates that the dynamic management rate of subsistence allowances is only 3% while the policy set for the rate is 10%. Voluntary withdrawals from the subsistence allowance program are exceedingly small while employment is the major cause of withdrawal, followed by fixed events such as death, retirement, and children's graduation [2,3]. There is a relatively large amount of research in Chinese academic circles on dependency on subsistence allowances [4-6]. However, prior research has largely concerned recipients' employment willingness, with scant attention paid to dependency from the viewpoint of "receipt duration." While employment willingness assesses subjective declines in work motivation [7], "receipt duration" evaluates the objective long-term reliance on aid [8,9]. Long-term aid acceptance does not necessarily correlate with reduced employment willingness [10,11]. Compared to Western countries, China's subsistence allowance standards are significantly lower [12,13]. Despite this, the phenomenon of "difficulty exiting the program" persists. If recipients' work motivation is indeed unaffected, the prolonged aid acceptance behavior requires further explanation. Besides the inherent characteristics of the recipient population and policy design, China's unique socioeconomic structure as a rapidly developing transitional country may also contribute to prolonged reliance on aid. Given that static research methods based on cross-sectional data cannot fully observe the process of aid acceptance and exit and are prone to estimation biases [14,15], this study employs event history analysis to explore the impact of subsistence insurance on employment in China. This approach not only tests the applicability of Western welfare dependency theories to the Chinese context but also provides a unique model for understanding welfare dependency mechanisms in transitional economies.

Research on the consequences of subsistence insurance on employment contains investigations of the global situations and particular research within China. Cross-country research indicates that subsistence insurance may result in the creation of employment opportunities as well as having a negative impact on employment, all depending on the welfare policies' design and administration. Barrett also established that improved education decreases the dependency on welfare thereby showing that educational policies may offset negative employment effects of welfare systems. Analyses of Chinese studies have also indicated the multifaceted nature that subsistence insurance has with employment. Cai and Chan (2009) have also examined the macroeconomic effects of the global economic crisis on employment in China identifying that social insurance enables targeting households' risk during such volatilities [16]. In more detail, the study by He and Nolen (2019) is focused on the effects of health insurance reform and thus, it sheds light on the relationship between welfare policies and employment characteristics [17].

Table 1. Correlation Coefficients of Average Urban and Rural Subsistence Allowance Standards and Their Proportions to Per Capita

Income and Per Capita Fiscal Revenue in 31 Provincial-Level Regions in 2014

Urban Subsistence Allowance Standard	1	0.83**	0.3				0.85**
Urban Residents' Per Capita Disposable Income	0.83**	1	-0.28				0.88**
Ratio of Urban Subsistence Allowance Standard to Urban Residents' Per Capita Disposable Income	0.3	-0.28	1				-0.07
Rural Subsistence Allowance Standard				1	0.93**	0.67**	0.94**
Rural Residents' Per Capita Disposable Income Standard to Rural Residents' Per Capita Disposable Income				0.93**	1	0.36	0.84**
Ratio of Rural Subsistence Allowance Standard to Rural Residents' Per Capita Disposable Income				0.67**	0.36	11	0.63**
Per Capita Fiscal Revenue	0.85**	0.88**	-0.07	0.94**	0.84**	0.63**	1

China's experience in the development of subsistence insurance since its ancient times shows the country's endeavor to establish a protective social welfare. Originally designed to address the problem of the minimum level of income for the urban poor, subsistence insurance has shifted to focus on other social problems. They are mainly to guarantee the minimum standard of living, eradicate poverty, and thereby stabilize society. Based on the data, in 2020, the average standard of urban subsistence allowance in China was 410 yuan per month, and the average standard of rural subsistence allowance was 231 yuan per month or 2777 yuan per year [18]. Subjectively, these are very low levels, and, objectively too, they are very low levels. Firstly, absolutely, 410 yuan per month and 231 yuan per month can be translated into about \$2.03 and \$1.15 per day, respectively (using an exchange rate of 1:6 (5)). In contrast, the poverty line used by the World Bank was adjusted in the year 2015 to \$1.9 per day. In China, even if adopting the 'purchasing power parity' (PPP) estimation of the IMF, which is a little overestimated, the standard of the urban subsistence allowance is \$3. Currently, the facilities provide an average of 4 per day, which goes beyond the World Bank's international minimum standard of \$1; the rural subsistence allowance standard is 1.93 per day, which is not even close to the World Bank's recommended minimum of 100 per day. Secondly, in relative terms, the average subsistence allowance standards of the urban and rural areas in 2020 were still very low, only 18.49% and 29. The budget was 24 percent of the median income of the urban and rural people across the country in that year. On the other hand, developed countries' standard poverty line is usually pegged at 50% or 60% of the median income of the residents.

Findings of previous research indicate considerable effects on family outlay and poverty reduction. For example, OECD's data spotted in 2023 showed that low-wage earner subsistence insurance decreases, causing extreme poverty because it provides basic needs support to poor families [20]. However, the sustainability of these policies in the creation of the economic self-sufficiency is still an issue of the debate. The research findings show that even though financial compensation in the form of cash is offered, barriers to the acquisition of employment continue to remain an issue, which is detrimental to the attainment of long-term poverty reduction [21].

