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High-Quality Employment Retention of College Graduates in Wenzhou: Current Situation and Improvement Countermeasures

-- An Empirical Analysis Based on 491 Questionnaire Responses

Zhihua Huang, Fu Liang

Zhejiang Dongfang Polytechnic, Wenzhou, Zhejiang, 325000, China

Abstract: This study develops and validates an evaluation scale for the high-quality employment retention of local college graduates. Taking graduates of universities in Wenzhou as the sample and drawing on 491 valid questionnaires, it constructs an evaluation system covering five dimensions: economic security, person-job matching, career development, work quality, and subjective experience and external ecosystem. Descriptive statistics, one-way analysis of variance and LSD post hoc multiple comparisons are used to examine the current quality of retained employment in Wenzhou and its group heterogeneity. The results show that the quality of retained employment is at a moderately high level overall, with work quality rated highest and economic security comparatively weak; graduates differing in educational attainment, discipline category, years of work and type of employing unit display significant between-group heterogeneity across the dimensions. On this basis, improvement strategies are proposed at four levels, offering a theoretical basis and decision-making reference for raising the quality of retained employment in Wenzhou and optimizing regional human resource allocation.

Keywords: College Graduates in Wenzhou; Employment Retention in Wenzhou; Employment Quality; Difference Analysis; Improvement Countermeasures.

1. Statement of the Problem

The employment quality of college graduates is a core indicator of the effectiveness of higher education and of regional development. An employment rate alone can hardly reflect questions such as "whether the quality of employment is good or poor" and "whether it can sustain long-term development"; building a multidimensional employment quality evaluation system has therefore become a shared agenda in academic and policy circles, with studies already conducted by Li Cheng et al. (2025) [5], Zhang Zhizhong (2025) [11], Su Dong (2026) [7] and others.

Existing research, however, has concentrated mostly on theoretical dimensions such as conceptual definition, framework construction and indicator system design, while empirical studies focused on the actual state of employment quality remain scarce; for the group of graduates retained in Wenzhou, a localized, multidimensional and systematic assessment grounded in graduates' own perceptions is still lacking. An accurate diagnosis of the current quality of retained employment is an important precondition for local government to formulate talent policies and optimize the employment ecosystem. This study therefore draws on a large-scale questionnaire survey of graduates of universities in Wenzhou to measure the quality of their retained employment along multiple dimensions, aiming to answer three questions: First, what is the overall state of high-quality employment retention among graduates of universities in Wenzhou? Second, what heterogeneity exists among groups with different characteristics? Third, how can the quality of retained employment of these graduates be systematically improved? The study seeks to clarify the real picture of retained employment quality, to provide a theoretical reference for shifting Wenzhou's talent policy from "attracting talent" toward "retaining talent and enabling them to develop", and to offer empirical support and policy implications for aligning talent attraction and cultivation with industrial upgrading.

2. Research Design and Survey Implementation

Based on key literature, this study compiled the "Evaluation Scale for High-Quality Employment Retention of Regional College Graduates". The questionnaire consists of basic information about the respondents and the high-quality employment scale. Basic information covers educational attainment, discipline category, years of graduation and work, and type of employing unit; the scale uses a five-point Likert format. Survey results were processed, analyzed and tested with SPSS 26.0 and AMOS 26.0.

2.1. Construction of the Evaluation Framework and Scale Development

No unified and authoritative evaluation scale for high-quality graduate employment has yet been established in academia. Given the close relevance to the research topic and the reliability of the sources, this study selected key literature related to the evaluation of graduate employment quality from journals indexed in CNKI and Wanfang and from high-quality academic papers, and distilled primary and secondary dimensions from it (see Table 1).

Table 1. Composition of the employment quality evaluation dimensions in the relevant literature

Literature source	Primary dimension	Secondary dimension
Ding Xiancun & Sun Yannan (2015). An analysis of the constituent elements of a quality evaluation index system for college students: oriented toward social adaptability in employment	Individual-level evaluation	Morality (ethical cultivation / sense of responsibility / organizational discipline / loyalty / team awareness); competence (professional ability / learning ability / communication ability, etc.); diligence (organizational management / problem solving / execution ability, etc.); performance (professional dedication / work passion / work quality, etc.)
	Holistic evaluation	Academic aspects (postgraduate entrance examination rate / CET-6 pass rate / competition awards / paper publication, etc.); social aspects (fit between major and employment / employment rate / employment structure / supply-demand ratio / social reputation / social contribution, etc.)
Zhu Juntao (2015). An empirical study of the employment quality evaluation system for college students: a case study of South China Agricultural University	Comprehensive assessment of university employment work	Employment rate, satisfaction with career guidance, job-major relevance, institutional attributes
	Graduate employment satisfaction	Match with career expectations, satisfaction with current employment, average monthly income one year after graduation, non-unemployment rate one year after graduation, turnover rate within six months after graduation
	Employer satisfaction	Satisfaction with professional qualities, satisfaction with general qualities, satisfaction with core qualities
	Social labor demand	Market supply-demand index, overall macroeconomic performance
Ning Dongwei et al. (2016). An analysis of the construction of employment quality evaluation indicators for college students	School-level employment quality	Employment rate, regional difference coefficient of employment, institutional tier coefficient, weight of female employment, weight of entrepreneurship, competitiveness coefficient of employing units
	Individual employment quality	Employment rate, personal satisfaction
Wu Xinzhong (2017). Design of a comprehensive evaluation index system for graduate employment quality	Government-level evaluation	Employment opportunities, employment structure
	Graduate-level evaluation	Working conditions, career development
	Societal-level evaluation	Evaluation by graduates' parents, evaluation by employers
Chen Yuanbo (2018). Construction and application of an evaluation index system for graduate employment quality in higher education institutions	Wages and benefits	Pay level, five social insurances and housing provident fund, room for pay increase, paid leave, housing support
	Development prospects	Industry prospects, organizational prospects, promotion space, training and further study
	Working conditions	Work environment, work atmosphere, work intensity, work pressure
	Job fit	Major relevance, competence match, interest level
	Family support	Family support
Zhang Wenli & Zheng Shuli (2021). An empirical study of the employment quality evaluation system for college students: the case of Zhejiang Province	Pay and treatment	Labor remuneration, welfare protection, labor-management relations
	Working conditions	Work environment, working hours, job stability, nature of the unit, labor protection
	Personal development	Major relevance, career development prospects, person-job fit, learning and training
	Occupational competence	Professional quality, interpersonal handling, post adaptability, occupational ability
	Satisfaction	Job satisfaction, family satisfaction
Liang Yanjiao et al. (2023). Research on the employment quality evaluation system for students in industry-specific universities in the new era	Graduate level	Employment situation, overall job satisfaction, employment fairness, changes in employment in the new era, recognition of the university's employment quality, recognition of students' employability
	University level	Overall employment volume, job positions, reflection of institutional characteristics
	Employer level	Demand, satisfaction, changes in employment in the new era
	Government level	Employment destinations, employment environment
He Zhihong & Yang Zhifeng (2024). Research on the construction of a comprehensive evaluation index system for graduate employment quality	Objective employment status	Pay level, employment stability, major relevance, form of employment, regional balance
	Subjective employment perception	Job satisfaction, occupational identity, perception of fairness, psychological adaptability
	Competence fit	Application of professional skills, practical operation ability, creative thinking, continuous learning ability
	Development potential	Career growth path, intensity of training investment, accumulation of social capital, potential for innovation and entrepreneurship

