

Employee motivation, work attitude and work performance in manufacturing enterprises in China: Inputs to innovative manufacturing performance framework

Xie, Mingzhu ✉

Graduate School, Lyceum of the Philippines University - Batangas, Philippines (876823052@qq.com)



ISSN: 2243-7770
Online ISSN: 2243-7789

Received: 18 June 2023

Revised: 20 July 2023

Accepted: 18 August 2023

OPEN ACCESS

Available Online: 25 August 2023

DOI: 10.5861/ijrsm.2023.1088

Abstract

This paper first summarizes the literatures in terms of the relationship between incentive policies and employees' work performance, the relationship between employees' work attitude and work performance, the evaluation methods of work attitude, and the evaluation methods of work performance, highlighting the research value of this article. Secondly, based on Maslow's hierarchy of needs theory, ERG theory and Expectancy theory, this paper makes a theoretical analysis of the impact of employee motivation and work attitude on work performance in Chinese manufacturing enterprises, and puts forward a hypothesis. Then a survey questionnaire was designed, and sample collection was conducted, and conducted a descriptive analysis of the specific scores of employee motivation, work attitude, and work performance of employees in Chinese manufacturing enterprises. Once again, empirical analysis was conducted on the hypotheses proposed in this article using correlation analysis and regression analysis. Finally, suggestions were proposed to promote the work performance of employees in Chinese manufacturing enterprises from the perspectives of employee motivation and work attitude. Research has found that: (1) The employees' motivation in Chinese manufacturing enterprises is mainly manifested in intellectual property protection and environmental incentives, with relatively weak compensation incentives, good work attitude, and relatively balanced performance in behavior, results, and technology. (2) There is a significant positive correlation between employee motivation, work attitude, and work performance in Chinese manufacturing enterprises. In terms of specific dimensions, there is a significant positive correlation between the dimensions of employee motivation and work performance, while there is a significant positive correlation between the dimensions of work attitude and work performance. (3) The motivation of employees in Chinese manufacturing enterprises has a significant positive impact on work performance, and work attitude has a significant positive impact on work performance. (4) The pay motivation, environmental motivation, and intellectual property protection among employees in Chinese manufacturing enterprises have a significant positive impact on work performance. Honor motivation has a significant positive impact on behavioral performance and technical performance, but it has no significant positive impact on result performance. The positive impact of professional motivation on the three dimensions of work performance is not significant. (5) Each dimension of work attitude has a significant positive impact on the three dimensions of work performance.

Keywords: employee motivation, work attitude and performance, manufacturing enterprises in China

Employee motivation, work attitude and work performance in manufacturing enterprises in China: Inputs to innovative manufacturing performance framework

1. Introduction

The global economic competition is becoming increasingly fierce, and the innovation system of the manufacturing industry is rapidly changing. The innovation construction of the manufacturing industry in developed countries is constantly accelerating. In order to further shorten the distance between public research institutions and related industries, France launched the "Carnot Plan" in 2006 to accelerate the process of technological transformation. The United States launched a manufacturing innovation network construction program in 2012 to gradually transform its manufacturing technology into productivity. In 2017, Japan proposed a comprehensive innovation strategy to build a "super intelligent society 5.0" to enhance the intelligence level of its manufacturing industry and the national economic growth rate. China is also actively promoting the development of its manufacturing industry towards high-quality direction, with the aim of promoting rapid innovation through manufacturing innovation, achieving the transformation from a manufacturing powerhouse to a manufacturing powerhouse, and providing policy support in top-level design. Since 2015, the Chinese government has successively issued several guiding documents, including the Implementation Guidelines for the Construction of Manufacturing Innovation Centers (2016-2020), the Guiding Opinions on Improving the Manufacturing Innovation System and Promoting the Construction of Manufacturing Innovation Centers, and the Outline of the National Innovation Driven Development Strategy, which have identified manufacturing innovation as an important strategy for future national innovation, To enhance the innovation capability and market competitiveness of Chinese manufacturing enterprises.

Enterprises are an important component of the socio-economic system and one of the most important contributors to socio-economic innovation. They bear an unshrinkable responsibility for the construction of China's "innovative country". However, in the complex external environment, Chinese manufacturing enterprises are facing bottlenecks in innovation. For example, industrial manufacturing technology innovation is constrained by the barriers of western enterprises' dominant position and is difficult to break through in the international market. Product design technology has a strong traditional planning but limited innovation initiative. Service innovation does not emphasize the deep mining of product data. Product cycle innovation has a low degree of synergy with modern "Internet plus" and artificial self-energy. This requires Chinese manufacturing enterprises to make breakthroughs in innovation capabilities, especially in advanced scientific and technological innovation, and this task ultimately falls to the employees of manufacturing enterprises. In the complex external environment, Chinese manufacturing enterprises face development difficulties and innovation bottlenecks. Policy makers, from the perspective of enterprise employees, fully consider their demands and motivations, and satisfy their demands and motivations through incentive policies. Encouraging employees to improve their work ability and performance is of great significance for enhancing the market competitiveness of Chinese manufacturing enterprises.

Work attitude refers to the specific emotions and concepts formed by employees in the work environment, including their subjective feelings, ideals, and perceptions. The work attitude of enterprise employees determines their work willingness, as well as their subjective recognition and acceptance of work content, which in turn affects their work performance. The exertion of employees' work ability is influenced by external policy incentives on the one hand, that is, whether their work motivation can be satisfied, and on the other hand, it is determined by their personal subjective attitude (work attitude). The work attitude of enterprise employees has a moderating effect on their work performance, so policy makers need to consider it in the process of formulating incentive policies. Subjectively stimulating employees through incentive policies to improve their work attitude is also an important means of improving work performance.

