Research on the Impact of Incentive Measures on the Performance of Efficient Technology Transfer

-- Mediated by Psychological Ownership

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Abstract. In the era of "big science", science and technology are gradually commercialized. Governments, enterprises and other organizations have invested a lot of financial, human and institutional resources in colleges and universities to help colleges and universities to transform technological achievements. However, the rate of technology transfer in my country is still not high. Therefore, this article focuses on identifying factors that affect technology transfer and proposes countermeasures to improve technology transfer performance, constructing incentive measures, psychological ownership, market orientation, and efficient technology transfer performance models, and discussing the impact of university incentives on technology transfer performance. The conclusion shows that: incentive measures have a positive impact on the performance of university technology transfer; psychological ownership plays a part of the intermediary role between incentive measures and university technology transfer performance, that is, incentive measures can have a direct impact on university technology transfer performance, or through psychological ownership. It has an indirect impact; the market orientation positively regulates the relationship between psychological ownership and the performance of university technology transfer. Identify key factors and provide reasonable enlightenment for colleges and universities to improve the performance of technology transfer.

Keywords: Incentive System; University Technology Transfer; Psychological Ownership.

1. Introduction

In the era of "big science", science and technology are gradually commercialized, and the trading characteristics of scientific and technological achievements in colleges and universities are more obvious. The government and enterprises and other organizations have invested a lot of financial, human and institutional resources in colleges and universities, hoping to help universities transform their technological achievements with the help of relevant resources, drive the economic growth of enterprises and enhance their competitiveness.

However, compared with developed countries such as Britain and the United States, China's technology transfer rate is still very low, and the performance of technology transfer is not very high, even to some extent, it belongs to the category of "continuing to decline". However, under the new normal of economy, the government is still trying to adopt policies and market intervention to promote the realization of the goal of social innovation and transformation. Therefore, technology transfer is still one of the goals of scientific and technological achievements in colleges and universities to promote scientific and technological progress. Identifying the factors that affect technology transfer and putting forward countermeasures to improve the performance of technology transfer is still the focus of research.

Existing scholars mainly study and discuss the performance of university technology transfer from the following dimensions: (1) resource dimension. Rao Kai and other researchers' research and development financial investment on the number and income of university patent transfer contracts. Zhou Fenghua and Zhu Xuezhong, based on the statistical data of 58 domestic universities from 2000 to 2004, found that, in addition to financial resources, human resources also have a significant impact on the performance of university technology transfer, in which the quality of researchers has a significant impact on output. (2) Technology Transfer Organization (TTO) dimension. Swamidass&Vulasa believed that the slow commercialization of university inventions may be due to the lack of sufficient trained personnel and invention processing capacity of the University

Technology Transfer Office (TTO). Xeetal explained the importance of the success of TTO. TTO may lead to fewer license agreements, but increase the income of innovation transfer. (3) Institutional and management dimensions. Ye Jingyi and others introduced hidden factors such as system on the basis of R&D investment. The research found that although the investment of R&D and transformation funds has an impact on the performance of university technology transfer, it will also be restricted by hidden factors such as system. If the system factor is suitable for universities and their researchers, it will have a significant positive impact on technology transfer. Among them, the incentive system plays an important role in the performance of technology transfer. Colyvas believes that when university researchers are faced with similar incentives under the same institutional environment, they will have different practices and various reasons for welfare. In essence, scientific research innovation and achievements transformation will fall on researchers. Therefore, incentive measures are very important for technology transfer.

According to the theory of social exchange, the relationship between employees and the organization is established through exchange. Employees work hard to obtain the rewards given by the organization, and win the recognition given by the organization with their dedication; The success of the organization is also the result of the efforts of employees; In this process, the relationship of mutual contribution and dependence between employees and the organization has been formed.