Taken together, although the studies above differ in dimension division, evaluation subjects and indicator granularity, a relatively stable consensus on the core structure of employment quality evaluation has emerged, which can be summarized in three points.

First, a four-dimensional core framework has stabilized. The structure of "objective employment status—subjective employment perception—competence fit—development potential" recurs across studies and constitutes the theoretical basis of evaluation. Second, evaluation subjects have moved from single to multiple. Evaluation has shifted from one-way statistics compiled by university employment departments to a systematic undertaking that integrates the perspectives of government, employers and graduates (Wu Xinzhong, 2017 [8]; Chen Yuanbo, 2018 [1]; Liang Yanjiao et al., 2023) [4]. Third, the evaluation paradigm has shifted from static to dynamic. Its content has expanded from material dimensions such as "whether employed" and "pay level" to spiritual dimensions such as occupational identity, perception of fairness and psychological adaptability (He Zhihong et al., 2024) [3], and its focus from cross-sectional evaluation at the point of graduation to tracking across the career cycle;

"development potential" and "development prospects" have successively been set as independent dimensions (Chen Yuanbo, 2018 [1]; He Zhihong et al., 2024).

Table 2. Evaluation scale for high-quality employment retention of regional college graduates

Primary dimension	Secondary dimension	Indicator	Scoring criteria (five-point Likert)
Economic security	Pay level	Absolute pay level	1 = far below the local average; 2 = slightly below the local average; 3 = roughly equal to the local average; 4 = above the local average; 5 = far above the local average
		Pay relative to expectation	1 = far below expected pay; 2 = slightly below expected pay; 3 = basically consistent with expectation; 4 = slightly above expected pay; 5 = far above expected pay
		Timeliness and stability of pay disbursement	1 = frequently delayed / extremely unstable; 2 = occasionally delayed / rather unstable; 3 = basically paid on time; 4 = paid on time and guaranteed; 5 = very stable and reliable
	Welfare benefits	Coverage of the five social insurances and housing provident fund	1 = not covered at all; 2 = only individual insurance types covered; 3 = main insurance types covered (three insurances); 4 = five insurances covered (housing fund missing); 5 = all five insurances and the housing fund complete
		Supplementary commercial insurance and benefits	1 = no supplementary benefits at all; 2 = basic subsidies only; 3 = one or two supplementary benefits; 4 = several supplementary benefits; 5 = comprehensive and rich benefit system
		Housing support	1 = no support at all; 2 = only a small housing subsidy; 3 = housing fund or dormitory; 4 = housing fund plus partial housing subsidy; 5 = housing fund plus talent apartments / purchase discounts and other comprehensive support
	Income sustainability	Labor contract signing and standardization	1 = no labor contract; 2 = a simple contract with vague terms; 3 = a standard contract with basic rights clarified; 4 = a standard and detailed contract; 5 = a standard and complete contract with additional protection clauses
		Pay growth mechanism	1 = no growth mechanism; 2 = irregular ad hoc adjustments; 3 = an annual general adjustment with a small margin; 4 = a clear growth system; 5 = a well-established system that is fully implemented
Person-job matching	Disciplinary alignment	Relevance of disciplinary background to the post	1 = completely unrelated; 2 = weakly related (only basic knowledge useful); 3 = moderately related (some courses useful); 4 = strongly related (core knowledge matches); 5 = highly matched (post highly consistent with the discipline)
		Application rate of professional knowledge in actual work	1 = hardly used (0-20%); 2 = limited application (21-40%); 3 = moderate application (41-60%); 4 = considerable application (61-80%); 5 = full application (81-100%)
	Competence fit	Fit between overall individual competence and post competency requirements	1 = not competent, competence seriously insufficient; 2 = basically competent but with a large gap; 3 = competent for most requirements; 4 = well matched with post requirements; 5 = competence exceeds post requirements and strengths can be brought into play
		Adaptability of educational level to post requirements	1 = seriously overeducated; 2 = educational level clearly too high; 3 = basically matched; 4 = slightly below the optimal requirement for the post; 5 = perfectly matched with post requirements
	Interest fit	Consistency between career interest and job characteristics	1 = not interested at all; 2 = not very interested; 3 = neutral; 4 = fairly interested; 5 = very interested and highly consistent with personal aspirations
		Match between personal values and organizational culture	1 = serious conflict; 2 = not very compatible; 3 = neutral; 4 = fairly compatible; 5 = highly compatible
Career development	On-the-job training and upgrading	Completeness of the induction training system	1 = no training at all; 2 = only a brief pre-job introduction; 3 = basic induction training; 4 = a fairly complete training system; 5 = a systematic and professional training system
		Opportunities for in-service skill upgrading and continuing education	1 = no opportunity at all; 2 = very few opportunities; 3 = occasional training opportunities; 4 = regular skills upgrading opportunities; 5 = a complete support system for continuous learning and development
	Promotion and development space	Clarity and fairness of promotion channels	1 = no promotion channel; 2 = unclear and opaque; 3 = a basic but vague promotion path; 4 = clear and fairly fair channels; 5 = clear, fair and transparent channels
		Expected promotion period and speed of promotion	1 = no prospect of promotion; 2 = excessively long promotion cycle; 3 = average promotion cycle; 4 = relatively fast promotion; 5 = rapid promotion with broad space
		Job rotation and lateral development opportunities	1 = no opportunity at all; 2 = very few opportunities; 3 = some opportunities but limited; 4 = relatively many opportunities; 5 = a complete rotation and lateral development mechanism
	Innovation and entrepreneurial potential	Entrepreneurial resources and capabilities accumulated in the post	1 = no accumulation; 2 = very little accumulation; 3 = some accumulation but limited; 4 = considerable accumulation; 5 = rich accumulation with strong conditions for entrepreneurship
		Support provided by the employer for innovation and entrepreneurship	1 = no support at all; 2 = verbal encouragement only; 3 = a small amount of policy support; 4 = a fairly systematic support mechanism; 5 = a complete incubation and incentive system for innovation and entrepreneurship
	Social capital accumulation	Professional networks established through work	1 = no network; 2 = very few contacts; 3 = some foundation; 4 = a fairly wide network; 5 = a rich and high-quality network