Most existing research focuses on incentives at the corporate level, while there are few studies on employee motivation. A few studies that incorporate employee work attitudes into the research framework mainly focus on managers and technical employees, and there are few studies that incorporate all types of employees into the research framework. Whether it is research at the enterprise level or from the perspective of employees, most existing literature only focuses on the general concept of enterprises, rather than from the perspective of manufacturing enterprises. In addition, although some existing studies involve employee motivation and work attitude, most of them are relatively general studies without further dividing employee motivation and work attitude into dimensions. This article takes employees in Chinese manufacturing enterprises as the research object, and divides work motivation, work attitude, and work performance into different dimensions. It delves into the impact of different dimensions of incentive policies and work attitudes on work performance, filling the current academic research gap. It also has high practical value for the formulation of employee incentive policies and the improvement of work performance in Chinese manufacturing enterprises.

Objectives of the Study - The study aimed to describe the employee motivation, work attitude and work performance of employees in manufacturing enterprises in China and will be the basis in developing an Innovative Manufacturing Performance Framework. Specifically, it will Determine the employee motivation as to pay incentive, honor incentive, professional incentive, environment incentive and intellectual property right incentive. Describe the manufacturing enterprises employees' work performance in terms of behavioral performance, result performance and technical performance. Determine work attitude as to their job satisfaction, organizational commitment, and work inputs. Test the relationships among the three variables. Develop an innovative manufacturing performance framework.

2. Methods

Research Design - This article combines normative and empirical analysis methods and based on many existing research literatures, divides employee motivation, work attitude, and work performance into dimensions. The theoretical basis of this article is extracted from the literature. Then, the data required for this article was collected through the design of a survey questionnaire, which was distributed through WeChat recognition QR codes. In terms of research content, this article first collected and summarized existing academic literature from multiple aspects and divided the main variables of this article into dimensions. Secondly, the design of the survey questionnaire and data collection were conducted, and the reliability and validity of the sample data were tested. Thirdly, correlation analysis and regression analysis were used to evaluate the level of employee motivation, work attitude, and work performance in Chinese manufacturing enterprises, and the relationship between them was analyzed. Finally, based on the research findings, suggestions were proposed to enhance the work enthusiasm and performance of employees in Chinese manufacturing enterprises.

In terms of normative analysis, this article is mainly reflected in the literature review section. By collecting and reading a large amount of relevant literature, the shortcomings of current academic research are identified, which provides a basis for the necessity and innovation of this article's research. At the same time, many literature summaries also provide reference for the variable dimension division and research ideas of this article. In addition, the questionnaire survey method is also within the scope of normative analysis. This article uses a questionnaire survey to obtain research data. By referring to existing research literature, a survey questionnaire was designed for various types of employees in Chinese manufacturing enterprises, and the survey questionnaire was distributed to all types of employees, obtaining the sample data available for this article. The empirical analysis method mainly uses SPSS software to quantitatively analyze the levels of employee motivation, work attitude, and work performance of Chinese manufacturing enterprises using descriptive statistics, correlation analysis, and multiple linear regression models, as well as the quantitative relationship between these three changes. And starting from specific dimensions, multiple regression models between different dimensions were also constructed, and more in-depth and detailed empirical analysis was conducted.

Participants of the Study - The main participants are ordinary employees, technical research and

development personnel, technical personnel, middle and senior management personnel of manufacturing enterprises. This article includes manufacturing enterprises of various scales, business types, and regions. With the help of classmates, colleagues, work partners, and others.

Data Gathering Instrument - Based on literatures, this survey questionnaire mainly includes four parts: basic information of the respondents, work motivation, work attitude, and work performance of employees in Chinese manufacturing enterprises, and a total of 53 questions. Employees' work motivation, work attitude, and work performance are all measured using a 4-level scale, with "1" indicating "Very disagree", "2" indicating "Disagree", "3" indicating "Agree", and "4" indicating "Very agree". The reference materials for the survey questionnaire and items can be found in the appendix.

Data Gathering Procedure - WeChat scanning was used to distribute questionnaires to employees of manufacturing enterprises in Anhui Province, China. A total of 430 survey questionnaires were distributed, excluding questionnaires with incomplete information, missing important information, and those filled out by individuals who did not meet the requirements of knowledge workers. In the end, 410 valid questionnaires were collected, with an effective recovery rate of 95.3%. Calculate the Cronbach's α , KMO and Bartlett's for each dimension of employee motivation, work attitude, and work performance to test the reliability and validity of the data obtained in this study. From Table 3, Cronbach's α for each dimension are all above 0.8, the KMO values are all above 0.7, and Bartlett's test has passed the significance level of 0.01. So the reliability and validity of all dimensions have been tested. Meanwhile, the overall Cronbach's α is 0.981, the KMO value is 0.972, and Bartlett's test passed the significance level of 0.01. Therefore, the reliability and validity of the overall questionnaire are also high.

Ethical Considerations - The surveyed university students have the right to know the purpose of this experiment and remain anonymous throughout the entire research process, voluntarily filling it out. The data collected from the questionnaire survey, the statistical data in this paper were all original data and had not been revised. From the questionnaire survey, it can be seen that the statistical data in this paper were all correct. In addition, ethical practices were followed throughout the entire study.

Data Analysis - There are many quantitative studies in the academic community on the relationship between employee motivation and work performance, and scholars have adopted various quantitative analysis methods. For example, Chen (2006) used descriptive comparison method to analyze the influencing factors of innovation ability of knowledge workers in enterprises in Shanghai. Liang (2009) studied the work performance and influencing factors of technical employees in enterprises based on neural network analysis. Zhan et al., (2010) used factor analysis to select the main influencing factors on the personal abilities of knowledge employees in enterprises and combined multiple regression models to deeply analyze the impact of the main factors on the work ability of knowledge employees. Zhang et al., (2016) used a panel regression model to study the relationship between employees and their work performance in enterprises. Wu (2011) evaluated the relationship between innovation performance and related incentive systems of technical employees in Chinese enterprises based on fuzzy evaluation theory. Long (2012) studied the relationship between nonmaterial incentives for employees and work performance using the operational evidence reasoning method. Bai (2016) explored the relationship between incentive measures for knowledge workers and innovation performance using a multiple regression model. Zhang et al., (2017) used principal component analysis and regression analysis to study the relationship between corporate reward measures and employee work performance.

