Study on the Relationship between Digital Government Governance and Endowment Insurance for Flexible Employees

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Abstract. The relationship between digital government governance and endowment insurance participation is an important issue in the integration of digital economy and social security system. Based on microcosmic survey data, using linear regression, Logit and Probit model, this study examines the influence of digital government governance on the participation of flexible employed persons in basic endowment insurance and its mechanism. The results show that digital government governance plays a significant positive role in promoting the insurance participation of flexible employed persons. Further heterogeneity analysis showed that the promotion of digital governance was more significant in males and spouses, but less effective in females and non-spouses. This study reveals the way that digital governance affects insurance behavior by reducing administrative burden, constructing virtual organization attribution and providing algorithmic social navigation.

Keywords: Digital government; Flexible employment of personnel; Endowment insurance; Insured behavior

1 Introduction

The policy dividend, which aims to achieve inclusive and convenient digital governance, does not fully benefit the large-scale flexible workers, whose participation in core social security programs, such as pension insurance, remains weak. This paradox reveals a key problem: There is an "adaptation gap" that is not fully recognized between the supply of technical-enabled government services and the social security needs of the atomized labor force.

The economic and social effects of digital government governance and the influential factors of flexible employment personnel insurance are discussed in the paper. The purpose of this study is to examine the influence of digital government governance on the endowment insurance participation behavior of flexible employed persons and analyze its internal mechanism. The core framework of the study is: Firstly, establish the basic relationship between the two through benchmark regression, and then

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use a variety of measurement methods to carry out robustness test to ensure reliable conclusion. The core question that this study attempts to answer is: Can digital government and how to promote flexible employment participation in endowment insurance? Are there systematic differences in their promotional effects among different groups?

The theoretical innovation of this study lies in that, for the first time, the macro-system variable of digital government governance is placed in the same analysis frame with the micro-behavior choice of flexible employment insurance, and from the new behavior and psychological mechanism perspectives such as "administrative burden relief," "virtual organization attribution construction" and "algorithmic social navigation," the paper expounds the complex path of technology enabling influencing social security participation. Its practical significance lies in that the research conclusions can provide direct empirical evidence and decision-making reference for the government to optimize the supply of digital public services, design more accurate and inclusive social security policies, and have important practical value in promoting the social security system to cover all people and promote common prosperity

2 Literature review

The rise of digital government governance marks an important transformation of national governance model in the digital economy era. Wang Zheng's research shows that digital finance promotes urban economic resilience by optimizing capital allocation and stimulating innovation, while government digital governance strengthens this effect [1]. Shen Zhixuan also found that digital government can improve the efficiency of enterprise investment by improving the synergy and policy transparency[2]. At the same time, for the flexible employment personnel endowment insurance participation research, formed another focus on micro-individual and institutional design analysis. Zhang Yinkai and others found that insurance can improve the class identity of the flexible employment personnel, but the effect varies with the household registration and age[3]. Li Rui and others pointed out that reducing the payment base can effectively promote low-income flexible employment insurance[4]. Huang Shouqin and others put forward that digital government construction promotes enterprise innovation by reducing institutional transaction cost and policy uncertainty[5]. Based on information policy, Li Junrong found that digital governance can reduce uncertainty perception and improve governance efficiency by improving Internet use[6]. However, this theory has not been directly verified in the empirical study of flexible employment and endowment insurance, forming a significant literature gap.

3 Mechanism Analysis and Hypothesis Proposal

Digital government government promotes behavior compliance by reducing "administrative burden," and then increases the participation rate of endowment insurance. When the administrative burden is effectively reduced, the flexible employment personnel will change from "difficult to handle" or "unwilling to handle" to "easy to han-

dle" and "willing to handle," and their behavior compliance will be improved significantly. Digital government governance solves the dilemma of identity identification by constructing "virtual organization attribution," and promotes the participation of endowment insurance. Under the traditional employment relationship, the working unit not only provides the salary, but also gives the laborer a sense of organizational belonging, and represents the social security affairs for him, so that his pension security presents the characteristic of "organization." Digital government governance addresses future uncertainty by providing "algorithmic social navigation," which promotes endowment insurance participation. Digital government can be used as a powerful "social navigation" tool to help individuals cope with this uncertainty through algorithm empowering. The advanced digital platform can integrate fragmented data such as personal odd-work income and past payment records, and generate highly personalized insurance plan for them by using the algorithm model. When the future becomes measurable, programmable and manageable, it becomes more feasible to cross the psychological gap between current income and future security.