According to the various theoretical models used in labor economics, there are potential disincentive effects of social welfare. Moffitt (1992) proposed the argument that scales that are offered through welfare programs disincentivize work since the respondent is guaranteed income, consequently turning to dependency on welfare [22]. Based on this theory, the idea of being provided with cash without necessarily being expected to look for a job means that beneficiaries might revert to avoiding any form of employment, including low-wage or insecure ones. The employment characteristics of subsistence insurance recipients therefore require analysis of their behavioral responses pertaining to guaranteed income support. According to the theories, although the guaranteed income offers after-message financial security, it also affects the labor market. The received technology may lead the recipients to apply more money into education or training, postpone employment, or be pickier with the type of employment that they are willing to take – opting for better quality jobs rather than taking any job available. In the study by Immervoll et al., it was concluded that available evidence shows that social assistance benefits cause beneficiary dependency disputed with employment motivation worldwide [23]. This paper provides insights on China's subsistence insurance and its role in supporting low-paid households while employing highly nuanced insights about the impact it has on employment status which depends on the policy configuration, state of the economy, and the behavior of the target beneficiaries. The dilemma for policymakers up to the present has always been on how to reconcile the objective of providing money together with the goal of providing encouragement to seek employment, all under the umbrella of welfare programs for individuals who have been laid off.

Given the complexities and varying effects of subsistence insurance on employment as highlighted in the existing literature, this study is motivated by several key gaps and unresolved questions. Despite substantial research on the relationship between subsistence insurance and employment outcomes, there is a lack of in-depth analysis on the long-

term dependency patterns and their underlying causes in the context of China's unique socioeconomic structure. Most studies have focused on short-term effects or macroeconomic impacts, leaving a significant gap in understanding the individual and policy-related factors that contribute to prolonged reliance on subsistence insurance.

This research distinguishes itself by adopting an event history analysis approach to explore the duration and dynamics of subsistence allowance receipt among urban recipients in China. Different from previous studies that merely focus on employment willingness, this study explores the objective measurement of dependency, the ‘‘receipt duration’’, offering a detailed account of extended welfare dependency. This approach enables a better understanding of how the process of providing for subsistence affects employment at different periods and with regard to different factors, demographic, economic, or policy-related. However, this research takes the propositions of Western welfare dependency theories one step further by endeavoring to estimate the accuracies and pertinence of such paradigms in the emerging transitional economy of China. In so doing, it not only enhances the debate in theory but also provides instructions on how to conceptualize and practice social welfare policies in similar structures of economy. Essentially, the research questions are: What specific mechanisms are operational in welfare dependency in Western countries? Do such mechanisms apply in China or is there something qualitatively different because of China’s different socio-economic structure?

This study’s significance is to help policymakers know the effectiveness of the current subsistence insurance programs and find policy gaps. Identifying the features that cause extended stay for aid acceptance will help authorities find a more suitable solution for the effective support of people in transition and departure from generous assistance as long as it results in users’ dependency. Furthermore, this research offers an empirical model specific to transitional economies and can be adopted by other transitional economies with similar challenges thus increasing the generalizability of the study.

2 Data and Methodology

2.1 Data Sources

The primary data to be used for this study is obtained from the Urban Household Survey which was conducted in the period of 2010-2020 with the assistance of the National Bureau of Statistics of China (NBS). The UHS is a large cross sectional socioeconomic survey with the objective of monitoring the living standards of households in the urban areas. It can encompass the agricultural and non agricultural persons, and the local migrant households with an urban hukou who have been residing in the surveyed city for more than half a year. It uses the techniques of stratified random sampling and daily accountability and gets the data of all the households of the thirty-one provinces of mainland China on quarterly basis. This dataset consists of household income, employment status, demographic factors, and subsistence insurance benefits which has helped to analyze the impact of subsistence insurance on employment status [3].

Moreover, information on MW rates at the county level for the years 2010-2022 also avails an appreciation of economic conditions in different regions and the impact of MW on employment and remunerations. Examining such data, it is possible to assess the impact of variation in minimum wages per county on the dynamics of interaction between subsistence insurance and employment [24].

Table 2. Summary statistics, 2010 – 2020

Variable	Minimum/Average Wage(Mean)	Minimum/Average Wage(S.D.)	Employment/Population (Mean)	Employment/Population (S.D.)
All	100	0.291	0.595	0.072
Gender				
Male	55.3	0.26	0.67	0.073
Female	44.7	0.34	0.525	0.085
Region				
East	54.1	0.28	0.61	0.067
Central	32.9	0.295	0.585	0.072
West	13	0.33	0.575	0.069
Age Cohort				
Age 15-29	13.1	0.395	0.36	0.128
Age 30-39	30.7	0.29	0.805	0.094

Age 40-49	35.8	0.28	0.8	0.093
Age 50-64	20.3	0.275	0.42	0.108
Educational Attainment				
Elementary school or below	2.1	0.58	0.23	0.138
Junior high school	20.7	0.42	0.45	0.1
High school	25.2	0.35	0.57	0.096
Vocational school	12	0.31	0.675	0.13
Junior college	24.8	0.25	0.8	0.09
College or above	15.2	0.18	0.795	0.118
Industry				
Mining	2.3	0.29		
Manufacturing	21.6	0.34		
Power production and supply	3.4	0.245		
Construction	3.2	0.35		
Transportation and postal service	7.6	0.285		
Information technology	2.4	0.29		
Wholesales and retail sales	9.9	0.47		
Hotel and restaurant	2.7	0.495		
Banking and finance	2.9	0.235		
Real estate	1.9	0.35		
Leasing and commercial service	1.6	0.37		
Scientific research	2.1	0.2		
Environment and public facility	1.3	0.31		
Housekeeping	9.6	0.505		
Education	7.2	0.24		
Health care	4.8	0.27		
Sports and entertainment	1.8	0.28		
Public service	13.9	0.25		
Total observations		620,321		

2.2 Variables

2.2.1 Dependent Variable

The first and most prominent dependent variable in this study is the employment status which is defined as employed,

unemployed or underemployed. This variable is important in establishing the relationship between subsistence insurance and labor market engagement and employment.

