

The Impact of Non-cognitive Ability on the Labor Employment Quality in China

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Abstract: Within the analytical framework of the new human capital theory, this paper delves into the impact of non-cognitive abilities on the quality of employment for workers. The new human capital theory centers on abilities, highlighting the significant role of non-cognitive abilities in the formation of human capital. Non-cognitive abilities, representing dimensions of ability that do not directly engage in cognitive activities but exert a notable influence on their outcomes, encompass attitudes, personality, emotions, and various other aspects. These abilities remain relatively stable in the mid-to-late stages of an individual's life cycle and exert a profound impact on workplace performance. By reviewing relevant literature, this study reveals that non-cognitive abilities have a significant and enduring influence on multiple dimensions of employment quality indicators for workers, particularly income level, unemployment rate, and job satisfaction. Specifically, non-cognitive abilities are not only directly linked to workplace performance but also indirectly affect income level through multiple pathways such as educational attainment, occupational choice, and the accumulation of social capital, with their impact being more stable compared to cognitive abilities. Furthermore, strong non-cognitive abilities can help workers quickly overcome unemployment challenges or avoid the likelihood of unemployment altogether. The level and structure of non-cognitive abilities play a crucial role in the subjective evaluation of employment quality—job satisfaction.

Keywords: Non-cognitive Abilities; employment quality; income level; unemployment; job satisfaction

1. Introduction

The issue of employment, serving as a pivotal link between the state, families, and individuals, occupies a significant position in social development. Since the International Labour Organization introduced the concept of "decent work" in 1999, the quality of employment has become a key indicator for measuring national progress, family happiness, and individual well-being. Macroscopically, the quality of labor employment directly influences the quality of macroeconomic development and serves as an important benchmark for assessing a country's overall competitiveness (Wu & Li, 2022). Microscopically, the quality of employment not only constitutes the economic foundation of family life but also represents a crucial pathway for individuals to realize self-worth and social status.

Against the backdrop of China's economic transformation and upgrading, it is particularly important to create high-quality employment positions to accommodate structural adjustments, enhance workers' welfare and benefits to boost residents' sense of gain, and subsequently promote the expansion of consumption scale and optimization of consumption structure. In recent years, China's employment policy has shifted from merely expanding the number of jobs to emphasizing the improvement of job quality (Kalleberg, 2011), with high-quality employment explicitly identified as the core content of economic and social development and livelihood security work (Quak et al., 2019). Therefore, exploring effective pathways to enhance the quality of employment for workers holds significant practical importance for achieving the goal of high-quality macroeconomic development and satisfying families' and individuals' aspirations for a better life.

The core of improving employment quality lies in enhancing population quality, with human capital development being a critical pathway (Liu et al., 2021). However, China's long-term reliance on academic education as a means of human capital investment faces challenges. At the macro level, China's education returns have not consistently increased with educational investment. Since the large-scale expansion of universities, the growth rate of education investment returns has slowed and shown a declining trend, exacerbating the issue of unemployment among college students. Simultaneously, differences in economic development trajectories across countries and regions indicate that merely increasing the average years of schooling is insufficient for developing countries to surpass the middle-income trap; the quality of education is more crucial (Bhorat et al., 2014). At the micro level, signaling theory questions the inevitable link between educational attainment and labor productivity, suggesting that academic qualifications may merely serve as signals that workers display to employers in the market, rather than being directly related to labor productivity. Empirical analyses also reveal that educational level has limited explanatory power for workers' lifetime income levels and personal achievements, and overeducation negatively impacts workers' wage levels, career development, and employment stability (Li & Yao, 2021). This indicates that China's current over-reliance on academic education to enhance human capital levels fails to demonstrate increasing marginal returns in terms of macroeconomic development and family and individual well-being.