Department, that is, social exchange relationship. Psychological ownership refers to the feeling that an individual has a certain goal. For different objects, individuals will have different psychological ownership, including organizational psychological ownership of the whole organization and work psychological ownership of specific work. Work psychological ownership indicates the degree of employees' investment in work time and energy. Research shows that the higher their psychological investment, the more they will be responsible for their work, have more emotional dependence on their work and psychological identity, and are more willing to stimulate their creativity and enthusiasm, put forward more innovative plans, and make behaviors beneficial to the organization and work. Therefore, this paper focuses on the mechanism of psychological ownership between incentive measures and the performance of technology transfer in colleges and universities, and discusses how incentive measures promote the establishment of psychological ownership of researchers and how psychological ownership affects the improvement of technology transfer performance in colleges and universities.

The main reason for the low rate of technology transfer in colleges and universities lies in the unilateral output of scientific and technological achievements of colleges and universities, ignoring the market demand, which leads to disconnection from the demand of the market and enterprises. However, in the academic circles, there are different views on whether market orientation can positively adjust the relationship between organizational strategic orientation and innovation of scientific and technological achievements: some scholars believe that focusing too much on market demand will lead universities to be limited to the demand cognition of the existing market, and promote more resources to be invested in the current market demand. Others believe that market orientation helps enterprises create outstanding value, and also affects customer satisfaction and financial performance, It can also help organizations gain market competitive advantage and improve organizational performance. Therefore, this study aims to explore whether market orientation plays a moderating role in the relationship between psychological ownership and efficient technology transfer performance? Is the regulatory role positive?

Based on the above analysis, this study constructs a performance model of incentive measures, psychological ownership, market orientation and efficient technology transfer, and tests whether the path in the model can explain the mechanism of the variables through empirical methods. The conclusion will further improve and enrich the research on incentive theory, social exchange theory, market orientation theory and technology transfer theory. In addition, this study aims to identify the key factors and provide reasonable inspiration for universities to improve technology transfer performance by exploring the impact mechanism of incentive measures on university technology transfer performance.

2. Literature Review and Theoretical Assumptions

2.1 Incentive Measures and University Technology Transfer Performance

The technology transfer of colleges and universities is affected by laws, regulations and systems from the national, local and school levels. In particular, the technology transfer incentive policy has a more important positive impact on promoting the implementation of university patents. On the one hand, the technology transfer incentive policy, such as scientific researchers engaged in technology transfer can obtain all or part of the benefits of technology transfer or licensing, which can directly affect the direction of technology transfer, Promote scientific researchers to pay more attention to research market demand and develop patents with strong commercial application value, which can improve the probability of obtaining and implementing patents. On the other hand, a strong incentive policy for technology transfer can also encourage scientific researchers to carry out technology publicity and promotion, so that technology can be known by more people in the market, and improve the probability of implementing technology transfer. Bercovitz et al. and Mowery and Sampat believed that in the management system of colleges and universities, the incentive system and management departments have a positive role in promoting the rate and efficiency of technology transfer. They believed that a reasonable and effective incentive system would inevitably lead to high technology transfer rate. Based on the above analysis, we propose the following assumptions:

H1: The implementation of incentive measures for university researchers has a positive impact on the performance of technology transfer.

2.2 Psychological Ownership and Efficient Technology Transfer Performance

Pierce et al. believed that psychological ownership lies in goals and ownership, which is different from similar concepts such as organizational commitment, organizational identity and internalization. Based on Furby's theory of psychological possession, possession is regarded as an extension of the individual self, which can enhance self-efficacy and self-identity, thus producing attitudes, motivations and behaviors. Mayhew et al. believed that when employees have psychological ownership of work, they will have a sense of ownership, continue to pay attention to the development of work goals and the organization, and make useful decisions for the organization or work goals. Although there are many problems in the process of innovation, employees with psychological ownership dare to innovate, overcome difficulties, seek a sense of security and belonging in the organization, and continue to stimulate their attitudes and behaviors towards work goals and organizational responsibility. Based on the above analysis, when researchers have psychological ownership, they will establish a psychological connection with scientific and technological achievements, improve the creativity of scientific research and the perseverance to overcome difficulties, be more active and devoted to technology transfer, and actively seek solutions to enrich and improve technology transfer, so as to improve the performance of university technology transfer. Therefore, this study proposes the following assumptions:

H2: Psychological ownership has a positive impact on the performance of efficient technology transfer.