Scholars have not formed a unified view on the quantitative analysis methods used in studying the relationship between incentive policies and employee work performance. However, there is relatively high recognition of the classic multiple regression analysis method. Multiple scholars have used this method to study the relationship between incentive policies and employee work performance. Therefore, this article draws inspiration from Zhang (2010). The method used by scholars such as Bai (2016) empirically tested the relationship among work motivation, work attitude, and work performance of employees in Chinese

manufacturing enterprises by constructed a multiple regression model.

Correlation analysis - Correlation analysis is a statistical method used to analyze whether there is a certain linear dependency relationship between socio-economic random phenomena or socio-economic random variables. It can indicate the specific direction and degree of dependence of this linear dependency relationship. If there is a correlation between two variables, then there is also a strong or weak relationship, and this degree of strength is called the correlation coefficient. X and Y are random variables with a known two-dimensional (X, Y) distribution and a correlation coefficient of:

$$r_{xy} = \frac{Cov(X, Y)}{\sqrt{Var(x)} \sqrt{Var(Y)}}$$

(4-1)

The value of the correlation coefficient r is between -1 and 1. When there is a positive correlation, the value of r is between 0 and 1. When $r=1$ is a complete positive correlation, that is, the two change proportionally in the same direction. If the value of r falls between -1 and 0, it can indicate that there is a negative correlation between x and y , and when $r=-1$, it is a complete negative correlation. The closer the absolute value of r is to 1, the stronger the correlation between the two variables. The closer the absolute value of r is to 0, the weaker the correlation between the two variables. When $r=0$, the variables are uncorrelated. When the absolute value of r falls between 0 and 0.3, variables are generally considered uncorrelated. When the absolute value of r falls between 0.3 and 0.5, variables are generally considered to have low correlation. When the absolute value of r falls between 0.5 and 0.8, variables are generally considered to have significant correlation. When the absolute value of r falls between 0.8 and 1, variables are generally considered to have high correlation.

Multiple linear regression analysis - Regression analysis is a statistical analysis method that explores the quantitative dependency relationship between multiple socio-economic variables. Assuming a linear regression model with k explanatory variables is:

$$y_i = \beta_0 + \beta_1 x_{1i} + \beta_2 x_{2i} + \dots + \beta_j x_{ki} + \mu_i \quad (4-2)$$

In the equation, the parameter $\beta_j (j = 1, 2, 3, \dots, k)$ is the partial regression coefficient, y is the dependent variable, x is the independent variable, and μ is the random perturbation term.

3. Results and Discussion

Dimensions of Employee Motivation - From the data of relevant indicators in Table 9 that the composite means of dimensions under employee motivation. The score for intellectual property protection is the highest, followed by environmental incentives, and the score for salary incentives is the lowest. This can demonstrate that the employees' motivation in Chinese manufacturing enterprises is mainly reflected in intellectual property protection and environmental incentives, and the salary incentives are relatively weak. The needs of employees at lower levels are not the most important, and they have already pursued higher levels. Mei (2007) pointed out in his research findings that China's economic development speed and people's living standards have significantly improved since 1980, employees in enterprises are no longer limited to material needs. Spiritual pursuit and self-development pursuit are also important motivations for employees, among which intellectual property protection and work environment are the pursuit contents at this level. Li and Mei (2013) studied the relationship between intrinsic motivation and employee performance. In their study, they pointed out that the biggest intrinsic motivation of Chinese enterprise employees is self-protection and a good work environment.

Dimensions under Work Attitude - The composite mean of work input very high, reaching 3.02, but the scores of each item are also relatively high, and the difference is not significant. Except for the score of "I always

feel that time passes quickly at work", which is 2.95, the scores of other items are all above 3. This fully indicates that Chinese manufacturing enterprise employees have a high level of work input and reflects the high level of work attitude of Chinese manufacturing enterprise employees. Li & Mei (2013), Weng et al. (2017) pointed out in their research that the rapid development of the Chinese economy in the past thirty years cannot be separated from the hard work of the people, and the work input of Chinese enterprise employees is at a high level worldwide.

Work Performance - The composite mean of the three dimensions of work performance, and it can be seen that technical performance has the highest score, followed by result performance, and then behavioral performance. But it can also be found that the difference between the three is very small, and the work performance of employees in Chinese manufacturing enterprises is relatively balanced in terms of behavior, results, and technology.

Correlation analysis - Correlation between *EM*, *WA* and *WP*. Note: **. Correlation is significant at the 0.01 level. Calculate the Pearson correlation coefficient between employee motivation (*EM*), work attitude (*WA*), and work performance (*WP*) (Table 18). It can see from the table that the correlation value between *EM* and *WP* has reached 0.806, which is a highly correlated level and significant at 0.01. It shows that there is a significant positive linear relationship between employee motivation and work performance. The correlation value between *WA* and *WP* reached 0.803, which also is a highly correlated level and passed the significance of 0.01. There is a significant positive linear relationship between work attitude and work performance. Therefore, overall, there is a significant positive correlation between employee motivation (*EM*), work attitude (*WA*) and work performance (*WP*), laying the foundation for the construction of the regression model in the following text.