Given the limitations of modern human capital theory, economists, represented by Heckman, have proposed the new human capital theory, which centers on abilities and closely links human capital with individual competencies, arguing that abilities should be the primary evaluation indicator of human capital. This theory divides abilities into cognitive and non-cognitive abilities. Cognitive abilities gradually decline with the deterioration of individual physical functions, while non-cognitive abilities remain relatively stable in the mid-to-late stages of a worker's life cycle and can predict a range of life outcomes, including academic performance, labor market outcomes, health, and criminality (Pedersen, 2020). In recent years, the positive role of non-cognitive abilities in enhancing employment quality has garnered widespread attention globally.

The new human capital theory, particularly its emphasis on non-cognitive abilities, provides insights for overcoming the dilemma of China's "degree-centric" approach to human capital cultivation. Non-cognitive abilities have a long-term and stable impact on individuals' performance in the labor market and are more explanatory of workers' labor market outcomes than education and cognitive abilities in traditional human capital theory, deserving adequate attention. With the development of a high-quality economy, the market continuously raises skill requirements for workers, necessitating continuous learning to adapt to new skill demands and effectively address employment challenges arising from skill shortages. Improving workers' non-cognitive abilities, facilitating more effective matching between workers and jobs, and enhancing their occupational adaptability and employment competitiveness can effectively alleviate the current situation of low employment quality. However, compared to other countries, research on non-cognitive abilities in China is still in its infancy, with numerous cognitive blind spots and research gaps in understanding their economic value. Existing relevant studies mostly rely on the analytical framework of traditional human capital theory, primarily focusing on human capital investments such as workers' educational attainment, experience, and abilities, with limited discussion and analysis from the perspective of non-cognitive abilities on their impact on workers' employment quality.

This study aims to systematically review and analyze relevant literature to explore the impact of non-cognitive abilities on the employment quality of Chinese workers, providing new perspectives and insights for enhancing employment quality through optimizing the structure of human capital at the national, family, and individual levels. Specifically, employment quality, as a multifaceted concept that comprehensively considers the actual circumstances of workers in the labor market, encompasses an evaluation index system with multiple dimensions. This study intends to reveal the significant mechanisms through which non-cognitive abilities enhance the employment quality of workers, focusing on the three core dimensions of workers' income levels, employment stability, and job satisfaction. Ultimately, this study anticipates offering targeted suggestions and guidance for improving individuals' non-cognitive abilities, thereby comprehensively enhancing the employment quality of workers.

1.1 Significance for the Study

The profound impact of non-cognitive abilities on workers' employment behavior has increasingly become the focus of inquiry for many scholars. However, in China, research on non-cognitive abilities is still in its preliminary stages, with most understanding of their economic value limited to a single consideration of workers' income levels. There is a lack of in-depth and systematic exploration into how non-cognitive abilities affect workers' multidimensional employment quality in the labor market. In light of this, this paper takes workers' employment quality as the core research object, aiming to further expand and deepen our understanding of the role of non-cognitive abilities in the employment performance of Chinese workers by meticulously analyzing the mechanisms through which non-cognitive abilities influence different evaluation indicators of workers' employment quality.

1.2 Definition of Key Terms

1.2.1 Non-Cognitive Ability

Non-cognitive abilities refer to the sum of personality traits, emotional responses, and behavioral patterns that do not directly participate in cognitive processing but play a crucial role in individuals' interactions with the environment, especially in interpersonal communication, emotion regulation, decision-making behavior, and other aspects. This concept transcends the scope of traditional intelligence, encompassing multidimensional content with core measurement indicators being personality traits such as conscientiousness, openness, agreeableness, emotional stability, and extraversion, which collectively constitute an individual's unique "soft power" in economic and social activities.

Non-cognitive abilities play a vital role in individual development. They not only shape personal development trajectories and determine social status but also influence social class structures. In some contexts, their contribution to individual income is more significant than that of cognitive abilities, particularly in explaining income disparities among specific groups (Noble et al., 2007). More crucially, although non-cognitive abilities emerge early in life, their development path exhibits more enduring plasticity and stronger environmental adaptability. This implies that through family education, educational investment, and policy guidance, non-cognitive abilities can be effectively cultivated, thereby optimizing individuals' economic and social outcomes.