Table 2 (Continued)

		Access to industry resources and information	1 = completely closed off; 2 = very few channels; 3 = some channels but limited; 4 = relatively many channels; 5 = smooth channels and rich resources
Work quality	Work environment	Physical comfort of the office environment	1 = very poor; 2 = poor; 3 = average; 4 = good; 5 = excellent
		Work safety and occupational health protection	1 = serious safety hazards / no protection; 2 = some risk / insufficient protection; 3 = basically safe / basic protection; 4 = fairly safe / fairly complete protection; 5 = very safe / complete protection system
	Work intensity	Reasonableness of average daily working hours	1 = seriously excessive (>12 h); 2 = long (10-12 h); 3 = average (8-10 h); 4 = fairly reasonable (about 8 h); 5 = very reasonable (<8 h with flexibility)
		Work pressure and mental load	1 = extreme pressure beyond endurance; 2 = considerable pressure; 3 = moderate pressure; 4 = relatively low pressure; 5 = very low pressure / relaxed state
		Overtime frequency and standardization of compensation	1 = frequent mandatory overtime without compensation; 2 = frequent overtime / insufficient compensation; 3 = occasional overtime / basic compensation; 4 = little overtime / reasonable compensation; 5 = rarely overtime / comprehensive compensation
	Working time and work-life balance	Flexibility of working hours	1 = completely fixed with no flexibility; 2 = very limited flexibility; 3 = some flexibility but constrained; 4 = fairly flexible; 5 = highly flexible / fully self-arranged
		Implementation of the paid leave system	1 = no paid leave; 2 = available but hardly implemented; 3 = partially implemented; 4 = fairly fully implemented; 5 = fully implemented and can be flexibly arranged
		Intrusion of work into personal life	1 = serious intrusion, complete imbalance; 2 = considerable intrusion; 3 = average; 4 = little intrusion; 5 = almost no intrusion, good balance
	Labor relations harmony	Smoothness of communication between managers and employees	1 = seriously poor communication; 2 = poor communication; 3 = average; 4 = smooth communication; 5 = very smooth and efficient communication
		Employee participation in decision-making and democratic management	1 = no participation; 2 = very little participation; 3 = some participation but formalistic; 4 = considerable participation; 5 = full participation with opinions valued
		Frequency of labor disputes and dispute-handling mechanisms	1 = frequent / no handling mechanism; 2 = occasional / poorly handled; 3 = rare / basic mechanism; 4 = relatively rare / fairly complete mechanism; 5 = very rare / complete and fair mechanism
Subjective experience and external ecosystem	Job satisfaction	Overall satisfaction with the current job	1 = very dissatisfied; 2 = dissatisfied; 3 = neutral; 4 = satisfied; 5 = very satisfied
		Composite satisfaction across all dimensions	1 = very dissatisfied; 2 = dissatisfied; 3 = neutral; 4 = satisfied; 5 = very satisfied
	Occupational identity	Identification with and pride in the occupational identity	1 = no identification at all; 2 = low identification; 3 = neutral; 4 = fairly strong identification; 5 = very strong identification / deeply proud
		Sense of mission and meaning the job brings	1 = no sense of meaning; 2 = weak sense of meaning; 3 = neutral; 4 = fairly strong sense of meaning; 5 = very strong sense of meaning / strong sense of mission
	Urban integration	Adaptation to the living environment of the city	1 = very poorly adapted; 2 = poorly adapted; 3 = neutral; 4 = fairly well adapted; 5 = fully adapted
		Social interaction and community integration	1 = completely isolated; 2 = very small social circle; 3 = some social interaction; 4 = fairly wide social interaction; 5 = deeply integrated into the community
	Perception of policy benefits	Awareness of talent-introduction and employment-support policies	1 = completely unaware; 2 = very little awareness; 3 = some understanding; 4 = fairly well informed; 5 = very well informed
		Convenience of policy application and actual sense of gain	1 = cannot benefit / application extremely difficult; 2 = difficult to apply; 3 = neutral; 4 = fairly convenient / fairly strong sense of gain; 5 = very convenient / very strong sense of gain
	Local retention indicators	Strength of intention to remain locally employed	1 = strongly want to leave; 2 = want to leave; 3 = uncertain; 4 = want to stay; 5 = strongly want to stay long term
		Satisfaction with local public services (healthcare, education, transport, etc.)	1 = very dissatisfied; 2 = dissatisfied; 3 = neutral; 4 = satisfied; 5 = very satisfied
		Perceived pressure from local housing and living costs	1 = extreme pressure; 2 = considerable pressure; 3 = average; 4 = relatively low pressure; 5 = almost no pressure