Correlation between *EM* and *WP* - Calculate the correlation values between the dimensions of work motivation (*EM*), work attitude (*WA*), and work performance (*WP*). The correlation coefficient values between the three dimensions of pay incentives and work performance (*WP*) are 0.503, 0.477, and 0.425, respectively, and all have passed the significance level of 0.01. The correlation coefficients between honor motivation and work performance (*WP*) in all dimensions are 0.542, 0.468, and 0.434, which are significant at the 0.01 level. Honor motivation and work performance (*WP*) in all dimensions have a significant positive correlation, with the highest correlation with behavioral performance. There is also a significant positive correlation between professional incentives and work performance (*WP*) dimensions at the 0.01 level, and the degree of correlation has been improved compared to salary and honor incentives. The correlation coefficient values are all above 0.5, with the maximum being 0.600. At the 0.01 level, there is a significant positive correlation between environmental incentives and various dimensions of work performance (*WP*), with correlation coefficients of 0.635, 0.595, and 0.535, respectively. At the 0.01 level, there is also a significant positive correlation between intellectual property protection and various dimensions of work performance (*WP*), with the highest value of the correlation coefficient reaching 0.605. Overall, there is a significant positive correlation between various dimensions of employee motivation and work performance.

Correlation between *WA* and *WP* - This shows the correlation coefficients between the dimensions of work attitude (*WA*) and work performance (*WP*). There is a significant positive correlation between job satisfaction and dimensions of work performance. Among them, the relationship with technical performance is the closest, with a correlation coefficient value of 0.605, which is significant at the 0.01. The values related to behavioral performance and result performance are 0.499 and 0.576, respectively, both passing the significance of 0.01. At the 0.01, organizational commitment also has a significant positive correlation with the dimensions of work performance, with the largest correlation with technical performance, the correlation coefficient value is 0.624, and the correlation coefficient value with the other two dimensions is 0.516 and 0.572 respectively. Similarly, there is a significant positive correlation between work input and dimensions of work performance, with correlation coefficients of 0.474, 0.561, and 0.561 for behavioral performance, result performance, and technical performance, based on the above analysis, there is a significant positive correlation between dimensions of work attitude and work performance.

Regressive analysis - The relevant analysis conclusion indicates that there is a close relationship between the motivation, work attitude, and work performance of employees in Chinese manufacturing enterprises, but it cannot prove that they have an impact on each other. Meanwhile, the correlation analysis conclusion proves that there is a significant linear relationship between employee motivation (*EM*), work attitude (*WA*), and work performance (*WP*). In addition, it can be clearly seen from Figure 1 and Figure 2 that there is a significant linear relationship between employee motivation (*EM*) and work performance (*WP*), as well as between work attitude (*WA*) and work performance (*WP*). Therefore, it is suitable to construct a multiple linear regression model between employee motivation (*EM*), work attitude (*WA*), and work performance (*WP*).

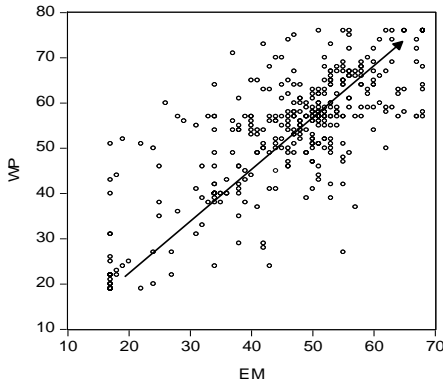


Figure 1 Scatter between employee motivation (*EM*) and work performance (*WP*)

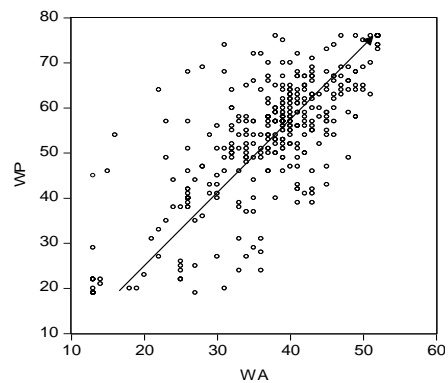


Figure 2 Scatter between work attitude (*WA*) and work performance (*WP*)

Using employee motivation (*EM*) and work attitude (*WA*) as independent variables and work performance (*WP*) as dependent variable, a multiple linear regression model is constructed to further analyze the impact of employee motivation (*EM*) and work attitude (*WA*) on work performance (*WP*), to test the previous hypothesis. From the table, the overall determinability coefficient of the model is corrected with a determinability coefficient of $R^2_{adj}=0.663$, and the independent variable can explain 66.3% of the change of the dependent variable, indicating a high explanatory power. $F\text{-value}=343.916$, $p\text{-value}=0.000$, the significance level of the model is very high. It can be seen from Figure 3 that the model fitting residuals show a normal distribution, and the residual values are 0, which is random. So the fitting effect of this multiple regression model is good, and the regression equation expression is:

$$WP = 0.571 + 0.362 * EM + 0.463 * WA$$

The regression coefficient of employee motivation (*EM*) is 0.362, with a p-value of 0.000. At the 0.01, there is a significant positive impact of employee motivation on work performance in Chinese manufacturing enterprises. For every unit of increase in employee motivation, work performance will increase by 0.362 units. So, the hypothesis H1 holds. The regression coefficient of work attitude (*WA*) is 0.463, with a p-value of 0.000. At the 0.01, the work attitude of Chinese manufacturing enterprise employees has a significant positive impact on work performance. For every unit of improvement in work attitude, work performance will increase by 0.463 units. Further comparing the regression coefficients of the two independent variables, the regression coefficient of work attitude (*WA*) is greater than that of employee motivation (*EM*), and the positive impact of work attitude on work performance is stronger than that of employee motivation.