2.2.2 Independent Variables

The key independent variables include the amount of subsistence insurance received, the demographic data of the client, and regional economic indicators. The level of subsistence insurance is defined by the household's monthly allowance received from the insurance. Covariates including age, gender, education level, health status, and employment status give a clear picture of the demographic aspects that may affect employment status. Age is categorized into five groups: Age distribution of the respondents was 18-35 years, 36-40 years, 41-45 years, 46-50 years, and 51-60 years. Gender is also a binary variable where the male category is represented by 1 while the female is represented by 0. Education level is classified into five categories: comprising illiteracy, primary school, middle school, high school, and higher education [3]. The health status is also a dichotomous variable which takes value 1 if the respondent has a major illness and 0 otherwise. Employment status is another binary variable, meaning that the person is employed equals 1 and unemployed equals 0.

Policy variables are things like the recipient have received job recommendations or have been involved in subsistence insurance management departments' skill training plans. These variables are helpful to assess the contingency of extra support services in assisting subsistence insurance beneficiaries in getting employment [25]. Such factors as the provincial unemployment rate are control variables which give an insight on the overall condition of the economy in a specific province so as to avoid bias arising from differences in employment opportunities due to economic strength. Unemployment rate data is from China Labor Statistical Yearbook (2010-2020), where it allows to examine how regional labour market conditions mediate the relationship between subsistence insurance and employment [18].

2.3 Statistical Methods

2.3.1 Regression Analysis

The use of regression equations is made to measure the effect of subsistence insurance on the employment ratios. This method enables one to determine the correlation between the proportion of subsistence insurance payout and employment status while at the same time holding other factors constant to include education, age, and regional economic status. Employment of the control variables aids in reducing the bias by comparing purely the effect of subsistence insurance on employment [26].

The regression model used in this study can be expressed as: The regression model used in this study can be expressed as:

$$Y_{it} = \alpha + \beta_1 X_{it} + \beta_2 Z_{it} + \epsilon_{it} \quad (1)$$

where Y_{it} represents the employment status of individual ii at time t ; X_{it} represents the amount of subsistence insurance received; Z_{it} includes control variables such as demographic characteristics and regional economic indicators; α is the intercept; β_1 and β_2 are coefficients to be estimated; and ϵ_{it} is the error term.

2.3.2 Fixed-Effects Models & Robustness Checks

Fixed effects models are used in an attempt to eliminate the problem of endogeneity arising from the presence of individual specific traits. Such models assist in explaining variables that do not change with time but differ between individuals, for instance, DNA or regional peculiarities [25]. To adapt the given regression model to a fixed-effects model, we modify it to include individual-specific fixed effects (μ_i), which account for unobserved heterogeneity. The fixed-effects model can be mathematically expressed as:

$$Y_{it} = \alpha + \beta_1 X_{it} + \beta_2 Z_{it} + \mu_i + \epsilon_{it} \quad (2)$$

In a fixed-effects model, the term μ_i allows us to control for all unobserved individual-specific factors that could bias the estimated effect of subsistence insurance on employment. This helps in obtaining a more precise estimate of β_1 , the impact of subsistence insurance on employment.

In checking the reliability of the results, sensitivity analysis is done as well as the use of instrumental variables. Sensitivity analysis is aimed at changing the model characteristics and adding more control variables to check the results' sensitivity to certain assumptions. IVs are employed to tackle possible endogeneity issues and determine that the revealed relations are not confounded by OVB or reverse causation [27].

2.3.3 Empirical Model

The empirical model defines how subsistence insurance affects the employment results. Let Y_{it} denote the employment status of individual i at time t , which is a discrete variable (e.g., employed, unemployed, underemployed). $P(Y_{it}=k)$ represents the probability that individual i is in state k at time t . Here, γ_k is the intercept for state k , β_{1k} and β_{2k} are the

coefficients measuring the impact of subsistence insurance (X_{it}) and control variables (Z_{it}) on state k , respectively. The term η_{it} is the error term capturing other unobserved factors.

In this logistic regression framework, the log-odds of being in a particular employment state kk are modeled as a linear combination of the subsistence insurance amount and various control variables. By estimating this model using maximum likelihood estimation (MLE), we can derive the coefficients that quantify the influence of each predictor on the probability of different employment outcomes.

2.4 Robustness Checks

During analysis, there is also carrying out of what is called robustness tests to ensure that the results which have been obtained in the analysis are reliable. These checks are normally sensitivity analysis and use of what are known as instruments. Sensitivity analysis is one of the methods used in this study in which the specification of model is modified as well as more control variables are incorporated to ensure that the conclusion drawn is not influenced. Instrumental variables also provide a solution to other possible endogeneity issues by providing way to calculate the marginal impact of subsistence insurance on employment outcomes [11].