2.3 Incentives and Psychological Ownership

When employees have psychological ownership of the organization, they will extend their identity to the organization and integrate with the organization, so as to reshape employees' recognition of contributing their own value to the organization. At the same time, employees will also have a psychological connection to the organization, linking their own interests with the development of the organization. Liu Fang and Wang Hao showed that organizational psychological ownership has a significant impact on emotional commitment and job satisfaction. Pan Xiaofu and others found that if employees have psychological ownership of the organization, they will promote their deep understanding of the organization's goals, degree of involvement and self-control When employees in the organization have high organizational psychological ownership, external incentives will make

it easier for employees to perceive that "my" organization needs me to transfer technology to contribute their unique value. On the contrary, if the organizational psychological ownership held by individuals is kept at a low level, it will be difficult to perceive the intention of the organization to provide external incentives to the technology transfer behavior. Instead, it may generate a "defensive psychology", believing that knowledge belongs to itself, and the organizational technology transfer will bear unnecessary risks. Based on the above discussion, this study proposes the following assumptions:

H3: Incentive measures have a positive impact on psychological ownership.

2.4 Mediation of Psychological Ownership

Chang et al. pointed out that the support and research input of organization members help individuals and organizations achieve their goals. At the same time, leadership authorization, organizational identity and other behaviors have no direct positive effect on members' innovation behavior and organizational innovation performance, and only through members' psychological factors and cognitive status can they indirectly have a positive impact. It can be inferred that the impact of incentive measures on the performance of university technology transfer is not direct, but also needs psychological ownership as a medium for transmission. Incentives will make researchers more clearly feel that I need to transfer technology for "my" organization to contribute to its unique value.

Psychological ownership is a bridge between organizations and organizational members. When organizational members have psychological ownership, they will have enthusiasm and sense of responsibility for organizational work. Therefore, when researchers have psychological ownership, they will have a sense of ownership and initiative in technology transfer, and this positive psychological state will continue to promote researchers to have beneficial behaviors and attitudes towards organizations or technology transfer. On the one hand, we will increase our time and energy investment in technology transfer, conscientiously complete the work, and demand ourselves with high standards in scientific research; On the other hand, they will also consider the long-term interests of the organization when making work behaviors, constantly exert their potential, and produce more innovative results, thus improving the performance of technology transfer. To sum up, psychological ownership plays a bridge role between incentive measures and technology transfer performance. Based on this, this study proposes the following assumptions:

H4: Psychological ownership plays a mediating role between incentive measures and the performance of university technology transfer.

2.5 Regulatory Role of Market Orientation

Successful technology transfer is not only the effective promotion of social and economic development by the output of scientific and technological achievements, but also the need for market demand to constantly promote scientific and technological innovation, promote demand to constantly guide the transformation of technology transfer achievements, and promote scientific and technological achievements to meet market demand.

Technology transfer is a complex process in which multiple markets interact, such as technology markets and product markets. The demand for technology transfer comes from the market demand for innovative products and services. Technology transfer is characterized by high risk, large investment and long period. By clarifying market demand in advance, we can effectively control the direction of technology transfer, reduce the risk and uncertainty of entering the market after technology transfer, and thus improve productivity. Researchers with psychological ownership tend to have a stronger sense of self-efficacy and a sense of responsibility for their work and organization, which is acceptable. When they concentrate on and accept the market demand, researchers will be affected by both motivation and demand, integrate technology transfer achievements and market demand, constantly enrich and promote the transformation of scientific and technological achievements, and then improve the performance of technology transfer, that is, psychological

ownership has a more significant impact on the performance of technology transfer of researchers under the role of market-oriented regulation. Market orientation level is an important situational factor to promote the smooth access of scientific and technological achievements to the market and promote technology transfer. When the level of market orientation is not high, researchers may not carefully consider the market demand, only consider their own honor and interests, put forward topics closely related to their interests, and ignore the needs useful for entering the market. In this case, although researchers have psychological ownership, it will eventually lead to high achievements in scientific and technological progress, but the conversion rate is very low. In other words, if researchers only have psychological ownership and low market orientation, it is difficult for them to have a positive impact on technology transfer. Based on the above analysis, this study proposes the following assumptions:

H5: Market orientation positively regulates the relationship between psychological ownership and technology transfer performance, that is, the higher the level of market orientation, the stronger the positive relationship between psychological ownership and technology transfer performance; On the contrary, it is weaker.

