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Research on the impact of digital economy on the employment quality of migrant workers

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Abstract: *This paper examines the impact of the digital economy on the employment quality of migrant workers from the perspective of their social integration. Using the 2017 National Migrant Population Dynamic Monitoring Data, the paper constructs evaluation systems for the digital economy and employment quality, measures them using the entropy method, and employs quantile regression to analyze and explore the relationship between the two. The study finds that the digital economy positively affects the employment quality of migrant workers, a conclusion that remains significant after endogeneity tests and robustness checks. Quantile regression results show that the impact of the digital economy on migrant worker employment quality is generally U-shaped. Further mechanism tests demonstrate that social integration plays a positive mediating role between the two. Based on the empirical findings, the paper suggests focusing on migrant workers with medium and low skill levels and cultivating an atmosphere of urban humanistic care to enhance their sense of belonging.*

Keywords: *migrant workers; employment quality; social integration*

1. Introduction

With the rapid development of globalization and informatization, the digital economy has become a key driver of economic growth and social progress. According to data released by the China Academy of Information and Communications Technology, China's digital economy reached over 5 trillion yuan in 2022, accounting for 41.5% of GDP and ranking second in the world. In recent years, the Chinese government has attached great importance to the development of the digital economy and has introduced a series of policies and planning documents to promote its healthy development and optimize the employment environment for migrant workers. For example, the 2024 government work report mentioned that it should align with the "14th Five-Year" Digital Economy Plan, actively build digital infrastructure, implement the digital transformation of manufacturing and service industries, and actively build digital villages. These work reports not only provide new directions for migrant workers' employment but also provide them with platforms for skills improvement and career development. As one of the key employment groups, the improvement of migrant workers' employment quality is closely related to the integrated development of the digital economy. The growth of employment opportunities in the digital economy does not fully reflect the improvement of migrant workers' employment quality and living standards. Then, what new opportunities has the digital economy brought to migrant workers? How does it affect their employment quality? Is there a difference in employment quality among migrant workers? This paper aims to explore the impact of the development of the digital economy on the employment quality of migrant workers, with the aim of providing valuable references for improving their employment quality.

2. Literature Review and Research Hypotheses

2.1 Literature Review

The digital economy originated from the commercial application of internet platforms and is an economic activity that takes data as the core element, relies on internet platform information technology, and integrates with the real economy to help the real economy complete digital transformation (Liu Cuihua and Qi Yudong,2023)[1]. With the continuous maturity of digital technology, scholars have begun to explore its conceptualization. Tapscott (1996) first proposed the concept of the "digital economy era" in his book, and due to different research perspectives, scholars have not reached a consensus on the

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definition of the digital economy (Zhang Guangsheng and Wang Ruonan,2023)[2]. Scholars have conducted empirical tests based on both perspectives, resulting in the digital economy being divided into a narrow-scope digital economy and a broad-scope digital economy (Zhan Jia and Chen Xiangyang, 2023)[3].

2.2 Theoretical Analysis and Research Hypotheses

2.2.1 The Impact of the Digital Economy on Migrant Worker Employment Quality

Theoretically, the rapid development of the digital economy can promote the improvement of migrant workers' employment quality in two ways. Most migrant workers have a low level of education and limited knowledge and skills, which prevent them from meeting the needs of some medium- and high-skilled positions (Zhang Hui and Shi Lin 2019)[4]. However, with the advancement of the digital economy, migrant workers can leverage the digital information dividends it brings, and get close to cutting-edge social projects and knowledge in the digital platform, and obtain rich learning resources at almost zero cost, thereby improving and enhancing their own knowledge and skills, thereby improving their human capital and achieving high-quality employment (Xu Xianchun and Zhang Meihui 2020)[5]. Based on the above analysis, this paper proposes the first hypothesis.

Hypothesis 1: The digital economy positively affects the employment quality of migrant workers.