Table 1

Predictors of Work Performance

Variable	B	β	t-value	p-value
(Constant)	0.571		6.060	0.000
<i>EM</i>	0.362	0.435	11.713	0.000
<i>WA</i>	0.463	0.492	13.255	0.000

a. Dependent Variable: *WP*

b. $R^2_{adj}=0.663$; $F\text{-value}=343.916$; $p\text{-value}=0.000$

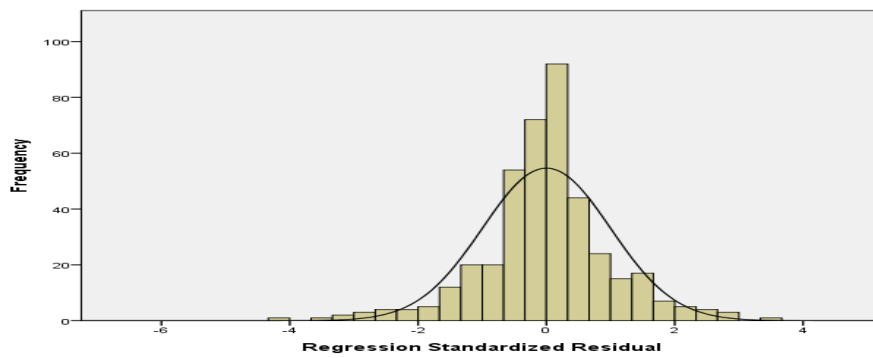


Figure 3 Residual distribution map

Regression analysis of employee motivation dimensions on work performance - To test the hypothesis of the impact of employee motivation and work attitude on work performance, multiple linear regression functions were constructed for each dimension of employee motivation and work attitude on work performance. The regression results of various dimensions of employee motivation on behavioral performance. The revised determinability coefficient $R^2_{adj}=0.636$ indicates a high degree of model fitting, with the independent variable being able to explain 63.6% of the variation in the dependent variable, $F\text{-value}=144.137$, $p\text{-value}=0.000$, and the significance of the model is high. The normality of the model fitting residual plot (Figure 4) is evident, with a mean residual value of 0 and a significant randomness of the residual. So the fitting effect of this model is good. The expression of the regression equation is:

$$BP = 2.263 + 0.118 * PI + 0.082 * HI + 0.265 * RI + 0.421 * EI + 0.432 * II$$

The regression coefficients of the five dimensions of employee motivation, namely *PI*, *HI*, *RI*, *EI*, and *II*, are all positive. The p-values of *PI*, *RI*, *EI*, and *II* are all less than 0.05. The pay motivation (*PI*), honor motivation (*RI*), environmental motivation (*EI*), and intellectual property protection (*II*) of Chinese manufacturing enterprise employees have a significant positive impact on behavioral performance. The p-value of honor motivation (*HI*) is 0.376, greater than 0.1. Although there is a positive impact on behavioral performance of employees in Chinese manufacturing enterprises, the honor motivation (*HI*) is not significant.

Table 2

Regression results of employee motivation dimensions on behavioral performance

Variable	B	β	t-value	p-value
(Constant)	2.263			
<i>PI</i>	0.118	0.119	2.302	0.022
<i>HI</i>	0.082	0.053	0.885	0.376
<i>RI</i>	0.265	0.171	2.578	0.010
<i>EI</i>	0.421	0.350	5.849	0.000
<i>II</i>	0.432	0.186	3.701	0.000

a. Dependent Variable: BP

b. $R^2_{adj}=0.636$; $F\text{-value}=144.137$; $p\text{-value}=0.000$

This presents a summary of the regression results of employee motivation dimensions on result performance. The corrected determinability coefficient $R^2_{adj}=0.617$ indicates a high degree of model fitting, and the independent variable can explain the 61.7% change of the dependent variable. $F\text{-value}=132.671$, $p\text{-value}=0.000$, and the significance of the model is high. The normality of the model fitting residual plot (Figure 5) is evident, with a mean residual value of 0 and a significant randomness of the residual. So the fitting effect of this model is good, and the regression equation expression is:

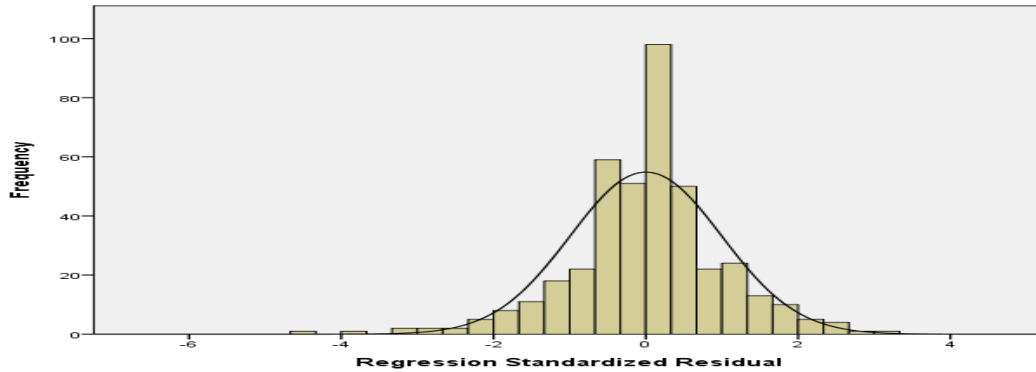


Figure 4 Residual of regression between employee motivation dimensions and behavioral performance

$$RP = 4.638 + 0.261 * PI + 0.054 * HI + 0.191 * RI + 0.751 * EI + 0.707 * II$$

The regression coefficients of pay motivation (*PI*), environmental motivation (*EI*), and intellectual property protection (*II*) are all positive, and p-values are all less than 0.01. Chinese manufacturing enterprise employees' pay motivation (*PI*), environmental motivation (*EI*), and intellectual property protection (*II*) have a significant positive impact on result performance. The regression coefficients for honor motivation (*HI*) and professional motivation (*RI*) are also positive, but p-values are 0.713 and 0.245, respectively, which do not pass the minimum significance level of 0.1. The honor motivation and professional motivation of Chinese manufacturing enterprise employees have a positive impact on result performance but are not significant.