International research has moved beyond the limitation of a single employment-rate indicator and developed an evaluation paradigm that combines objective and subjective measures. The International Labour Organization built a comprehensive framework on the theory of decent work (International Labour Office, 2013) [13]; UNECE (2015) [14], starting from the well-being of workers, operationalized employment quality into seven dimensions: safety and ethics at work, income and benefits, working time and work-life balance, employment security and social protection, social dialogue, skills development and training, and work motivation. The World Bank's job quality measurement (JQM) simplifies it into four dimensions—income, benefits, stability and working conditions—and verified its applicability in a sample of 40 developing countries (Hovhannisyan et al., 2022) [12]. This paradigm is highly consistent with the evolutionary trend of the Chinese literature and provides a theoretical reference for this study.

Accordingly, this study distilled five core dimensions. Economic security refers to material returns such as pay and benefits, which is covered by both domestic and international frameworks and refined domestically into relative pay, the five social insurances and the housing provident fund, and housing support. Person-job matching refers to major relevance and the fit of competence and interest; it is a distinctive contribution of the domestic literature, whereas UNECE's "skills development" focuses on the in-service stage and does not address person-job fit at the initial stage of employment. Career development extends beyond in-service training in the domestic literature to promotion channels, potential for innovation and entrepreneurship, and accumulation of social capital. Work quality covers working conditions, working hours and work-life balance, and labor relations, and is measured most systematically by UNECE. Subjective experience and external ecosystem covers job satisfaction, occupational identity, urban integration and perception of policy benefits, combined with region-specific indicators such as "willingness to remain locally employed" and "awareness of talent policies".

Using the five dimensions above and their secondary dimensions as the theoretical framework, this study developed the "Evaluation Scale for High-Quality Employment Retention of Regional College Graduates", with the specific indicators shown in Table 2.

2.2. Scale Pretest

To ensure the measurement validity of the scale, this study selected 125 local college graduates who had already been employed in Wenzhou for a pretest. The results are as follows: the Cronbach's alpha of the scale exceeded 0.8, indicating good internal consistency reliability; the KMO value exceeded 0.8 and the Bartlett test of sphericity was significant at $P < 0.05$, indicating that the sample data were suitable for exploratory factor analysis; the factor analysis showed that the eigenvalues of all dimensions exceeded 1 and the cumulative variance contribution rate exceeded 50%, meeting the requirement of construct validity. The scale used in the formal survey was thus finalized.

2.3. Formal Scale Test

2.3.1. Respondents

The respondents were college graduates of universities in the Wenzhou area who had already been employed in Wenzhou. The survey was conducted online in the Wenzhou area through convenience sampling. A total of 556 questionnaires were collected through the Wenjuanxing platform; after excluding invalid responses such as patterned answering, 491 valid questionnaires remained, giving an effective response rate of 88.3%. The basic composition of the respondents is shown in Table 3.

Table 3. Composition of the respondents

Demographic variable	Option	Frequency (n)	Percentage (%)
Education	Junior college	295	60.08
	Bachelor's degree	121	24.64
	Master's degree and above	75	15.27
Discipline category	Science and engineering	132	26.88
	Literature, history and philosophy	31	6.31
	Economics and management	149	30.35
	Arts	93	18.94
	Medicine	34	6.92
	Others	52	10.59
Years of work	Within 1 year	291	59.27
	1-3 years	90	18.33
	3-5 years	39	7.94
	More than 5 years	71	14.46
Type of employing unit	State-owned enterprises / public institutions	134	27.29
	Private enterprises	173	35.23
	Foreign-funded enterprises	7	1.43
	Small and micro enterprises	94	19.14
	Self-employment	24	4.89
	Others	59	12.02

2.3.2. Reliability and Validity Tests

Cronbach's alpha internal consistency coefficients were used as the reliability indicator. The overall reliability coefficient of the scale was 0.962, and the coefficients of the individual dimensions ranged from 0.904 to 0.949 (see Table 4), indicating high reliability and good stability and dependability of the measurement results.