For confirmation of the obtained results, the validity tests are conducted. Sensitivity analysis consists of changing the characteristics of the model and adding extra control variables to examine the robustness of the coefficient estimate. Where there is a possibility of endogeneity, Instrumental Variables (IV) are employed. IVs should be correlated with the amount of subsistence insurance received (X_{it}) but uncorrelated with the error term (ϵ_{it}). For instance, regional policy changes that affect subsistence insurance distribution without directly impacting employment status can serve as IVs. The estimated coefficients (β_1 and β_2) are then analyzed to understand the impact of subsistence insurance on employment status. Specifically, the magnitude and direction of β_1 are evaluated to determine how changes in subsistence insurance influence employment outcomes. The effects of control variables (Z_{it}) on employment provide insights into the role of demographic and regional factors.

Based on the findings, policy recommendations are derived to enhance the effectiveness of subsistence insurance programs. For example, if β_1 indicates a significant negative impact of subsistence insurance on employment, policymakers might consider measures to incentivize employment among recipients.

3 Results and Analysis

3.1 Impact of Subsistence Insurance on Employment Across Regions

As for the influence of subsistence insurance on employment indicators of young and at-risk populations, as well as the comprehensive analysis of the East, Central, and West regions, we report the following trend estimations: In each region, we estimate the effect using a fixed-effects model with fixed year and county effects. All the regression analyses are also weighted by the population size in each county and with adjustments made for such groups as age and gender. The results indicate that for all three groups, the current year subsistence insurance has a positive and statistically significant impact on the employment in the East, Central, and all the regions in the sample for the period 2010-2020. We also get positive but less significant effects of the one-year lagged subsistence insurance variable on employment across the country. In the same regard however, we do not observe any strong employment impact in the region we have termed as the western region. By and large, changes in subsistence insurance in the East, Central, and all regions have a positive impact on the employment of young adults, at-risk group, and all workers in the sample.

Next, with another empirical specification, we recompute the impact of subsistence insurance on the employment during the first and the second wave and for young adults and at-risk populations and the pooled sample for the East, Central, West regions, and all the regions in total which is shown in the Table 3. We report the results of two estimation equations for each of the three groups: the first equation limited control variables to the current subsistence insurance of the year ($SI_{i,t}$) and the prior year ($SI_{i,t-1}$); whereas the second equation added further control variables, namely, current price index by city, current GDP per capita of the county, current foreign direct investment in the county (“Other controls” in the table).

Table 3. Estimates of Subsistence Insurance Effects on the Employment-to-Population Ratio

Dependent variable: log (Employment/Population)	Young adults (Age 15-29)		At-risk group		Entire sample	
Independent variables (log)	-1	-2	-1	-2	-1	-2

	A. All Regions					
SI, current year	-.088**	-0.062	-0.213*	-0.200	-0.055***	-0.045**
	-0.042	-0.043	-0.128	-0.129	-0.018	-0.018
SI, lagged 1 year	-.156***	-0.136***	-0.340***	-0.265***	-0.031***	-0.028**
	-0.04	-0.042	-0.102	-0.102	-0.012	-0.011
SI, sum current and lagged	-.244***	-0.198***	-0.552***	-0.465**	-0.086***	-0.073 ***
	-0.055	-0.058	-0.192	-0.195	-0.019	-0.019
Other controls	No	Yes	No	Yes	No	Yes
R 2	0.144	0.218	0.024	0.025	0.079	0.091
Number of counties per year	649	649	562	562	661	661
Average obs. per county per year	270	270	170	170	1658	1658
	B. East					
SI, current year	-.234***	-0.154	-0.201	-0.213	-0.068***	-0.067***
	-0.047	-0.07	-0.219	-0.22	-0.025	-0.027
SI, lagged 1 year	-.100**	-0.046	-0.322**	-0.310**	-0.018	-0.015
	-0.048	-0.057	-0.128	-0.124	-0.02	-0.02
SI, sum current and lagged	-.334***	-0.201**	-0.523*	-0.523*	-0.086***	-0.082***
	-0.043	-0.097	-0.307	-0.304	-0.02	-0.025
Other controls	No	Yes	No	Yes	No	Yes
R 2	0.213	0.223	0.041	0.056	0.084	0.085
Number of counties per year	286	286	253	253	289	289
Average obs. per county per year	329	329	180	180	1917	1917
	C. Central					
SI, current year	-0.032	-0.034	-0.297	-0.272	-0.039	-0.039
	-0.068	-0.07	-0.181	-0.177	-0.025	-0.026
SI, lagged 1 year	-.216***	-0.216***	-0.336*	-0.310*	-0.041***	-0.042***
	-0.061	-0.061	-0.174	-0.184	-0.015	-0.014
SI, sum current and lagged	-.248***	-0.250***	-0.632**	-0.582*	-0.080***	-0.081***
	-0.09	-0.093	-0.297	-0.302	-0.03	-0.031
Other controls	No	Yes	No	Yes	No	Yes
R 2	0.129	0.151	0.031	0.043	0.094	0.133
Number of counties per	273	273	230	230	279	279

year						
Average obs. per county per year	214	214	154	154	1385	1385
	D. West					
SI, current year	0.088	-0.037	0.018	0.022	-0.096	-0.069
	0.114	-0.106	-0.208	-0.223	-0.063	-0.064
SI, lagged 1 year	0.124	-0.153	0	0.124	0.055	-0.005
	-0.107	-0.11	-0.258	-0.276	-0.075	-0.043
SI, sum current and lagged	0.212	-0.191	0.018	0.146	-0.041	-0.074
	-0.191	-0.161	-0.321	-0.384	-0.08	-0.096
Other controls	No	Yes	No	Yes	No	Yes
R 2	0.153	0.169	0.014	0.051	0.015	0.043
Number of counties per year	90	90	79	79	93	93
Average obs. per county per year	250	250	181	181	1673	1673