2.2.2 Mediating Effect of Social Integration in the Impact of the Digital Economy on Migrant Worker Employment Quality

According to existing literature, the digital economy can affect migrant workers' employment quality through social networks (Li Chune et al. 2023)[6]. Economic integration is a basic condition for survival and is a basic guarantee for migrant workers to participate in digital society and improve their employment quality. The theory of social capital attribution holds that the higher the economic development level of the place where migrant workers flow in, the richer the social capital, the more conducive it is to the social integration of migrant workers (Liu Jun et al. 2020)[7]. However, with the rise of the digital economy, many new industries and positions have emerged, providing more employment opportunities for migrant workers. By participating in digital economic life, migrant workers can easily filter out suitable high-quality positions through digital platforms, thereby improving their quality of life and achieving economic integration. Based on this, this paper proposes the second hypothesis.

Hypothesis 2: Social integration plays a mediating role in the impact of the digital economy on high-quality employment for migrant workers.

3. Research Design

3.1 Model Specification

To further investigate the impact of the digital economy on the employment quality of rural migrant workers, combining the theoretical analysis in the previous section and referring to the approach of Xu Qingyuan et al. (2018)[8], this paper establishes the following benchmark regression model:

$$QE_i = \beta_0 + \beta_1 Dig_i + \beta_2 Z_i + \lambda_i + \mu_i \quad (1)$$

QEi = explained variable (employment quality of migrants); Digi = core explanatory variable (digital economy level); Zi = control variables; λi = provincial fixed effect; μi = random disturbance term; β0, β1, β2 = estimable parameters. Mediating models (2) - (3) are designed to test the mediating role of migrant social integration in the digital economy-employment quality link, building on model (1).

$$Si_i = \alpha_0 + \alpha_1 Dig_i + \alpha_2 Z_i + \lambda_i + \varepsilon_i \quad (2)$$

$$QE_i = \chi_0 + \chi_1 Dig_i + \chi_2 Si_i + \chi_3 Z_i + \lambda_i + \sigma_i \quad (3)$$

3.2 Variable Selection

Explanatory variable: Migrant workers' employment quality index (QE), constructed through the entropy weight method from four dimensions: salary, working hours, employment stability, and labor protection, reflecting the comprehensive level of migrant workers' employment. Core variable: Digital

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economy level (Dig), measured from three dimensions: infrastructure, communication business volume, and industrial digitalization, based on the method of Li Chun'e et al. to assess the development of the digital economy in a region. Mediating variable: Migrant workers' social integration (Si), analyzed from two dimensions: economic integration (consumption level) and psychological integration (social adaptation and identity recognition). Control variables: Including individual characteristics (gender, education level, etc.) and macro regional economic development (logarithm of GDP), which are key factors influencing the employment quality of migrant workers.

3.3 Data sources

This paper's micro-data on migrant workers is from the 2017 China Floating Population Dynamic Monitoring Survey (CMDS2017), with macro-data from sources like Statistical Yearbooks, Information Industry Yearbook, and Peking University's Digital Financial Inclusion Index. Focusing on 2017, the sample includes 169,989 CMDS2017 entries, narrowed to 57,276 rural-to-urban migrant workers aged 16-59 after excluding missing key variables. Variable statistics are in Table1.

Table 1 Statistical description of variables

variable	Sample size	mean standard	deviation	minimum	maximum
Digital Economy Index (Dig)	57,276	0.363	0.208	0.011	0.740
Employment Quality Index (QE)	57,276	0.351	0.308	0.001	0.948
Gender (Gen)	57,276	0.586	0.492	0	1
Education (Edu)	57,276	10.04	3.191	0	19
Political status (Party)	57,276	0.0385	0.192	0	1
Marriage	57,276	0.736	0.441	0	1
Age (Age)	57,276	40.67	10.02	18	63
Unit nature (Danwei)	57,276	0.0841	0.277	0	1
Flow Scope	57,276	1.62	0.74	1	3
Regional Economy (lnGDP)	57,276	2.324	0.419	7.178	11.404
Net income (lnincome)	57,276	8.138	0.492	0	11.156
Net expenditure (lnoutcome)	57,272	7.868	0.613	4.248	11.513
"Do you think locals look down on outsiders?" (Dis)	57,276	3.048	0.715	1	4
Kinds of Activities (Kinds)	57,276	1.085	0.298	1	4