Table 4. Reliability analysis results of the scale

	Economic security	Person-job matching	Career development	Work quality	Subjective experience and external ecosystem	Scale
Cronbach's alpha	0.915	0.904	0.947	0.942	0.949	0.962
Number of items	8	6	9	11	11	45

SPSS 26.0 and AMOS 26.0 were used to conduct exploratory and confirmatory factor analyses to test the validity of the scale. Exploratory factor analysis: KMO = 0.965, Bartlett's test of sphericity $\chi^2 = 16699.541$ ($df = 990$, $p < 0.001$), indicating suitability for factor analysis. Five common factors with eigenvalues greater than 1 were extracted by principal component analysis, with a cumulative variance explanation rate of 66.734%; the factor structure was consistent with the presupposed theoretical dimensions, showing good construct validity. Confirmatory factor analysis: the standardized factor loadings of all items exceeded 0.6; the composite reliability (CR) ranged from 0.905 to 0.948 and the

average variance extracted (AVE) from 0.759 to 0.817, meeting the requirements for convergent validity. Discriminant validity was tested by the AVE method: the square root of the AVE of each dimension exceeded its correlation coefficients with the other dimensions, meeting the criterion. Model fit: $\chi^2/df = 1.627$, RMSEA = 0.037, NFI = 0.909, TLI = 0.959, CFI = 0.961 and IFI = 0.961, all meeting the criteria, indicating good fit between the hypothesized model and the observed data.

3. Current Situation of High-Quality Employment Retention among College Graduates in Wenzhou

3.1. Overall Level and Analysis of Each Dimension

3.1.1. Overall Employment Quality Above the Moderate Level, with Structural Differences

The absolute skewness of the employment quality scale and its dimensions ranged from 0.087 to 0.429 (all below 1), and the absolute kurtosis from 0.015 to 0.597 (all below 3), meeting the criteria for normal distribution in social science research and the preconditions for the subsequent difference tests.

Following the five-point Likert scoring rule, this study defines mean values below 3 as a low level, equal to 3 as a moderate level, above 3 as moderately high, and approaching 5 as a high level. The overall mean of the scale was 3.188 (SD = 0.625), a moderately high level. The dimension means ranked as follows: work quality (3.353) > subjective experience and external ecosystem (3.268) > person-job matching (3.192) > career development (3.080) > economic security (3.052). Economic security and career development were only slightly above the threshold of 3, and the gap between the highest and lowest dimensions was 0.301, indicating that the quality of retained employment is acceptable overall but structurally unbalanced; neither the scale means nor any dimension mean reached 4, leaving considerable room for improvement. All dimensions ranged from 1 to 5, and career development had the largest standard deviation, showing the most obvious within-group differentiation.

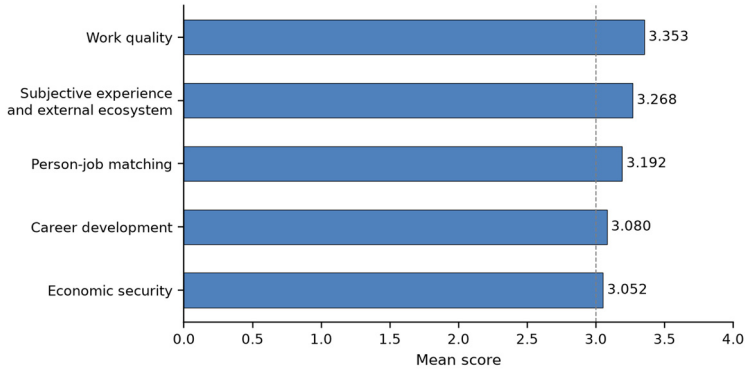

Figure 1. Comparison of the mean values of the dimensions of employment quality

3.1.2. Analysis of Each Dimension of Employment Quality

(1) Overall characteristics of the descriptive statistics by dimension

Across the items of the five dimensions, the absolute skewness ranged from 0.005 to 0.431 and the absolute kurtosis from 0.007 to 0.856, all satisfying the criteria for normal distribution and the preconditions for the difference tests.

The dimension means show a clear gradient: work quality (3.353) > subjective experience and external ecosystem (3.268) > person-job matching (3.192) > career development (3.080) > economic security (3.052). All five dimensions lie between 3.05 and 3.35, above the threshold of 3 but below 4, presenting a pattern of "moderately high overall, none reaching excellence"; each dimension also contains weak items scoring below 3 or clearly low, showing the characteristic of "acceptable overall, weak in specific areas".

(2) Characteristics of each dimension

Economic security was the lowest of the five dimensions (3.052) and is the main weak link in the quality of retained employment. Housing support (2.78), supplementary commercial insurance and other benefits (2.94), and the match between pay and personal expectations (2.92) all fell below the moderate level, reflecting insufficient housing support, inadequate supply of supplementary benefits and a pay-expectation gap; evaluations of social insurance and housing fund coverage and of the pay growth mechanism showed relatively high dispersion.

Person-job matching was moderately high (3.192), with professional background and individual competence basically fitting the post. Evaluations of the fit between career interest and job characteristics and between personal values and organizational culture were relatively high; however, "the extent to which professional knowledge is applied in actual work" scored only 3.00, the threshold value, and evaluations of the adaptability of educational level to post requirements fluctuated considerably.

Career development was the second lowest (3.080), only slightly above economic security. Fairness of promotion channels, in-service training and access to industry resources received some recognition, but "the promotion cycle and speed of promotion in the post" scored only 2.90, a prominent weakness within the dimension, and job rotation and lateral development opportunities also scored low; evaluations of support for innovation and entrepreneurship showed relatively high dispersion.

Work quality was the highest of the five dimensions (3.353). The physical environment, occupational health protection, supervisor-subordinate communication and handling of labor disputes were relatively well recognized; however, daily work pressure and mental load (3.12) was below the dimension mean with a relatively large standard deviation, and no item reached 4, so room for improvement remains.