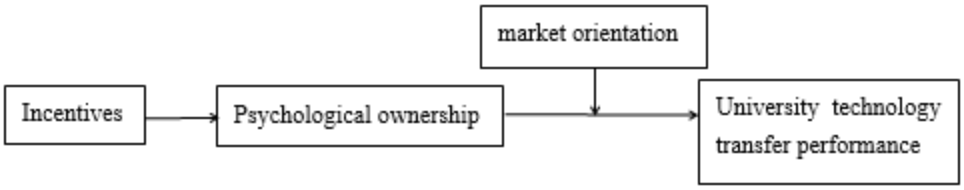

Fig 1. Mind map

3. Research Methodology

3.1 Data Collection

According to the 2014 Collection of Science and Technology Statistics of Colleges and Universities, the number of invention patent applications of 32 colleges and universities directly under the Ministry of Education's "985 Project" accounted for 29.7% of the total number of invention applications of all kinds of colleges and universities, the proportion of patent authorization was 34.6%, and the amount of patents sold and the actual income of the year accounted for 44.3% and 42.4% respectively. It can be seen that the "985 Project" universities have become the backbone of China's higher education. Considering the availability of the questionnaire, this study conducted a questionnaire survey on 985 universities in Jiangsu, Zhejiang and Shanghai. A total of 272 questionnaires were distributed to scientific researchers engaged in technology transfer in colleges and universities, and 207 valid questionnaires were recovered, with a recovery rate of 76.1%.

3.2 Research Methods

In this study, partial least squares structural equation modeling (PLS-SEM) is used for analysis. PLS-SEM has high practicability and is superior to the general analysis method of linear structural relationship model. It can deal with both reactive and formative model structures; At the same time, it can effectively handle interference data and missing values, and has good prediction and interpretation ability. The main advantages of PLS-SEM are as follows: abnormal distribution of data, small samples and tangible shaping indicators of potential variables (the above are related to the characteristics of data), exploratory research and theoretical development, handling highly complex models and category variables, etc.

3.3 Variable Measurement

The measurement items of the variables selected in this paper are all from mature scales at home and abroad. Before the formal survey, experts with relevant research backgrounds were consulted,

and the scale was adjusted and modified in a situational manner, in order to improve the accuracy of the questionnaire words. The source of each variable measurement item in the model is shown in Table 1 below. All items are scored by Likert 7 points, with 1 indicating "completely inconsistent" and 7 indicating "completely consistent".

Table 1. Source of measurement items for each variable of the model

Variable	Source	Variable	Source
incentive system	[15]	market orientation	[14]
Psychological ownership	[16]	Technology transfer performance	[17]

3.4 Formal Questionnaire Analysis

3.4.1 Study Sample

In this study, there are 107 males and 100 females, accounting for 51.7% and 48.3% respectively. 30 persons aged 18-25, accounting for 14.2%; 55 people aged 26-30, accounting for 26.4%; 98 persons aged 31-40, accounting for 47.2%; 18 persons aged 41-50, accounting for 8.5%; There are 6 persons aged 51-60, accounting for 3.8%. 39 teaching assistants, accounting for 18.9%; 29 lecturers, accounting for 14.2%; 50 associate professors, accounting for 24%; 50 professors, accounting for 24.2%; 39 others, accounting for 18.9%. 43 people have been engaged in scientific research for less than 2 years, accounting for 20.8%; 72 persons in 3-5 years, accounting for 34.7%; 77 in 6-10, accounting for 37%; 15 people over 10 years, accounting for 7.5%. 37 people have bachelor's degree or equivalent, accounting for 17.9%; 47 postgraduates, accounting for 22.6%; 102 doctoral students, accounting for 49.1%; 21 post doctors and above, accounting for 10.4%.