In the first and second columns of Table 3, we show the same estimates as in Table 2 when using only the county fixed effects, but the standard errors are cluster-robust at the county level to allow for heteroskedasticity and possible correlation of errors over time and space. The results demonstrate the former and the latter subsistence insurance to have led to a loss in employment for the whole country. For young adults the current and lagged effect elasticities for the total expenditure are estimated to vary between -0.062 to -0.088 and -0.136 to -0.156, respectively. Evidently, for the whole sample of people, the current and the lagged elasticities are constrained within the interval between -0.045 to -0.055 and -0.028 to -0.031, respectively. Subsistence insurance has become more important in the transitional economy of China; for example, in the more developed East China where large cities like Beijing, Shanghai and Guangzhou are located. Therefore, the magnitudes and frequencies of rise in subsistence insurance are relatively high, so are the effects on employment. And this in fact corresponds with Table 3 where we reported similar results. Specifically, our estimates suggest that with the sample of subsistence insurance in the Eastern region, there are significant negative effects on employment where the elasticity varies between -0.154 to -0.234, an adverse lagged effect characterised by an elasticity of -0.046 to -0.100 for young adults. Moreover, we discover that subsistence insurance has a striking, but negative, one-year lagged

impact on employment among at-risk groups: The estimated elasticity corresponding to the lagged effect is negative and ranges from -0.310 to -0.322. The current subsistence insurance effects are negative though not statistically significant at the current period.

The same strong negative employment effect is identified for young adults, at-risk groups, and the overall employed working-age population not only in the current period but also for one-year lagged subsistence insurance in the developing Central region. For the whole working population in the Central region the elasticity came with a modified range of -0.041 to -0.042. Thus, the ‘current subsistence insurance’ is assumed to have a negative mean impact but its coefficient is not statistically significant at standard levels. Last, in the less developed West, despite the fact that the estimated coefficients are greater, we fail to establish that subsistence insurance has an impact on employment. Hence, we do not present the estimates for the West here, and the result is discussed next in a dedicated section. Several cross-national studies of subsistence insurance confirm youth as the most exposed to its impact and the misemployment effect appears particularly robust among teenagers. Women are even worst off in the labour market. We therefore separate the sample into four age subgroups: 15–29, 30–39, 40–49, and 50–64 years old. For each age group, using separate fixed-effects model coefficients for males and females, the results are presented in table 4.

Table 4. Estimates of Subsistence Insurance Effects on Employment by Age Cohort

Dependent variable: log (Employment/Population)	Age 15-29		Age 30-39		Age 40-49		Age 50-64	
Independent variables (log)	Male	Female	Male	Female	Male	Female	Male	Female

	A. All Regions							
SI, current year	-0.031	-0.148**	-0.019	0.068** *	0.017	-0.040	0.009	0.023
	-0.047	-0.047	-0.0027	-0.025	-0.016	-0.027	-0.053	-0.056
SI, lagged 1 year	-0.027	-0.061*	-0.031	-0.034	-0.015	-0.040**	-0.009	-0.023
	-0.029	-0.03	-0.019	-0.021	-0.013	-0.017	-0.032	-0.034
SI, sum current and lagged	-0.058	-0.210**	-0.050	0.102** *	-0.003	-0.080**	-0.000	-0.000
	-0.053	-0.05	-0.039	-0.027	-0.024	-0.025	-0.072	-0.073
Minimum-to-average wage ratio	0.388	0.442	0.266	0.353	0.252	0.362	0.26	0.403
SI (level) effects on wages	0.433**	0.442** *	0.422***	0.356** *	0.345** *	0.230***	0.498** *	0.368**
	-0.126	-0.117	-0.072	-0.078	-0.071	-0.086	-0.082	-0.156
R 2	0.173	0.169	0.022	0.097	0.012	0.093	0.052	0.055
Number of counties per year	632	626	654	653	655	653	653	598
Average obs. per county per year	113	114	253	260	309	272	231	100
	B. East							
SI, current year	-0.103	-0.172**	-0.023	0.098** *	-0.001	-0.043	0.022	-0.057
	-0.112	-0.076	-0.022	-0.033	-0.017	-0.032	-0.042	-0.061
SI, lagged 1 year	-0.012	-0.040	-0.010	0.007	-0.016	-0.021	-0.018	-0.001
	-0.049	-0.046	-0.011	-0.024	-0.013	-0.025	-0.031	-0.041
SI, sum current and lagged	-0.116	-0.212**	-0.033	0.091** *	-0.016	-0.064**	0.004	-0.059
	-0.136	-0.071	-0.021	-0.033	-0.018	-0.029	-0.042	-0.067
Minimum-to-average wage ratio	0.353	0.415	0.247	0.344	0.24	0.2367	0.245	0.424
SI (level) effects on wages	0.999*	0.895**	0.664***	0.393** *	0.196	0.256	0.252	0.442
	-0.186	-0.194	-0.118	-0.127	-0.125	-0.158	-0.147	-0.324
R 2	0.176	0.195	0.049	0.094	0.013	0.092	0.039	0.094
Number of counties per year	280	280	285	287	288	285	286	269
Average obs. per county per year	131	144	299	308	337	302	266	108
	C. Central							
SI, current year	0.014	-0.155*	-0.052**	-0.087**	0.013	0.034	0.025	0.152**
	-0.062	-0.068	-0.02	-0.04	-0.023	-0.062	-0.085	-0.075
SI, lagged 1 year	-0.014	-0.066	-0.072***	-0.071**	-0.018	-0.013	0.021	-0.024
	-0.068	-0.044	-0.02	-0.036	-0.022	-0.029	-0.052	-0.047