Table 5. Descriptive statistics for economic security, person-job matching, career development, work quality, and subjective experience and external ecosystem

Dimension	Item	Min	Max	Mean	SD	Skewness	Kurtosis
Economic security	Pay level compared with Wenzhou's local average	1	5	3.02	0.985	-0.046	-0.266
	Pay compared with personal expected pay	1	5	2.92	1.051	0.263	-0.691
	Timeliness and stability of pay disbursement	1	5	3.24	0.936	-0.026	0.007
	Social insurance and housing fund coverage provided by the employer	1	5	3.26	1.223	-0.118	-0.801
	Supplementary commercial insurance and other benefits	1	5	2.94	1.137	0.267	-0.591
	Housing support provided by the employer	1	5	2.78	1.082	0.163	-0.250
	Signing and standardization of labor contracts	1	5	3.24	1.067	-0.212	-0.218
	Pay growth mechanism and its implementation	1	5	3.00	1.184	0.085	-0.758
Person-job matching	Relevance of personal disciplinary background to the current post	1	5	3.17	1.098	-0.056	-0.660
	Extent to which professional knowledge is applied in actual work	1	5	3.00	1.005	0.113	-0.388
	Fit between overall personal competence and post competency requirements	1	5	3.19	0.910	0.069	-0.194
	Adaptability of educational level to recruitment requirements	1	5	3.16	0.882	0.293	0.856
	Match between career interest and job characteristics	1	5	3.29	0.887	-0.005	0.394
	Fit between personal values and organizational culture	1	5	3.35	0.849	0.070	0.505
Career development	Completeness of the induction training system	1	5	3.19	1.135	-0.028	-0.698
	Opportunities for in-service skill upgrading and continuing education	1	5	3.02	1.064	-0.037	-0.654
	Clarity and fairness of promotion channels	1	5	3.27	1.066	-0.167	-0.331
	Promotion cycle and speed of promotion in the post	1	5	2.90	1.080	0.254	-0.277
	Job rotation and lateral development opportunities	1	5	3.10	1.049	0.049	-0.218
	Entrepreneurial resources and capabilities accumulated through work	1	5	3.07	1.070	0.084	-0.237
	Employer support for innovation and entrepreneurship	1	5	3.03	1.173	-0.082	-0.590
	Professional networks accumulated through work	1	5	3.01	1.117	0.041	-0.549
	Access to industry resources and industry information	1	5	3.14	1.036	0.078	-0.441
Work quality	Comfort of the physical office environment	1	5	3.24	1.100	-0.039	-0.737
	Work safety and occupational health protection	1	5	3.51	1.009	-0.192	-0.355
	Reasonableness of average daily working hours	1	5	3.46	0.956	-0.144	-0.248
	Daily work pressure and mental load	1	5	3.12	0.883	0.431	0.288
	Overtime frequency and standardization of overtime compensation	1	5	3.37	1.027	0.028	-0.417
	Flexibility of working hours	1	5	3.15	0.980	-0.006	0.040
	Implementation of the paid leave system	1	5	3.32	1.129	-0.319	-0.323
	Intrusion of work into personal life	1	5	3.38	1.012	-0.017	-0.299
	Communication between managers and employees	1	5	3.54	0.941	-0.224	0.031
	Employee participation in decision-making and democratic management	1	5	3.19	1.073	0.066	-0.416
	Frequency of labor disputes and dispute-handling mechanisms	1	5	3.59	1.072	-0.297	-0.497
Subjective experience and external ecosystem	Overall satisfaction with the current job	1	5	3.26	1.006	0.019	-0.637
	Overall satisfaction with the job after considering all dimensions	1	5	3.26	0.980	0.007	-0.505
	Identification with and pride in the current occupation	1	5	3.32	0.958	0.097	-0.095
	Value, meaning and sense of mission the job brings	1	5	3.34	0.964	-0.084	-0.022
	Adaptation to the local living environment in Wenzhou	1	5	3.47	0.956	-0.065	-0.058
	Local social interaction and community integration in Wenzhou	1	5	3.18	0.984	0.280	-0.229

Table 5 (Continued)

	Understanding of Wenzhou's talent-introduction and employment-support policies	1	5	3.06	1.023	0.161	-0.244
	Convenience of applying for Wenzhou's talent policies and actual sense of gain	1	5	3.24	0.946	-0.012	0.327
	Strength of willingness to remain in Wenzhou for long-term career development	1	5	3.36	0.987	-0.056	-0.182
	Satisfaction with public services such as healthcare, education and transport in Wenzhou	1	5	3.40	0.914	-0.058	0.263
	Pressure of living costs from housing and daily consumption in Wenzhou	1	5	3.06	0.962	0.164	0.187

Subjective experience and external ecosystem was at a relatively good level (3.268): occupational identity, local adaptation, policy support, willingness to remain in Wenzhou and public service provision all generated positive perceptions; however, pressure from living costs and understanding of talent policies both scored 3.06, constituting a dual weakness of high local living costs and insufficient policy awareness, and evaluations of social integration and policy understanding showed relatively high dispersion.

3.2. Difference Analysis of the Dimensions of Employment Quality

3.2.1. Differences by Highest Educational Attainment

One-way analysis of variance was used to test between-group heterogeneity in employment quality by educational attainment. The results show significant differences among the three groups in economic security, person-job matching, career development, and subjective experience and external ecosystem, as well as in the total score ($p < 0.001$); only work quality showed no significant difference ($p = 0.503$).

LSD post hoc comparisons show a clear differentiation in the education effect. Economic security was the only dimension exhibiting a strict educational gradient: master's degree and above highest, bachelor's degree next, junior college lowest, with all pairwise comparisons among the three groups significant; that is, the higher the educational attainment, the stronger the perception of economic security. The remaining dimensions all reached saturation at the bachelor's level: in person-job matching and in subjective experience and external ecosystem, there was no significant difference between the bachelor's and master's-and-above groups, both being significantly higher than the junior college group, so the dividing line falls at the bachelor's level; in career development, the master's-and-above group was significantly higher than both the junior college and bachelor's groups, while the latter two did not differ significantly, moving the dividing line to the master's level. The total employment quality score likewise saturated at the bachelor's level, with no significant difference between the bachelor's and master's-and-above groups, both significantly higher than the junior college group.