Although the academic community defines non-cognitive abilities in various ways, such as from the "personality economics perspective," "hidden human capital," or "personality qualities," they all essentially point to personality characteristics that profoundly influence workers' economic and social performance. These characteristics, as stable thought tendencies, emotional responses, and behavioral patterns of individuals in specific contexts, provide possibilities for quantitative analysis. Currently, the Big Five personality model is widely accepted for its comprehensiveness and scientific nature and has become the mainstream framework for assessing non-cognitive abilities. This model subdivides non-cognitive abilities into five dimensions: openness, conscientiousness, extraversion, agreeableness, and emotional stability, providing a solid theoretical foundation and operable analytical framework for empirical research.

1.2.2 Labor Employment Quality

The concept of employment quality comprehensively evaluates workers' employment performance from a multidimensional perspective, with its ideological origins tracing back to the concept of "decent work" proposed by the International Labour Organization in 1999 (Xu & Ling, 2020). The new Director-General of the International Labour Organization, Somavia, emphasized at the 87th Session of the International Labour Conference that the ultimate goal of labor is to enhance citizens' well-being and ensure that workers engaged in productive labor enjoy "decent work," characterized by safeguarded rights and interests, adequate income, sufficient social protection, and stable job positions (Govindjee & Qotoyi, 2021).

From a macro perspective, the evaluation of employment quality is primarily used to measure the overall performance of a country or region's labor market and the efficiency of resource allocation, including macro indicators such as labor supply and demand, and public employment services. For example, (Sehnbruch et al., 2020) argue that employment quality should encompass three dimensions: income, job security, and employment conditions; while (Arestis et al., 2020) emphasize income, job stability, and social security as key indicators for evaluating employment quality.

In Chinese research, scholars have their own perspectives on the dimensions of employment quality. (Steffgen et al., 2020) propose that employment quality includes four dimensions: employment status, social protection, employability, and employment environment; (Gao et al., 2022) suggest that a macro-level employment quality indicator system should encompass six dimensions: employment environment, employment status, employability, labor remuneration, social security, and labor relations; (Qi et al., 2020) construct a provincial-level employment quality evaluation system in China using four dimensions: employment environment, employability, labor remuneration, and labor protection. From a micro perspective, the content of employment quality is even richer, including both subjective and objective evaluations. Subjective evaluations use workers' own perceptions as evaluation indicators, such as satisfaction and a sense of gain.

Based on a synthesis of existing research on the scope of employment quality, this study posits that high-quality employment should possess three characteristics: substantial material returns, stable employment status, and positive personal subjective experiences. By analyzing the impact of non-cognitive abilities on workers' income levels, employment stability, and job satisfaction, this study aims to explore the economic value of non-cognitive abilities in enhancing workers' employment quality.

2. Literature Review

2.1 The Impact of Non-cognitive Abilities on Earnings

Income, as a core indicator of workers' employment quality, and its relationship with non-cognitive abilities have been the focus of academic research. The study of the impact of non-cognitive abilities on workers' income constitutes a vital part of understanding how non-cognitive abilities influence the quality of workers' employment and serves as a crucial starting point for stimulating scholars' interest in exploring non-cognitive abilities and their implications for workers' labor market performance.

Currently, extensive research has been conducted on the impact of non-cognitive abilities on workers' income, revealing that these abilities can significantly affect income through both direct and indirect effects. Regarding direct effects, numerous studies have demonstrated that non-cognitive abilities have an impact on workers' income that is no less significant than cognitive abilities. Workers with stronger non-cognitive abilities tend to excel in their jobs, thereby earning more lucrative labor compensation and achieving more notable career successes (Durak & Saritepeci, 2019). For instance, (Gilar et al., 2015) examined 339 graduates from a Spanish university and found that higher conscientiousness helps graduates gain more advantages in the labor market, while the impact of openness varies depending on graduates' interest and engagement in their work. Consistent with studies utilizing datasets from developed countries, (Bühler et al., 2020) research on the Southeast Asia region also indicates that non-cognitive abilities are significant predictors of individual workers' occupational attainment and earnings.