Table 2. Study Sample

Basic information of the sample	**type**	**Number of people**	**Percent**
sex	male	107	51.7
	female	100	48.3
age	18~25	30	14.2
	26~30	55	26.4
	31~40	98	47.2
	41~50	18	8.5
	51~60	6	3.8
title	assistant	39	18.9
	lecturer	29	14.2
	associate professor	50	24.0
	professor	50	24.2
	other	39	18.9
Length of scientific research	Less than 2 years	43	20.8
	3-5 years	72	34.7
	6-10years	77	37.0
	More than 10 years	15	7.5
education	bachelor	37	17.9
	master	47	22.6
	doctor	102	49.1
	Postdoctoral or above	21	10.4

3.4.2 Common Method Deviation Test

Exploratory factor analysis was conducted on all items by Harman single factor method. The results showed that the total variance of all factors with characteristic roots greater than 1 was 82.537%, of which the variance explained by the first factor was 33.049%, less than the critical standard of 40%, indicating that there was no serious problem of common method bias.

3.4.3 Measurement Model Analysis

The analysis and estimation procedure of PLS-SEM can be divided into two steps: reliability and validity analysis for the measurement model, and path coefficient verification and model prediction ability estimation for the structural model. This is to test whether the reliability and validity of variables meet the standards, and then to verify the relationship between the research variables, so as to test whether the assumptions of this research framework are valid.

When PLS-SEM is used to evaluate the reliability and validity, the component reliability (CR) and average variance extracted (AVE) of each variable must be calculated first. Composition Reliability of Potential Variables and Cronbach's α Both refer to the consistency of items within variables, Cronbach's α When the value is greater than 0.7, it is considered to have good internal consistency, and when the CR is greater than 0.7, it is considered acceptable; AVE measures the ability of a potential variable to explain all its indicator items, and its value must be greater than 0.5 to prove that the use of the variable is feasible. 15 items were used for research according to the above criteria, including Cronbach's of potential variables α The values ranged from 0.839 to 0.925, and the CR values ranged from 0.899 to 0.961, both of which were greater than 0.7, indicating that the potential variables in this study had good internal consistency. The AVE values of potential variables ranged from 0.600 to 0.861, all greater than 0.5, indicating that the potential variables in this study have good converging validity (Table 3).

Table 3. Measurement Model Inspection

Variables	Items	Factor loading	Cronbach'sα	CR	AVE
Incentives	EN1	0.56	0.945	0.894	0.633
	EN2	0.782			
	EN3	0.849			
	EN4	0.863			
	EN5	0.88			
Psychological ownership	PH1	0.883	0.941	0.889	0.668
	PH2	0.871			
	PH3	0.690			
	PH4	0.554			
market orientation	MO1	0.724	0.766	0.828	0.618
	MO2	0.701			
	MO3	0.543			
University technology transfer performance	TE1	0.814	0.945	0.898	0.746
	TE2	0.846			
	TE3	0.712			

Cronbach's, α >0.7, CR>0.7, AVE>0.5

In general, PLS-SEM is mainly tested by two aspects in estimating the discrimination validity: one is to examine the cross-loading matrix. It can be seen from Table 4 that the item factor load of each variable in this study is higher than that of other variables. The second is to adopt the indicators recommended by Fornell. If the measurement model has distinctive validity, it indicates that the degree of relationship between potential variables should be less than the degree of relationship within the corresponding potential variables. Therefore, the correlation coefficient matrix between variables is used to test. When the AVE value of a variable is greater than the square of the correlation coefficient between the variable and other variables, it indicates that the differential validity exists. Since AVE value is the average value of all the square multiple correlations (SMC) in the same potential variable, and SMC is the square value of the standardized factor load of each item under each potential variable, square operation is required when making comparisons (Table 5). The item factor load of each variable is higher than that of other variables

Table 4. Cross load

variable	market orientation	Incentives	Psychological ownership	University technology transfer performance
EN1	0.342	**0.871**	0.616	0.524
EN2	0.282	**0.867**	0.611	0.529
EN3	0.257	**0.798**	0.560	0.465
EN4	0.289	**0.724**	0.541	0.514
EN5	0.498	**0.809**	0.283	0.291
PH1	0.334	0.649	**0.833**	0.548
PH2	0.365	0.586	**0.880**	0.538
PH3	0.388	0.663	**0.851**	0.576
PH4	0.391	0.534	**0.835**	0.593
MO1	**0.817**	0.266	0.351	0.403
MO2	**0.841**	0.268	0.360	0.344
MO3	**0.693**	0.331	0.318	0.378
TE1	0.443	0.558	0.577	**0.909**
TE2	0.445	0.491	0.580	**0.873**
TE3	0.337	0.571	0.565	**0.803**