Table 3

Regression results of employee motivation dimensions on result performance

Variable	B	β	t-value	p-value
(Constant)	4.638		6.484	0.000
<i>PI</i>	0.261	0.169	3.178	0.002
<i>HI</i>	0.054	0.023	0.368	0.713
<i>RI</i>	0.191	0.079	1.163	0.245
<i>EI</i>	0.751	0.400	6.508	0.000
<i>II</i>	0.707	0.195	3.772	0.000

a. Dependent Variable: RP

b. $R^2_{adj}=0.617$; F-value=132.671; p-value=0.000

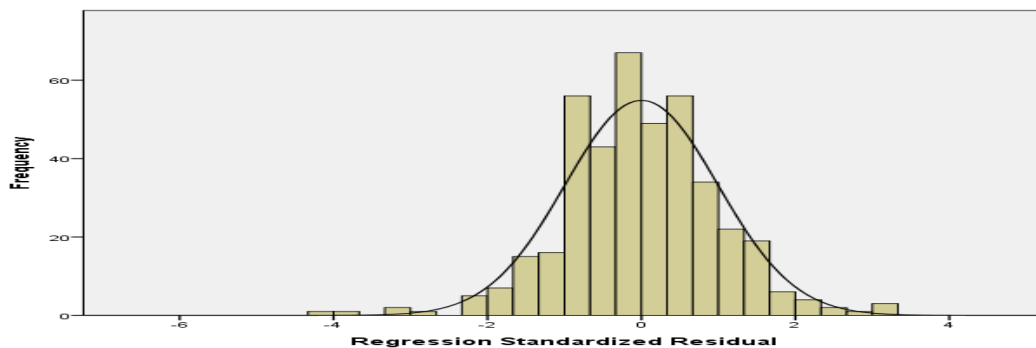


Figure 5 Residual of regression between employee motivation dimensions and result performance

Continuing to regress the various dimensions of employee motivation on technical performance, $R^2_{adj}=0.538$, the model has a high degree of fit, and the independent variable can explain 53.8% of the change of the

dependent variable. F-value=96.393, p-value=0.000, the significance of the model is high. The normality of the model fitting residual plot (Figure 6) is evident, with a mean residual value of 0 and a significant randomness of the residual. So the fitting effect of this model is good, and the regression equation expression is:

$$TP = 5.434 + 0.128 * PI + 0.028 * HI + 0.292 * RI + 0.496 * EI + 0.320 * II$$

The regression coefficients of *PI*, *RI*, *EI*, and *II* are all positive, and p-values are all less than 0.05. Chinese manufacturing enterprise employees' pay motivation (*PI*), professional motivation (*RI*), environmental motivation (*EI*), and intellectual property protection (*II*) have a significant positive impact on technical performance. The p-value of honor motivation (*HI*) is 0.808, which does not pass the minimum significance level of 0.1. The honor motivation of employees in Chinese manufacturing enterprises has a non-significant positive impact on result performance.

Table 4

Regression results of employee motivation dimensions on technical performance

Variable	B	β	t-value	p-value
(Constant)	5.434		9.810	0.000
<i>PI</i>	0.128	0.117	2.010	0.045
<i>HI</i>	0.028	0.016	0.243	0.808
<i>RI</i>	0.292	0.172	2.289	0.023
<i>EI</i>	0.496	0.374	5.552	0.000
<i>II</i>	0.320	0.125	2.203	0.028

a. Dependent Variable: TP

b. R^2_{adj} =0.538; F-value=96.393; p-value=0.000

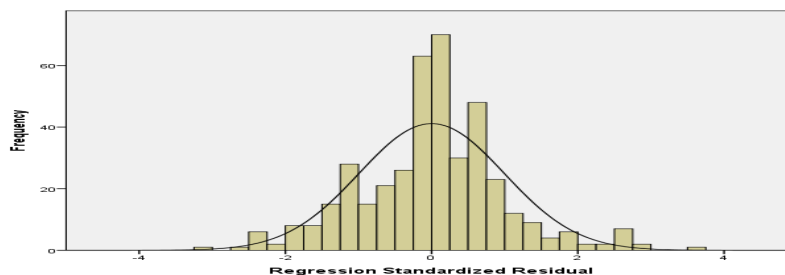


Figure 6 Residual of regression between employee motivation dimensions and technical performance

Based on the above analysis, pay motivation (*PI*), environmental motivation (*EI*), and intellectual property protection (*II*) have significant positive impacts on the three dimensions of work performance. Honor motivation (*HI*) has a significant positive impact on behavioral performance and technical performance, but its positive impact on result performance is not significant. The reason for this phenomenon may be that the pursuit of honor can spiritually motivate enterprise employees and can motivate them to work harder in specific work behaviors and technological innovation. Whether it is a specific work process or technological innovation, it is a specific human behavior. Although a certain behavior can lead to a certain result, the two are not completely one-to-one correspondence. It is also possible that manufacturing enterprise employees work hard in specific work behaviors and innovation activities, but the results are not obvious due to personal knowledge and cultural level, and the institutional environment of the enterprise.

Scholars such as Wang (2020), Li and Zhu (2017) have also provided similar explanations in their research. The positive impact of professional motivation (*RI*) on the three dimensions of work performance is not significant, the hypothesis H1b is not valid. Scholars such as Zhang (2020) and Wang (2022) have provided answers to the reasons for this phenomenon. They believe that the reason why the career motivation of employees in Chinese enterprises does not have a significant impact on work performance is because the vast majority of manufacturing enterprises in China are small and medium-sized enterprises. The biggest

characteristics of these enterprises are high survival risks, unstable profitability, and easy bankruptcy and bankruptcy within a few years, Employees of such enterprises have low demands for their own career development, or if the enterprise can provide them with better career development space in a timely manner, the vast majority of employees do not give up hope and will not work hard due to the "empty promises" made by the enterprise in their profession, because such enterprises are likely to close down in a short period of time.