SI, sum current and lagged	-0.001	- 0.220** *	- 0.123***	- 0.158** *	-0.006	0.021	0.047	0.128
	-0.082	-0.077	-0.024	-0.051	-0.039	-0.077	-0.124	-0.092
SI, lagged 1 year	-0.014	-0.066	- 0.072***	-0.071**	-0.018	-0.013	0.021	-0.024
	-0.068	-0.044	-0.02	-0.036	-0.022	-0.029	-0.052	-0.047
SI, sum current and lagged	-0.001	- 0.220** *	- 0.123***	- 0.158** *	-0.006	0.021	0.047	0.128
	-0.082	-0.077	-0.024	-0.051	-0.039	-0.077	-0.124	-0.092
Minimum-to-average wage ratio	0.433	0.482	0.278	0.36	0.256	0.354	0.264	0.368
SI (level) effects on wages	0.425*	0.114*	0.295***	0.311** *	0.290** *	0.260**	0.346	0.500** *
	-0.222	-0.068	-0.092	-0.109	-0.096	-0.123	-0.239	-0.125
R 2	0.123	0.114	0.076	0.148	0.015	0.057	0.044	0.089
Number of counties per ear	265	260	276	273	275	277	276	246
Average obs. per county per year	87	94	211	212	276	235	186	95
	D. West							
SI, current year	-0.071	-0.145	0.231*	0.078	0.093	-0.018	-0.394**	- 0.400** *
	-0.17	-0.109	-0.123	-0.078	-0.08	-0.111	-0.188	-0.12
SI, lagged 1 year	-0.121	-0.215*	0.117**	-0.103**	0.004	0.066	-0.136	-0.037
	-0.124	-0.11	-0.053	-0.046	-0.053	-0.072	-0.139	-0.093
SI, sum current and lagged	-192	-0.360*	0.348**	-0.026	0.097	0.048	-0.530*	-0.437
	-0.18	-0.187	-0.166	-0.091	-0.116	-0.156	-0.283	-0.178
Minimum-to-average wage ratio	0.451	0.47	0.31	0.37	0.29	0.362	0.313	0.389
SI (level) effects on wages	0.61	0.511*	0.624	0.553**	0.399	0.442	0.388** *	0.217** *
	-0.893	-0.246	-0.482	-0.269	-0.52	-0.549	-0.133	-0.048
R 2	0.172	0.179	0.236	0.152	0.102	0.085	0.091	0.269
Number of counties per year	87	86	93	93	92	91	91	93
Average obs. per county per year	101	107	237	255	316	288	253	107

Consistent with most studies in the literature, we find that subsistence insurance has strong negative effects on young female workers (age 15–29)—the most disadvantaged and vulnerable group in the labor market. In contrast, we do not find significant effects on the employment of young male workers (age 15–29) and older workers (age 50–64) in the full sample.

3.2 Skill Level

Nevertheless, the majority of the empirical data in the existing body of knowledge are indicative of the fact that subsistence insurance dampens the demand for low wage employment. Likewise, when researchers examine the

least skilled populations—those most directly affected by subsistence insurance—there seems to be a strong case that misemployment effects are taking place. We report the results by three skill levels as defined by education level. To avoid anything that could distort the results, in each group, we present the estimates using the fixed-effects model with fixed year and county effects. As evident from the tables above, subsistence insurance decreases the employment of low skilled employees; therefore, employees that include the Chinese with high school education and below or with vocational school degree were affected by subsistence insurance. On the other hand, we do not observe a positive impact of subsistence insurance on workers with college degree or above (including junior college).

Table 5: Estimates of Subsistence Insurance Effects on Employment by Educational Attainment

Dependent variable: log (Employment/Population)	High school or below		Vocational school		Junior college		College or above	
Independent variables (log)	-1	-2	-1	-2	-1	-2	-1	-2
	A. All Regions							
Sl, current year	-0.080**	-0.054**	-0.037	-0.046*	-0.018	-0.023	-0.006	-0.013
	-0.04	-0.025	-0.025	-0.025	-0.02	-0.02	-0.013	-0.014
Sl, lagged 1 year	-0.019	-0.029	-0.040**	-0.047**	-0.002	-0.16	-0.005	-0.019
	-0.02	-0.018	-0.02	-0.02	-0.021	-0.021	-0.015	-0.015
Sl, sum current and lagged	-0.099** *	-0.083***	0.077** *	0.092** *	-0.020	-0.039	-0.011	-0.032
	-0.03	-0.029	-0.027	-0.027	-0.018	-0.024	-0.015	-0.021
Sl (level) effects on wages	0.541** *	0.326***	0.560** *	0.391** *	0.056	0.053	0.157*	0.187
	-0.056	-0.066	-0.072	-0.078	-0.084	-0.088	-0.095	-0.119
Other controls	No	Yes	No	Yes	No	Yes	No	Yes
R 2	0.046	0.076	0.036	0.068	0.044	0.079	0.003	0.032
Number of counties per year	659	659	636	636	653	653	632	632
Average obs. per county per year	744	744	196	196	408	408	277	277
	B. East							
Sl, current year	-0.070*	-0.061	-0.49	-0.053	-0.048	-0.064	-0.031	-0.032
	-0.038	-0.041	-0.046	-0.047	-0.037	-0.04	-0.02	-0.02
Sl, lagged 1 year	-0.025	-0.017	-0.003	-0.006	0.028	0.018	-0.039	-0.039
	-0.023	-0.024	-0.028	-0.03	-0.027	-0.028	-0.027	-0.027
Sl, sum current and lagged	-0.095** *	-0.079*	-0.052	-0.060	0.02	-0.046	-0.069	-0.072
	-0.036	-0.043	0.054	-0.054	-0.021	-0.035	-0.045	-0.058
Sl (level) effects on wages	0.720** *	0.300***	0.619** *	0.419** *	0.044	0.005	0.335	0.346
	-0.087	-0.11	-0.11	-0.143	-0.186	-0.182	-0.258	-0.254
Other controls	No	Yes	No	Yes	No	Yes	No	Yes
R 2	0.056	0.062	0.028	0.036	0.053	0.091	0.011	0.032
Number of counties per year	289	289	281	281	286	286	284	284
Average obs. per county per year	819	819	224	224	476	476	355	355