4. Empirical analysis

4.1 Reference regression

Using model (1), this paper conducts benchmark regression with the least square method to study the digital economy's impact on migrant worker employment quality, displayed in Table2. Columns (1-2) show results with and without control variables, while column (3) includes regional fixed effects. All results are significantly positive at the 1% level, indicating a positive effect of the digital economy on employment quality, enhanced by provincial fixed effects (Guo et al., 2023)[9]. Thus, the digital economy promotes high-quality employment for migrant workers, confirming hypothesis 1.

Table 2 Baseline regression result

variable	(1)	(2)	(3)
Dig	0.215^{***} (0.006)	0.209^{***} (0.017)	4.057^{***} (0.151)
_cons	-1.358^{***} (0.009)	-2.203^{***} (0.179)	3.391^{***} (0.173)
N	57276	57276	57276
R^2	0.019	0.174	0.264
IDFE	No	No	Yes
CONTROLS	NO	YES	YES

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

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4.2 Endogeneity test

To address model endogeneity, this study follows Cong & Yan (2022)[10], using the 1984 count of provincial post offices as an IV, ensuring exogeneity and endogeneity criteria. The 2SLS coefficient estimate is compared with LIML in Table 3. The Cragg-Donald Wald F-stat (9951.378) exceeds the 10% bias critical value (16.38), ruling out weak IVs. Endogeneity tests reject overidentification, and LIML results align with 2SLS, confirming the significant impact of the digital economy on migrant worker employment quality, in line with prior findings but with a stronger effect, suggesting endogeneity unaccounted for may underestimate this impact.

Table 3 Endogeneity test results

variable	2SLS		LIML	
	Phase one	phase two	Phase one	phase two
Dig		1.176*** (-0.047)		1.176*** (-0.047)
Lncv	2.831*** (-0.267)		2.831*** (-0.267)	
N	57276		57276	
R^2	0.128		0.128	
IDFE	YES	YES	YES	YES
CONTROLS	YES	YES	YES	YES
F	9951.378			
P	0.000			

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

4.3 Robustness test

To ensure the robustness of the regression results, this paper employs two methods, inspired by Zhang Bochao and Shen Kaiyan (2018)[11],We use principal component analysis to recompute the digital economy index and use this new index as the explanatory variable in the regression. As shown in Table4, columns (1) to (2), the positive impact of the digital economy on the employment quality of migrant workers remains significant, even more so when provincial fixed effects are included.To mitigate the influence of extreme values on the dependent variable, we apply a 1% winsorization to the explained variables. Columns (3) to (4) of Table4 indicate that after this data treatment, the conclusions hold true with or without regional fixed effects, confirming the robustness of the baseline regression results.

Table 4 Robustness test results

variable	(1)	(2)	(3)	(4)
Dig	0.038***(0.004)	3.278***(0.122)	0.315***(0.013)	4.051***(0.151)
N	57276	57276	57276	57276
R^2	0.206	0.264	0.213	0.264
IDFE	NO	YES	NO	YES
CONTROL	YES	YES	YES	YES

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

4.4 Heterogeneity analysis

Further exploration is required to understand the varying employment quality among different migrant worker groups and the impact of digital economy factors in cities. This paper examines these differences in two dimensions

4.4.1 Industry Heterogeneity

The study focuses on the employment quality of migrant workers across various industries. To simplify, we categorize their workplaces into state-owned and non-state-owned sectors. Table5(1) and (2) reveal that the digital economy's positive influence on high-quality employment for migrant workers is consistent regardless of the sector, reinforcing our hypothesis.