In summary, the between-group differentiation by educational attainment generally takes the form of a single jump from junior college to bachelor's rather than a continuous gradient; the marginal return to education is mainly reflected in whether a bachelor's education has been completed, and the increment at the master's stage is significant only in the career development dimension.

Table 6. Difference analysis of the dimensions of employment quality by highest educational attainment

	Junior college (n=295)	Bachelor's degree (n=121)	Master's and above (n=75)	F	P
Economic security	2.86±0.84c	3.22±0.77b	3.53±0.86a	23.105	<0.001
Person-job matching	3.08±0.70b	3.32±0.85a	3.42±0.85a	7.947	<0.001
Career development	2.96±0.90b	3.15±0.89b	3.43±0.93a	8.464	<0.001
Work quality	3.32±0.81	3.37±0.77	3.44±0.88	0.687	0.503
Subjective experience and external ecosystem	3.15±0.72b	3.49±0.83a	3.39±0.89a	9.482	<0.001
Employment quality (overall)	3.07±0.57b	3.31±0.60a	3.44±0.75a	13.963	<0.001

Note: Different letters indicate statistically significant between-group differences ($P < 0.05$); the same below.

3.2.2. Differences by Discipline Category

Table 7. Difference analysis of the dimensions of employment quality by discipline category

	Science and engineering (n=132)	Literature, history and philosophy (n=31)	Economics and management (n=149)	Arts (n=93)	Medicine (n=34)	Others (n=52)	F	P
Economic security	3.09±0.87	3.11±0.74	3.06±0.91	2.94±0.78	3.23±0.90	2.99±0.87	0.733	0.599
Person-job matching	3.16±0.82b	3.42±0.77ab	3.14±0.75b	3.17±0.73b	3.58±0.74a	3.09±0.77b	2.753	0.018
Career development	3.02±0.87	3.08±0.97	3.13±0.90	3.05±0.94	3.10±1.06	3.15±0.91	0.299	0.913
Work quality	3.33±0.86	3.30±0.83	3.27±0.81	3.39±0.83	3.49±0.64	3.53±0.75	1.080	0.371
Subjective experience and external ecosystem	3.28±0.82	3.34±0.69	3.20±0.75	3.29±0.87	3.37±0.69	3.29±0.81	0.449	0.814
Employment quality (overall)	3.17±0.63	3.25±0.63	3.16±0.62	3.17±0.61	3.35±0.63	3.21±0.64	0.656	0.657

To examine between-group heterogeneity in employment quality by discipline category, one-way analysis of variance was used. The results show that only person-job matching differed significantly among the six groups of science and engineering, literature, history and philosophy, economics and management, arts, medicine, and others ($P < 0.05$); economic security, career development, work quality, subjective experience and external ecosystem, and the total

score of employment quality showed no significant differences among the groups ($P > 0.05$). LSD post hoc multiple comparisons show that graduates in medicine scored highest in person-job matching, significantly higher than graduates in science and engineering, economics and management, arts and other disciplines; all other pairwise comparisons were not statistically significant, that is, there was no significant difference in person-job matching among graduates in science and engineering, economics and management, arts and other disciplines.

3.2.3. Differences by Years of Work Since Graduation

One-way analysis of variance was used to test between-group heterogeneity in employment quality by years of work. The results show significant differences among the four groups in economic security, person-job matching, career development, and subjective experience and external ecosystem, as well as in the total score ($p < 0.05$); only work quality showed no significant difference ($p = 0.143$).

LSD post hoc comparisons reveal a common pattern: the group with less than one year of work scored lowest on every dimension and significantly lower than the other groups; however, the points at which each dimension makes its leap are not uniform, showing a clear staged gradient. The leap in economic security and in the total score occurred at one year of employment: the three groups with more than one year of work did not differ significantly from one another, indicating that economic security tends to stabilize after the first year. The leap in person-job matching appeared in the third year: the within-one-year and 1-3 year groups did not differ significantly and were both significantly lower than the 3-5 year and more-than-5 year groups. The advantage in career development appeared only in the more-than-5 year group, which was significantly higher than the within-one-year group, while differences among the other groups were not significant. Subjective experience and external ecosystem improved gradually: the 1-3 year and more-than-5 year groups were significantly higher than the within-one-year group, while the 3-5 year group was in the middle and did not differ significantly from any group.

In summary, the between-group differentiation by years of work mainly takes the form of a one-off jump between "within one year of employment" and "more than one year"; thereafter, as years of work increase, dimension-specific improvement concentrates at two points, namely three years (person-job matching) and five years (career development).

Table 8. Difference analysis of the dimensions of employment quality by years of work since graduation

	Within 1 year (n=291)	1-3 years (n=90)	3-5 years (n=39)	More than 5 years (n=71)	F	P
Economic security	2.89±0.85b	3.15±0.92a	3.42±0.73a	3.39±0.74a	10.198	<0.001
Person-job matching	3.09±0.73b	3.16±0.81b	3.62±0.79a	3.41±0.78a	7.816	<0.001
Career development	3.01±0.88b	3.05±1.01ab	3.29±0.83ab	3.30±0.92a	2.799	0.040
Work quality	3.29±0.78	3.46±0.95	3.55±0.65	3.34±0.83	1.817	0.143
Subjective experience and external ecosystem	3.16±0.74b	3.40±0.92a	3.39±0.83ab	3.47±0.73a	4.679	0.003
Employment quality (overall)	3.09±0.59b	3.25±0.68a	3.45±0.55a	3.38±0.64a	7.648	<0.001

3.2.4. Differences by Type of Employing Unit

One-way analysis of variance was used to test between-group heterogeneity in employment quality by type of employing unit. The results show significant differences among the six types of units in economic security, person-job matching, career development, and subjective experience and external ecosystem, as well as in the total score ($p < 0.05$); only work quality showed no significant difference ($p = 0.170$).