However, the income effect of non-cognitive abilities is not uniform across all workers and contexts. Certain non-cognitive abilities may only effectively explain the income levels of specific populations, and the income effects of non-cognitive abilities vary as the work context changes (Josten, 2023). For example, (Cook, 2005) study found that for men, agreeableness is positively associated with their job success in research and engineering assistant positions, while emotional instability is negatively associated; for women, high openness helps them attain high positions in research and engineering assistant roles, but high agreeableness can hinder their job advancement. Additionally, the impact of non-cognitive abilities on workers' income is also reflected in their indirect influence on individuals' educational attainment and personal behavioral habits; that is, good non-cognitive abilities also help workers reduce undesirable behaviors and lower the risk of resulting wealth loss (Rozhkova et al., 2023).

In China, research on the effect of non-cognitive abilities on workers' income began later but has yielded fruitful results in recent years. Kautz et al., (2014) study showed that non-cognitive abilities not only directly promote improvements in workers' income but also significantly increase the level of workers' skill premiums. Bühler et al., (2020) explicitly pointed out through empirical research that non-cognitive abilities are considered to affect workers' income primarily through occupational screening, enhancing the marginal utility of social capital and educational experiences, etc. Specifically, when the coefficient of non-cognitive abilities increases by one unit, workers' income levels can improve by 7.95%. This data strongly supports the key role of non-cognitive abilities in raising workers' income, which cannot be ignored. Furthermore, it is worth noting that different dimensions of non-cognitive abilities have varying impacts on income. Paiman et al., (2024) reveals this through an in-depth study, finding that agreeableness is negatively related to workers' income levels, while conscientiousness, emotional stability, and openness are positively related to their income. This finding suggests that different types of non-cognitive abilities may have distinct impacts on earnings. Therefore, when enhancing workers' non-cognitive abilities, we should focus on those dimensions that positively impact income. Ma et al., (2024) study also shows that the development of non-cognitive abilities is closely related to social status, and in the digital economy era, non-cognitive abilities increasingly influence workers' income levels; however, their contribution to the problem of income inequality is also growing. Therefore, in the construction of human capital investment, the inequality of non-cognitive abilities should be given high priority, and measures should be taken to address it.

2.2 The Impact of Non-cognitive Abilities on Unemployment

The impact of non-cognitive abilities on workers' unemployment risk has become a focal topic in economic research. Compared to cognitive abilities, non-cognitive abilities not only enhance workers' capacity to create economic value but also equip them with resilience to more effectively withstand external risk shocks, thereby mitigating the negative effects of career setbacks. Consequently, a lack of non-cognitive abilities is regarded as a factor that increases workers' unemployment risk, while strong non-cognitive abilities can help workers quickly overcome unemployment dilemmas.

Dahlberg et al., (2021) found that workers with higher non-cognitive skills experience significantly shorter unemployment durations compared to those with lower skills. Specifically, high-skill individuals have fewer unemployment days in a year than low-skill individuals. Furthermore, individuals who score higher on non-cognitive skills (such as willingness to take responsibility, initiative, good social skills, and teamwork ability) in psychological assessments exhibit greater enthusiasm when applying for new jobs, especially for positions that require them to adapt and learn new skills. This phenomenon not only influences their job search behavior but may also indicate higher demand in the labor market for individuals with high non-cognitive skills.

In India, the labor force is primarily concentrated in the informal employment sector, lacking corresponding incentive measures and social security. Notably, studies have shown that over 35% of recruiters indicated that candidates were deemed unsuitable for job positions due to a lack of relevant skills. This data highlights that a mismatch between the skills possessed by workers and those demanded by the market results in many Indian graduates facing employment challenges. This not only reflects the importance of non-cognitive abilities in the job market but also suggests that enhancing workers' non-cognitive abilities to better align with market demands is an effective way to alleviate current employment difficulties (Deb, 2021).