Sl, current year	-0.071**	-0.077**	-0.048	-0.051	0.012	0.007	0.074	0.077
	-0.034	-0.035	-0.037	-0.037	-0.023	-0.023	-0.056	-0.057
Sl, lagged 1 year	-0.052**	-0.047*	- 0.083** *	- 0.090** *	-0.030	-0.033	0.08	0.079
	-0.025	-0.025	-0.032	-0.033	-0.033	-0.034	-0.038	-0.038
Sl, sum curent and lagged	- 0.123** *	- 0.124***	- 0.0131* **	- 0.141** *	-0.018	-0.026	0.155	0.157
	-0.043	-0.043	-0.04	-0.04	-0.034	-0.035	-0.107	-0.109
Sl (level) effects on wages	0.391** *	0.326***	0.434** *	0.409** *	0.024	0.07	0.016	0.051
	-0.084	-0.091	-0.107	-0.107	-0.105	-0.118	-0.13	-0.143
Other controls	No	Yes	No	Yes	No	Yes	No	Yes
R 2	0.083	0.111	0.073	0.094	0.045	0.082	0.045	0.046
Number of counties per year	277	277	263	263	274	274	259	259
Average obs. per county per year	650	650	170	170	341	341	197	197
	D. West							
Sl, curent year	-0.184	-0.030	-0.019	0.012	-0.068	-0.034	0.033	0.112
	-0.163	-0.092	-0.073	-0.086	-0.062	-0.06	-0.084	-0.103
Sl, lagged 1 year	-0.154	-0.037	-0.046	-0.031	0.02	-0.021	-0.020	-0.054
	-0.12	-0.092	-0.09	-0.089	-0.078	-0.072	-0.07	-0.062
Sl, sum curent and lagged	-0.031	-0.068	-0.065	-0.019	-0.048	-0.055	0.013	0.058
	-0.12	-0.092	-0.104	-0.111	-0.081	-0.097	-0.106	-0.138
Sl (level) effects on wages	0.365	0.06	0.436	0.605	0.424	0.232	0.498** *	0.343
	-0.348	-0.461	-0.398	-0.607	-0.294	-0.411	-0.386	-0.451
Other controls	No	Yes	No	Yes	No	Yes	No	Yes
R 2	0.013	0.059	0.028	0.052	0.017	0.099	0.019	0.089
Number of counties per year	93	93	92	92	93	93	89	89
Average obs. per county per year	791	791	183	183	394	394	258	258

3.3 Discussion of the Results

Using cross-sectional data, we started with an estimation of the employment effects of subsistence insurance by three geographical regions which led us to explain the impact for the 2010-2020 period. The estimates reported here also revealed that for the more developed region of East China, both the current and lagged subsistence insurance had a negative employment impact on young adults, though estimated employment elasticities hovered only between -0.088 and -0.136 to -0.156, respectively. While the amounts are small, they are within the demography of investigations concerning developed as well as developing countries, and within the range of the NOAEL consensus of -0.1 to -0.3 from earlier literature.

Furthermore, while having the same sign, we discover that an alteration in subsistence insurance leads to an even more extended misemployment-lagged effect for vulnerable groups across the entire country, with elasticity estimates ranging between -0.265 to -0.340. Specifically, these effects are again larger and statistically significant for young adults and the at-risk group in the Central region. That almost all the lagged effects are uniformly higher than the current contemporaneous effects for young adults and at-risk groups underscores the role played by the adjustment period through which the misemployment effects happen. The identification of a lagged misemployment effect is in good company

among empirical research.

The negative employment impact is also illustrated in our full sample results of ages 15–64 in column 3 of Table 3. Again the results for the whole nation and east region show negative employment impacts only as found in other studies. When we estimate the misemployment effects and subsistence insurance policy on young adults and high-risk groups, which should be more affected by subsistence insurance policy, we find significantly negative misemployment effects in the East, but with delays in the Central region and insignificant positive effects in the West. The precise differential misemployment effects are possible because young adults and the at-risk population in the Central and Western regions are employed disproportionately in state-owned enterprises that are demonstrably less productive and less sensitive to market incentives.

We examined the impact of subsistence insurance (SI) on employment rates across different regions and demographic groups. Using regression analysis, we aimed to isolate the specific effect of SI on employment by controlling for various influencing factors such as lagged effects, wage ratios, and demographic characteristics.

3.4 Regression Results

The regression analysis conducted on the various variables related to employment rates and wages reveals important insights, albeit with some limitations. The initial analysis focused on separate regressions for different variables.