Regression analysis of work attitude dimensions on work performance - Construct a regression model for the relationship between dimensions of work attitude and behavioral performance. The model has a modified determinability coefficient of $R^2_{adj}=0.530$, indicating a high degree of fitting. The independent variable can explain 53.0% of the change of the dependent variable. F-value=155.012, p-value=0.000, the significance of the model is high. Figure 7 shows that the mean fitting residual of the model is 0, and the normality is obvious, while the randomness of the residual is obvious. The fitting effect of this multiple regression model is good, and the regression equation expression is:

$$BP = 2.299 + 0.610 * JS + 0.297 * OC + 0.152 * WI$$

The regression coefficient values of job satisfaction (JS), organizational commitment (OC) and work input (WI) are all positive, and p-value is less than 0.01. Job satisfaction (JS), organizational commitment (OC) and work input (WI) of employees in Chinese manufacturing enterprises have a significant positive impact on behavior performance.

Table 5

Regression results of work attitude dimensions on behavioral performance

Variable	B	β	t-value	p-value
(Constant)	2.299		4.052	0.000
JS	0.610	0.377	7.138	0.000
OC	0.297	0.284	4.543	0.000
WI	0.152	0.142	2.705	0.007

a. Dependent Variable: BP

b. $R^2_{adj}=0.530$; F-value=155.012; p-value=0.000

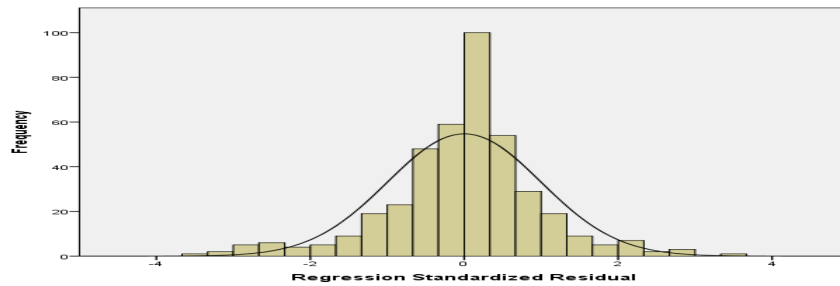


Figure 7 Residual of regression between work attitude dimensions and behavioral performance

It can be seen that the fitting effect of the regression model for work attitude dimensions on result performance is good, with $R^2_{adj}=0.605$, and the independent variable explains 60.5% of the change of the dependent variable. F-value=209.815, p-value=0.000, with high model significance. The regression residuals in Figure 8 exhibit significant randomness and normality. The expression of the regression equation is:

$$RP = 3.210 + 1.042 * JS + 0.450 * OC + 0.288 * WI$$

The regression coefficients of job satisfaction (JS), organizational commitment (OC) and work input (WI) are all positive, and their p-value is 0.000. At the level of 0.01, there is a significant positive impact of job satisfaction, organizational commitment, and work input on result performance of employees in Chinese manufacturing enterprises.

Table 6

Regression results of work attitude dimensions on result performance

Variable	B	β	t-value	p-value
(Constant)	3.210		3.950	0.000
JS	1.042	0.412	8.511	0.000
OC	0.450	0.275	4.796	0.000
WI	0.288	0.171	3.570	0.000

a. Dependent Variable: RP

b. $R^2_{adj}=0.605$; F-value=209.815; p-value=0.000

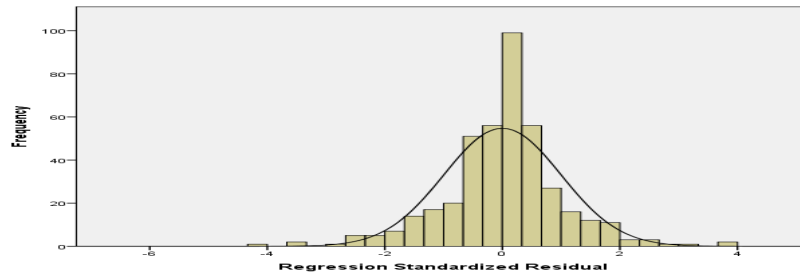


Figure 8 Residual of regression between work attitude dimensions and result performance

The fitting effect of the regression model for dimensions of work attitude on technical performance is good, with $R^2_{adj}=0.647$, and the independent variable explains a 64.7% change of the dependent variable. F-value=250.842, p-value=0.000, with high model significance. From Figure 9, the randomness and normality of regression residuals are obvious. The expression of the regression equation is:

$$TP = 3.044 + 0.747 \cdot JS + 0.325 \cdot OC + 0.244 \cdot WI$$

The regression coefficients of each variable are all positive, with p-values of 0.000, indicating that all three independent variables have a significant positive impact on the dependent variable at the 0.01 level.

Table 7

Regression results of work attitude dimensions on technical performance

Variable	B	β	t-value	p-value
(Constant)	3.044		5.615	0.000
JS	0.747	0.419	9.151	0.000
OC	0.325	0.281	5.187	0.000
WI	0.224	0.189	4.155	0.000

a. Dependent Variable: TP

b. $R^2_{adj}=0.647$; F-value=250.842; p-value=0.000

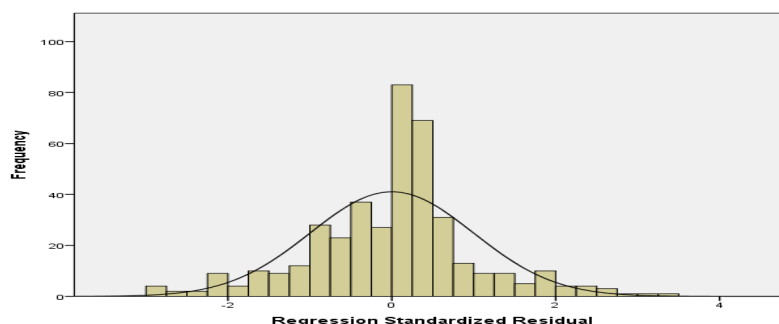


Figure 9 Residual of regression between work attitude dimensions and technical performance

Based on the above analysis, each dimension of work attitude has a significant positive impact on the three dimensions of work performance.