Cuesta & Budr a (2017) employed a dynamic random-effects probit model to examine the impact of non-cognitive abilities on German workers' unemployment risk from a dynamic perspective and found that agreeableness and extraversion are positively correlated with unemployment risk, while conscientiousness and openness are negatively correlated with it. Chowdhury & Islam (2021), in their study on the employment status of Bangladeshi undergraduate graduates, demonstrated that students with stronger non-cognitive abilities have an advantage in the job search process and can find suitable jobs more quickly, while those with insufficient non-cognitive abilities face more barriers and higher unemployment risks because companies value not only employees' ability to create value but also their emotional control to cope with daily work stress.

In his research, O'Connor (2020) skillfully utilized the rich data resource from the German Socio-Economic Panel (SOEP) spanning from 1996 to 2013 to deeply analyze the profound impact of unemployment on workers' personality traits, particularly non-cognitive abilities. The results showed that compared to workers who can maintain continuous employment, the unemployed exhibit significant deficiencies in non-cognitive ability areas, especially conscientiousness and emotional control.

When analyzing the negative impact of unemployment on workers, (Paul et al., 2009) pointed out that unemployment significantly negatively affects workers' personality traits and increases their depression levels. Analysis incorporating the Big Five personality model revealed that sustained unemployment reduces workers' conscientiousness, openness, and agreeableness, posing obstacles to their reemployment. However, other studies emphasize that non-cognitive abilities are stable in the mid-to-late stages of workers' life cycles, and involuntary unemployment primarily causes emotional changes; unless unemployment leads to other significant life misfortunes, its impact on workers' non-cognitive abilities is not significant (Noonan, 2019).

2.2 The Impact of Non-cognitive Abilities on Job Satisfaction

Job satisfaction, a key subjective indicator for measuring the quality of employment, has been a focal point of academic interest regarding its influencing factors. It is widely acknowledged that the level and structure of workers' non-cognitive abilities significantly impact job satisfaction (Yin et al., 2021). As research deepens, scholars have recognized that personality traits constitute an organic whole, with different traits interacting in their evaluation of job satisfaction.

Min & Su (2020) employed Latent Profile Analysis (LPA), a person-centered technique, to delve into differences among individuals with varying personality traits in terms of well-being and behavioral performance closely related to organizational health within a mixture model framework. The study found that workers with diverse personality traits exhibited significant and meaningful differences in burnout (a well-being indicator), as well as in counterproductive work behaviors and organizational citizenship behaviors. This suggests that personality traits have complex interactions in evaluating workers' job satisfaction, and relying solely on univariate analysis is insufficient to comprehensively and accurately reveal its underlying influence mechanisms.

Petasis & Economides, (2020) pointed out that workers with low neuroticism, high agreeableness, conscientiousness, openness, and extraversion cope better with work stress and have higher job satisfaction. Perera et al., (2018) found that workers with a flexible adaptation profile (i.e., moderately low neuroticism, moderately high extraversion, agreeableness, openness, and conscientiousness) have higher job satisfaction. Similarly, Perera (2018) demonstrated that workers with a flexible adaptation profile exhibit stronger self-efficacy and work engagement, leading to higher job satisfaction evaluations, whereas, workers with an obstinate profile (i.e., moderately high neuroticism, low conscientiousness, openness, extraversion, and agreeableness) are more prone to frustration and depression when facing setbacks, resulting in lower job satisfaction.

Li & Yao (2021) revealed the significant impact of non-cognitive abilities on job satisfaction among post-90s employees, confirming their crucial value in the workplace. The results indicated that non-cognitive abilities have a significantly positive effect on employee satisfaction, emphasizing the importance of personality traits, emotional attitudes, and social skills. Specifically, neuroticism decreases job satisfaction, while agreeableness, conscientiousness, and extraversion significantly enhance it. Gender-specific analyses showed that neuroticism affects women more strongly, while agreeableness is more critical for men, reflecting the influence of gender differences and job characteristics. This finding offers a new perspective for enhancing job satisfaction among employees of different genders.