Based on this, this paper puts forward hypothesis 1: Digital government governance has a significant positive effect on the participation of flexible employees in basic endowment insurance.

4 Variable Setting and Model Selection

4.1 Data Source

In this paper, the influence of digital government governance on the pension insurance of flexible employed persons is investigated by using the data of CFPS in 2022. According to the type of work, the nature of employer and the signing of labor contract, the sample of flexible employed persons is selected. The sample of "working for oneself or one's own family" and not belonging to agricultural production and operation or agricultural work, the sample of employed persons and the sample of employer being "individual or family," and the sample of employer reporting as "private enterprise/individual industrial and commercial households" but not signed labor contract are defined as flexible employed persons. There are 2639 valid samples.

4.2 Study Variables

The explained variable is the decision-making of the job insurance of the flexible employed personnel, and a binary variable is generated according to the insurance items of the individual endowment insurance. The value of the job insurance of the flexible employed personnel is assigned as 1, and the value is assigned as 0. The variable of interpretation is digital government governance. The word frequency of digital-related words appearing in the work report of prefecture-level city government is divided by the total length of the text. This article controls the following characteristics: Sex, age, marriage, education, mobile internet and health status) of the flexible employed persons.

4.3 Model Selection

In order to test the influence of digital government governance on the endowment insurance of flexible employed persons, a regression model was constructed by adopting the fixed effect model(1)

$$y_i=\beta_0+\beta_1 x_i+\sum \alpha_k \text{controls}_i+\varepsilon_i \quad (1)$$

ε_i represents a random perturbation term; I denotes an individual resident, k denotes the number of control variables, and k denotes a constant term. Represents the coefficient of the argument. $\beta_0\beta_1$

5 Empirical Analysis

5.1 Descriptive Statistics

Table 1 reports descriptive statistics of the core variables. Among them, the mean value of independent variable digital government (diggov) is 0.003. The mean value of basendin was 0.132, indicating that only about 13.2% of the individuals in the sample were insured.

Table 1. Descriptive Statistical Table

Variable	Obs	Mean	Std.Dev.	Min	Max
basendin	3979	0.132	0.338	0	1
diggov	3047	0.003	0.001	0	0.007
marsta	4506	0.822	0.383	0	1
mobile	4472	0.818	0.386	0	1
age	4508	42.44	12.667	14	88
gender	4508	0.549	0.498	0	1
phycon	4442	2.235	1. 1	0	4

5.2 Baseline Regression

Table 2 reports the baseline regression results for the effect of the independent variable "numerical governance" (diggov) on the dependent variable (basendin). Wherein, the first column is a linear regression model without adding a control variable, the coefficient of diggov is 8.8914, and is significant at the level of ten percent; The second and third columns are the logit and probit models containing only independent variables, respectively, and the coefficients of diggov are 76.3217 and 42.4920, respectively, which are significant at the level of 10%, and the coefficient direction is consistent with the significance. The control variables of marital status, mobile device use, age, gender, and physical condition were added step by step, corresponding to linear regression, logit, and probit models, respectively. Focus on the results of the probit model in the last column of Table 2 (the sixth column): The coefficient of diggov was 50.6669 and was significant at the level of five percent. In combination

with the marginal effect value, the occurrence probability of basendin increases by about 10.56 percentage points on average for every unit of diggov increase.