4.4.2 Individual Heterogeneity of Migrant Workers

The digital economy's educational dividend affects migrant workers differently based on their educational background, leading to varied skill levels and employment quality. Following Wang Chunchao and Nie Yafeng (2023)[12], we classify workers into low-skill (less than 9 years of education),

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medium-skill (9-12 years), and high-skill (more than 12 years) groups. Table5 columns (3), (4), and (5) show that the digital economy has a more pronounced effect on the low and medium skill groups, with less impact on the high skill group. This could be due to high-skilled workers' pre-existing educational advantages, allowing them to secure high-quality employment without heavy reliance on the digital economy.

Table 5 Heterogeneity test result

variable	(1)	(2)	(3)	(4)	(5)
Dig	4.086*** (0.451)	3.975*** (0.160)	4.462*** (0.148)	4.504*** (0.137)	2.013 (3.555)
N	4815	52461	26431	45158	138
R^2	0.266	0.228	0.150	0.168	0.381
IDFE	YES	YES	YES	YES	YES
CONTROL	YES	YES	YES	YES	YES

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

5. Conclusions and policy recommendations

This study examines how the digital economy affects the job quality of migrant workers using 2017 national floating population data and urban economic data. Key findings reveal: (1) The digital economy significantly boosts high-quality employment for migrant workers, a conclusion supported by robustness tests; (2) The digital economy's impact varies with workers' skill levels, benefiting low to medium-skilled groups the most, showing an inverted U-shaped effect on overall employment quality; (3) Social integration, including economic adaptation and identity, plays a crucial role in the digital economy's impact on job quality.

Recommendations include: (1) Optimizing the digital economy's industrial structure to balance skill-level distribution and reduce structural unemployment; (2) Increasing digital skills training for low-skilled migrants to enhance human capital and harness the "digital dividend"; (3) Promoting a culturally inclusive environment with urban-rural exchange platforms to improve migrants' sense of belonging and avoid "urban-rural dualism."

References

[1] Liu Cuihua, Qi Yudong. Theoretical logic, mechanism and path of digital economy promoting employment expansion and quality improvement [J]. Theoretical journal, 2023: 129-141.
[2] Zhang Guangsheng, Wang Ruonan. How the development of digital economy can enable migrant workers to find high-quality employment [J]. Chinese rural economy, 2023: 58-76.
[3] Zhan Jia, Chen Xiangyang. Measuring the scale of digital economy: a literature review [J]. Journal of Liaoning University (Philosophy and Social Sciences Edition), 2023, 51: 46-56.
[4] Zhang Hui, Shi Lin. Digital Economy: A New driving Force in the New Era [J]. Journal of Beijing Jiaotong University (Social Sciences), 2019, 18: 10-22.
[5] Xu Xianchun, Zhang Meihui. Research on the scale measurement of China's digital economy: from the perspective of international comparison [J]. Chinese industrial economy, 2020:23-41.
[6] Li Chune et al. Comprehensive measurement and analysis of provincial digital economy development level in China [J]. Statistics and decision, 2023, 39: 17-21.
[7] Liu Jun et al. Measurement and driving factors of China's digital economy [J]. Shanghai economic research, 2020: 81-96.
[8] Xu Qingyuan et al. Review of domestic and foreign research on digital economy measurement index system [J]. Research the world, 2018: 52-58.
[9] Guo Lu et al. Digital economy, rural revitalization and high-quality employment of farmers [J]. Research the world, 2023: 1-10.
[10] Cong Yi, Yan Miaomiao. Digital economy, human capital investment and high-quality employment [J]. Financial science, 2022: 112-122.
[11] Zhang Bochao, Shen Kaiyan. Quantitative Assessment and characteristic Analysis of digital economy development readiness of countries along the "Belt and Road" [J]. Shanghai economic research, 2018: 94-103.
[12] Wang Chunchao, Nie Yafeng. Research progress on the impact of digital economy on employment [J]. Economic dynamics, 2023: 134-149.