Table 9. Difference analysis of the dimensions of employment quality by type of employing unit

	State-owned enterprises / public institutions (n=134)	Private enterprises (n=173)	Foreign-funded enterprises (n=7)	Small and micro enterprises (n=94)	Self-employment (n=24)	Others (n=59)	F	P
Economic security	3.46±0.78a	3.05±0.83b	3.16±1.05abc	2.74±0.70c	2.83±0.72c	2.69±1.01c	12.016	<0.001
Person-job matching	3.57±0.77a	3.12±0.74b	3.33±0.75abc	3.13±0.59b	2.79±0.67c	2.80±0.85c	12.545	<0.001
Career development	3.41±0.91a	3.04±0.86b	2.78±1.10ab	2.90±0.79b	2.91±0.83b	2.83±1.09b	5.840	<0.001
Work quality	3.49±0.81	3.37±0.73	3.28±0.95	3.26±0.79	3.23±0.95	3.20±0.97	1.560	0.170
Subjective experience and external ecosystem	3.44±0.80a	3.13±0.73b	3.39±0.72ab	3.19±0.67b	3.45±1.00ab	3.32±0.94ab	3.034	0.010
Employment quality (overall)	3.48±0.62a	3.14±0.56b	3.19±0.73ab	3.04±0.50b	3.04±0.52b	2.97±0.79b	9.333	<0.001

LSD post hoc comparisons show a highly consistent pattern of between-group differences: state-owned enterprises and public institutions ranked first on all four dimensions and on the total score, and were significantly higher than private enterprises, small and micro enterprises, self-employment and other units, with particularly evident leads in economic security, person-job matching and career development. The differentiating features are concentrated among the remaining groups: private enterprises were significantly better than small and micro enterprises, self-employment and other units in economic security, and did not differ significantly from small and micro enterprises in person-job matching, while both were better than self-employment and other units; the three groups of small and micro enterprises, self-employment and other units did not differ significantly on the four dimensions or the total score; foreign-funded enterprises ranked in the middle on the total score and did not differ significantly from any group.

Overall, the differentiation by unit type presents a two-tier pattern in which state-owned enterprises and public

institutions lead while the other groups are at similar levels, with private enterprises, small and micro enterprises, self-employment and other units forming the lower-middle range and foreign-funded enterprises occupying an intermediate position.

4. Analysis of Improvement Countermeasures

4.1. Optimizing the Pay and Benefits System

Addressing the low score on the economic security dimension and its significant differences across unit types and years of work, a pay and benefits system that is both competitive and fair should be built. First, enterprises should be guided to establish a pay-setting mechanism centered on job value and individual competence, to standardize overtime pay and contributions to the five social insurances and the housing provident fund in private enterprises and small and micro enterprises, and to remedy shortcomings in implicit benefits. Second, special subsidies and rental allowances should be introduced for graduates retained in Wenzhou to lower living costs at the initial stage of employment, and a regular pay growth mechanism should be established so that income rises together with years of work and accumulated experience.

4.2. Strengthening Person-Job Matching Mechanisms

Addressing the significant differences in person-job matching across discipline categories and unit types (higher in medicine, lower in some disciplines and in private enterprises and small and micro enterprises), a precise person-job matching mechanism should be built. First, industry-education integration should be deepened, with universities in Wenzhou adjusting their program layouts dynamically in line with the industrial structure so as to improve the alignment of science and engineering, economics and management and other programs with local key industries. Second, an intelligent person-job matching platform should be built on big data to provide career assessment, job recommendation and employment guidance, thereby reducing frictional unemployment caused by information asymmetry. Third, private enterprises and small and micro enterprises should be guided to standardize recruitment procedures and job design, clarify responsibilities and job qualifications, and improve pre-job training and internal job rotation, so as to strengthen graduates' job competence and occupational identity.

4.3. Broadening Career Development Channels

Addressing the significant differences in career development across years of work and unit types (prominent in the group with more than five years of work, and better in state-owned enterprises and public institutions than in other types), a diversified, staged support system should be built. First, the promotion "ceiling" should be removed by guiding private enterprises and small and micro enterprises to establish transparent and standardized promotion and job-grade evaluation systems and to open dual paths for technical skills and management. Second, full-cycle career management should be implemented: special skills training and mentoring for those with one to three years of experience, and advanced management development and cross-sector exchange opportunities for those with more than three years. Third, internal talent mobility mechanisms should be optimized, enriching work records through project-based and rotation arrangements, and strengthening long-term development expectations and market competitiveness.

4.4. Improving the Workplace Ecosystem

Addressing the relatively weak evaluations of subjective experience and external ecosystem among those employed for less than one year and in private enterprises and small and micro enterprises, the soft environment of the workplace should be optimized. First, organizational culture should be shifted from a "control" model to an "enabling" model, with equal and transparent communication mechanisms, weaker hierarchical barriers, and a stronger sense of belonging and psychological safety. Second, care and psychological support systems for new employees should be improved through adaptation training, mental health lectures and team building, so as to ease anxiety during role transitions. Third, protection of the rights and interests of flexible-employment and self-employed groups should be strengthened, institutional discrimination eliminated, and cross-industry exchange platforms built, so as to enhance the inclusiveness of the regional workplace and the willingness of graduates to remain in Wenzhou.

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