4. Conclusions and Recommendations

Through empirical research, the main viewpoints of this article are: The motivation of employees in Chinese manufacturing enterprises is mainly manifested in intellectual property protection and environmental incentives, with relatively weak pay incentives. The composite mean of the three dimensions of work attitude are not significantly different, and the work attitude of employees in Chinese manufacturing enterprises is good. The technical performance dimension scores highest in terms of work performance, followed by result performance, and then behavioral performance. There is a slight difference among the three, and the work performance of employees in Chinese manufacturing enterprises is relatively balanced in terms of behavior, results, and technology.

There is a significant positive correlation between employee motivation, work attitude, and work performance in Chinese manufacturing enterprises. In terms of specific dimensions, there is a significant positive correlation between the dimensions of employee motivation and work performance, while there is a significant positive correlation between the dimensions of work attitude and work performance. Whereas there is a significant positive impact of employee motivation on work performance in Chinese manufacturing enterprises, for every unit of increase in employee motivation, work performance will increase by 0.362 units. Employee work attitude has a significant positive impact on work performance, for every unit of improvement in work attitude, work performance will increase by 0.463 units. The pay motivation, environmental motivation, and intellectual property protection among employees in Chinese manufacturing enterprises have a significant positive impact on work performance. Honor motivation has a significant positive impact on behavioral and technical performance, but it has no significant positive impact on result performance. The positive impact of professional motivation on the three dimensions of work performance is not significant. Each dimension of work attitude has a significant positive impact on the three dimensions of work performance.

This paper recommended that to emphasize the improvement of the legal and regulatory system for intellectual property protection. Policy providers at all levels should further strengthen the legislation and management of intellectual property protection and provide legal protection for the intellectual property protection of state-owned enterprise intellectual employees. At the central level, policy providers should adhere to the principle of coordination and construct a regulatory system that reflects the characteristics of intellectual property rights of state-owned enterprise intellectual employees based on their actual situation and the characteristics of intellectual property protection. At the institutional level, they should provide a legal protection framework for the owners, users, and society of intellectual property rights. Based on maintaining the stability of innovation interests, knowledge workers are encouraged to avoid potential high risks as much as possible through financial subsidies. In the current environment, China can also protect innovation by building a public platform for intellectual property research and development of state-owned enterprises supported by national finance, including financial, tax, subsidy, insurance, and other entities.

Emphasize high-end talent motivation. High end talents are the essence of employees in manufacturing enterprises. Their innovation ability and professional skills are better than ordinary employees. Strengthen the breadth and depth of environmental incentive policies. Moreover, improve the pay incentive system; the pay level received by enterprise employees reflects the degree to which they are recognized by the enterprise. The pay level interprets the form of existence of employees in the enterprise and even in social life. It is an important criterion for judging work value and success, and the primary source of employee income. Furthermore, other recommendations may focus on to expand career promotion channels; pay attention to honor incentives; improve employee job satisfaction; Organizational commitment safeguards; Firstly, multiple participants participate in performance feedback; and measures for improving work engagement.

5. References

Bai, G.Y., Luo, R.D. (2016). Research on the Relationship between Knowledge Employee benefits Incentive and

- Innovation Performance. *Shandong Social Sciences*, 5175-179
- Li, Z., Zhu, X. (2017). Research on the Dilemma and Effect Improvement of Honor Incentive for Public Sector Employees. *Journal of Chongqing University (Social Science Edition)*, 23 (01), 115-123
- Li, W., Mei, J.X. (2013). Intrinsic motivation and employee performance: Mesomeric effect based on work engagement *Management Review*, 25 (8), 160-167
- Liang, Z. (2009). Research on the Growth Evaluation Mechanism of Knowledge Workers in New Technology Enterprises. *Doctoral Thesis of Tianjin University*, 5
- Long, X. (2012). Research on non-material incentive mechanism and innovation performance of employees in knowledge-based enterprises. *Doctoral Thesis of Central South University*, 4
- Mei, H. (2007). Evaluation Elements and Model Construction of Knowledge Employee Performance Management. *Scientific Management Research*, 6,89-92.
- Wang, H.J. (2020). Innovative Research on Personnel Incentive Management in State Owned Enterprises Based on Promoting Strategic Performance Management. *Accountants*, 24,84-86.
- Wang, D.F. (2022). Career incentive and career development of the new generation of community workers--also on the path of cadre training for the modernization of community governance. *Theory Monthly*, 12,109-119.
- Wu, J., Jiao, H., Shi C.S. (2011). R&D Employee Innovation Performance Evaluation Model Based on Fuzzy Theory. *Journal of Management*, 5734-738.
- Weng, Q.X., Yang, H., Cao, X.X. (2017). The relationship between career growth, job engagement, and work performance of researchers. *Research Management*, 38 (6), 144-151.
- Zhang, X.F., Chen, G.H., Yang, G.L. (2016). Research on the Efficiency of Industry University Research Cooperation R&D Based on DEA Model - Taking Industry University Research Cooperation R&D Projects Led by Different Ownership Enterprises as an Example. *Research & Development Management*, 05,82-90.
- Zhang, X.M., Kathryn, M. (2010). The Influence of Creative Process Engagement on Employee Creative Performance and Work Performance:A Curvilinear Assessment. *Journal of Applied Psychology*, 5,862-873.
- Zhang, X., Zhang J., Fan Y. (2017). Research on the Relationship between Rewards and Innovation Performance from the Perspective of Cognitive Evaluation - The moderating effect of emotional state and cognitive resources. *Nankai Management Review*, 5144-154.
- Zhang, D.Y. (2020). Analysis on the Impact of Equity of Enterprise Salary Management on Employees' Work Attitude. *Shinise Marketing*, 3155-157.