Furthermore, the impact of non-cognitive abilities on workers' job satisfaction exhibits a spillover effect. Kiarie (2017) found that managers' personality traits can significantly influence employees' job satisfaction. Although narcissistic managers may easily establish organizational identity value connections with employees, they may also foster hostile relationships, inhibiting employees' job satisfaction.

3. Discussion

After reviewing and deeply analyzing the relevant research on the impact of non-cognitive abilities on the quality of labor employment, we have increasingly recognized that non-cognitive abilities have become an indispensable and crucial factor in measuring labor's performance in the labor market.

Regarding labor income, the influence of non-cognitive abilities is particularly significant and enduring. Compared with cognitive abilities, non-cognitive abilities play a more stable role in the workplace. They are not only directly related to labor's job performance but also exert a profound indirect influence on labor's income levels through various channels such as enhanced educational attainment, optimized career choices, and the accumulation of social capital. This finding not only reveals the unique value of non-cognitive abilities in the labor market but also provides a new perspective for understanding income disparities among workers.

However, the impact of non-cognitive abilities extends beyond the income level. In discussions on employment stability, although existing research has relatively paid less attention to non-cognitive abilities, their potential influence cannot be ignored. Non-cognitive abilities may affect labor's occupational adaptability, teamwork skills, and ability to cope with workplace changes, thereby significantly influencing employment stability. Regrettably, academic exploration in this area is currently insufficient, and future research requires further in-depth investigation.

Meanwhile, at the subjective evaluation level of employment quality, the level and structure of non-cognitive abilities are widely regarded as key factors influencing job satisfaction. Workers with higher non-cognitive abilities often handle interpersonal relationships in the workplace better, demonstrate stronger leadership and teamwork spirit, and thus gain higher satisfaction and a sense of achievement in their work. This finding not only emphasizes the crucial role of non-cognitive abilities in enhancing workers' job satisfaction but also provides new ideas for improving workers' work experiences.

Although the important role of non-cognitive abilities in the labor employment process has been widely recognized, existing research has paid insufficient attention to the age effect of non-cognitive abilities in labor's performance in the job market. The relatively stable nature of non-cognitive abilities in the middle and later stages of an individual's life cycle implies that they may have a continuous impact on labor's employment performance throughout their career. This cumulative effect may be particularly significant in the middle and later stages of a worker's career, but current research has not adequately explored this aspect.

4. Conclusion

This study delves into the impact of non-cognitive abilities on the quality of labor employment. The results indicate that non-cognitive abilities have a significant influence on laborers' income levels, employment stability, and job satisfaction, exerting both direct and indirect effects. As subjective factors, the interaction between non-cognitive abilities and external environmental factors such as institutions, norms, culture, and macroeconomic development strategies greatly enriches the perspective of existing research and provides a novel angle for addressing related issues. Based on the aforementioned research findings, this study offers the following recommendations for different stakeholders regarding the practical value of non-cognitive abilities in enhancing the quality of labor employment:

Firstly, individual workers should focus on the balanced development of non-cognitive abilities, strengthening them in a targeted manner based on their own advantages and career planning to maximize their economic value. Secondly, the government should raise awareness of the importance of non-cognitive abilities, optimize the structure of human capital investment, and increase investment in preschool and primary education to improve the efficiency of human capital investment. Lastly, education departments should adjust teaching and assessment standards, emphasizing the cultivation of adolescents' non-cognitive abilities. They should improve the teaching evaluation system by incorporating non-cognitive ability indicators and adjust teaching programs to increase the proportion of cultural, sports, and extracurricular practical courses, thereby promoting the development of different types of non-cognitive abilities in students.

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