Table 2. Benchmark Regression Analysis

	(1) basendin	(2) basendin	(3) basendin	(4) basendin	(5) basendin	(6) basendin
main						
diggov	8.8914*	76.3217*	42.4920*	10.0200**	88.3410**	50.6669**
	(4.72)	(40.60)	(22.30)	(4.72)	(41.22)	(22.67)
marsta				-0.0015	-0.0061	-0.0034
				(0.02)	(0.18)	(0.09)
mobile				0.1005***	1.0270***	0.5443***
				(0.02)	(0.21)	(0.11)
age				0.0025***	0.0216***	0.0121***
				(0.00)	(0.01)	(0.00)
gender				-0.0233*	-0.2097*	-0.1148*
				(0.01)	(0.12)	(0.06)
phycon				-0.0011	-0.0105	-0.0068
				(0.01)	(0.05)	(0.03)
_cons	0.1040***	-2.1278***	-1.2526***	-0.0691	-3.8180***	-2.1734***
	(0.02)	(0.14)	(0.08)	(0.05)	(0.43)	(0.23)
N	2639	2639	2639	2612	2612	2612
R^2	0.001			0.014		
adj. R^2	0.001			0.011		

Standard errors in parentheses
* p < 0.1, ** p < 0.05, *** p < 0.01

5.3 Robustness Test

In order to verify the reliability of the reference regression results, the following robustness test was performed, and the results are shown in Table 3. Where, column (i) is a baseline Probit model that includes all control variables, including total household income geninc and duration of coverage duration; Column (2) uses robust standard errors for estimation; Column (3) is further adjusted by clustering at the provincial level to control the relevance of unobservable factors in the region; Column (4) logarithms the core argument diggov to mitigate possible extremes or non-linear effects. The results showed that the coefficient of core independent variable diggov (digital government governance) was significantly positive at all settings, and the significance level was basically stable at 5% or higher.

Table 3. Robustness Test

	(1) basendin	(2) basendin	(3) basendin	(4) basendin
basendin				
diggov	74.0707**	50.6669**	50.6669*	50.9147**
	(31.77)	(20.93)	(29.19)	(22.76)
Controls	YES	YES	YES	YES
_cons	-2.1742***	-2.1734***	-2.1734***	-2.1739***
	(0.29)	(0.21)	(0.19)	(0.23)
N	1189	2612	2612	2612

Standard errors in parentheses
* p < 0.1, ** p < 0.05, *** p < 0.01

5.4 Heterogeneity Analysis

In order to further investigate the difference between different groups in the influence of digital government governance (diggov) on pension insurance participation (basendin) of flexible employed persons, this paper makes a heterogeneity analysis from two dimensions of gender and marital status, and the results are shown in Table 4.

Table 4 shows that the influence of digital government governance on endowment insurance participation has obvious group heterogeneity. Specifically, the coefficient of diggov was 143.4685 in the male sample and was significant at the level of one percent, while it was only 3.3038 in the female sample and was not significant, indicating that the promotion effect of digital government governance on the participation of pension insurance was mainly concentrated on the male flexible employed personnel. Similarly, the effect of diggov was also significant in spouses (coefficient 81.9282, significant at the 5-% level), but not in spouses (coefficient 50.1473, not significant).

On the one hand, men and spouses with flexible employment tend to have relatively stable employment expectations and strong awareness of family responsibilities, and prefer to use digital government services to actively participate in endowment insurance; On the other hand, these two groups may have more advantages in information acquisition ability, use frequency of digital tools and social security cognition, so they can benefit from the convenience and information transparency brought by digital government governance.

Table 4. Heterogeneity Inspection Table

	(1) basendin	(2) basendin	(3) basendin	(4) basendin
diggov	143.4685***	3.3038	81.9282**	50.1473
	(39.81)	(44.89)	(32.61)	(67.07)
Controls	YES	YES	YES	YES
_cons	-2.5170***	-2.6985***	-2.4559***	-3.0092***

	(0.42)	(0.47)	(0.36)	(0.73)
N	814	635	1160	289

Standard errors in parentheses

* p < 0.1, ** p < 0.05, *** p < 0.01

6 Conclusions

Through the empirical analysis of the relationship between digital government governance and endowment insurance participation of flexible employed persons, a series of conclusions with theoretical and practical significance are obtained. The benchmark regression results show that digital government governance has a significant positive effect on the participation of flexible employed persons in basic endowment insurance. This conclusion is still established after the establishment of various models and the robustness test, which further proves the positive role of digital government governance in lowering the threshold of participation and improving the accessibility of public services. Further heterogeneity analysis reveals that there are systematic differences in the policy effect of digital government governance among different groups, which has a more significant effect on the promotion of male and spouses' flexible employment behavior, and has a relatively limited effect on female and spousal-free groups.

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