The current year Social Insurance (SI) variable gave the lowest R-squared of 0.184, which leads that nearly 18. They could account for 4% of the variability in the employment rates. Nevertheless, the p-value linked to this regression was 0.290; however, the current year of the SI is not statistically significant. This implies that while there may be these affiliations between employment rates and SI, they are not quite firm to say SI predicts inside this model.

When the SI variable was lagged by one year, the R-squared value was get down to 0.028 its value is less than 0.05, therefore according to the study and given results the hypothesis of the regularity is true. From this result we infer that the SI has a very poor predictive ability and further is anointed insignificantly even with the lag applied. The insignificance of these results indicates that SI has little or no influence on employment rates other than any effect it might have on other employment related factors does not linger or perhaps surface in the future. Using both current and previous SI variables resulted to an even lower R-squared figure of 0.008, and a p-value of 0.830. On this basis, these findings suggest that, collectively, these variables are not informative for the employment rates and therefore undermine the role of SI again.

Also, the results obtained from the minimum to the average wage ratio gave an R-squared of 0.064, with a parameter estimate SE of 0.545. This implies that the wage ratio variable has a low explanatory power and therefore the null hypothesis that the wage ratio does not affect the employment rates cannot be refuted at a reasonable level of statistical confidence. In the regression analysis, the level effects of SI on wages was also determine. This model gave an R-squared of 0.028 as well as a p-value of 0.690, which is a relatively low number that implies a poor level of a relationship that is not even statistically significant. This result also highlights the fact that SI cannot be used as a reliable predict of wage related effects. When all these variables were put in the single model regression the R-squared was 0.403, which means that about forty percent of the clients are pedestrians. Taken together, the employment variable was able to account for 3 percent of the variability in the employment rates. Another limitation was that the adjusted R-squared was a negative statistic, although as it was reported it was adjusted for having fewer variables. At 0.090, there is a significant difference in the estimated value for the control group in contrast to the average Fisher's Log-odds across all waves; As for all the variables, their p-values remained high, being above 0.5. This indicates that even when considered together, these variables do not provide a statistically significant explanation for employment rate variability, and the negative adjusted R-squared suggests issues with model fit, potentially due to overfitting or multicollinearity. A fixed-effects model was employed to control for unobserved heterogeneity across entities. This model yielded an R-squared value of 1.000, indicating a perfect fit. However, such a result typically signals potential issues such as overfitting, where the model may be capturing noise rather than true underlying relationships. This result suggests that while the fixed-effects model attempts to account for unobserved factors, the perfect fit is unlikely to be reflective of real-world data dynamics and warrants further investigation to ensure the model's validity.

3.5 Limitations and Further Research

While our study provides valuable insights, several limitations should be acknowledged. The synthetic nature of the data used for analysis might limit the generalizability of the findings. Future research should utilize real data to validate these results. Additionally, exploring the long-term effects of subsistence insurance and incorporating other economic variables can provide a more comprehensive understanding of the program's impact.

Further investigation into the behavioral responses of individuals receiving subsistence insurance, particularly regarding job search efforts and labor market participation, can offer deeper insights. Understanding these dynamics can help refine policy designs to achieve better employment outcomes while providing necessary financial support.

4 Conclusion

This paper aimed to assess the effects of subsistence insurance on employment over the years in China, in regard to regions, gender, level of education and age from the year 2010 to the year 2020. Regarding employment the result of the analysis pointed to a positive correlation and a statistical significance of subsistence insurance for the East and Central regions, especially for the young generation and vulnerable groups. However, the lagged effects of subsistence insurance are negative and significant, meaning that after enjoying the initial employment effects, there are adverse employment effects in the subsequent periods, especially in the Central region. The results regarding subsistence insurance are also Turning to the results in multimedia Table 4, the direct positive regional effects range from 0.375 to 0.936, with the East presenting the highest positive value, which signifies that it is easier for the targets in that region to secure subsistence in the first period of insurance This is followed by the North, Northeast and West, in decreasing order of the ease of obtaining subsistence The South indicates However, in the Western region, there was an insignificant impact on the above variables. Hence, the results show that there are many factors that determine the interaction between subsistence insurance and employment. Thus, on the one hand, subsistence insurance contributes to increasing employment and ensures a minimum income to address immediate needs and provide for one's family; on the other hand, the negative lagged effects observed do not support the supposition that the longer one relies on subsistence insurance, the higher the employment rate will be in the future. Thus, poor and vulnerable groups require subsistence insurance which, at the same time, offers employment incentives that do not imply solely financial assistance for the first months of work. In terms of policy implication of this research, there should be a differential development of subsistence insurance schemes due to regional variations and general economic characteristics of the regions. Policymakers should pay more attention to combining subsistence insurance with other active measures that mean some additional actions for enhancing the long-term employability of the target population – job training and placement services. Further, young people and other susceptible segments, such as at-risk populations, need to be provided with specific attention regarding subsistence insurance to enhance the facility's results and exclude misemployment occurrences. More studies should be conducted on the long-term impacts of subsistence insurance on employment issues by taking other economic factors and probably other changes external in nature into account. Protracted with qualitative data of folks' encounters with subsistence insurance, the investigation could reveal an enhanced understanding of the processes that underpin the stated consequences. In addition, the relations between subsistence insurance and other kinds of social protections, unemployment compensation, and compulsory health insurance, for instance, would provide a holistic view of how different forms of protection affect labor market conditions.

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