Table 5. Discriminant validity and variable correlation coefficient

variable	1	2	3	4
market orientation	0.777			
Psychological ownership	0.051	0.917		
University technology transfer performance	0.906	0.028	0.899	
Incentives	0.707	0.199	0.160	0.904

However, Henseler pointed out that PLS-SEM would overestimate the factor load and underestimate the correlation between variables, that is, the AVE value would be overestimated. Therefore, it is suggested that the differential validity analysis should add the estimation method of heterotopic monotopic ratio (HTMT). The principle is that the average correlation between items within variables should be greater than the average correlation between items of different variables. The latter should be divided into the former. If it is less than 0.85, This indicates that the variables have differential validity. According to this method, it can be seen from Table 6 that the calculated values are less than 0.85, which also shows that the variables have differential validity.

Table 6. HTMT differential validity analysis

variable	1	2	3
market orientation			
Psychological ownership	0.562		
University technology transfer performance	0.482	0.374	
Incentives	0.801	0.765	0.769

3.4.4 Structural Model Analysis

The PLSAlgorithm method is used to test the fitness of explanatory variables to predict the outcome variables, and the Bootstrap resampling method is used to sample 5000 samples to calculate parameters and evaluate the significance of model coefficients. Because Bootstrap resampling method is a statistical inference method without generating number, small samples can also get good results. The analysis results are shown in Table 7. The psychological ownership (f^2) of the explanatory variable incentive measures to the outcome variable is 0.248, which is greater than the minimum threshold of 0.02, R^2=0.550, which is greater than the minimum threshold of 0.10; The explanatory variable psychological ownership versus the outcome variable efficient technology transfer (f^2) is 0.587, which is greater than the minimum threshold of 0.02, R^2=0.370, and greater than the minimum threshold of 0.10; The effect of incentive measures on the outcome variable of university technology transfer performance (f^2) is 0.370, greater than the minimum threshold of 0.02, R^2=0.587, greater than the minimum threshold of 0.10; The GOF (goodness off it) of the overall model is 0.38, which is

higher than the standard of 0.36 good fitness proposed by Wetzels et al., indicating that the model has a high degree of fitness.

Table 7. Model Results and Effect Index Values

Result variable	Explanatory variable	R^2	Path coefficient	T	f^2
Incentives	Psychological ownership	0.550	0.421***	9.544	0.248
Psychological ownership	University technology transfer performance	0.370	0.608***	14.765	0.587
Incentives	University technology transfer performance	0.370	0.608***	14.765	0.587

R2>0.1; f2>0.02

According to Table 7, incentives significantly affect psychological ownership ($\gamma = 0.421$, t=9.544, p<0.001), supporting H3. Psychological ownership positively and significantly affects the performance of technology transfer in colleges and universities ($\gamma = 0.608$, t=14.765, p<0.001) Support H2; Incentives positively and significantly affect the performance of university technology transfer ($\gamma = 0.608$, t=14.765, p<0.001), supporting H1. According to Table 8, the intermediary effect test shows that after the introduction of independent variables and intermediary variables at the same time, the impact of incentive measures on the performance of university technology transfer is reduced, and its impact coefficient is reduced from 0.608 ($p < 0.001$) to 0.247 ($p < 0.001$), indicating that psychological ownership plays a partial intermediary role between incentive measures and university technology transfer performance, assuming that H4 is established. According to Table 9, the moderating effect test shows that market orientation has a significant moderating effect on the relationship between psychological ownership and technology transfer performance, supporting H5.

Table 8. Analysis Results of Mediation Effect Test

independent variable	Intermediary variable	dependent variable	Direct effect	Indirect effect	mediation
Incentives	Psychological ownership	University technology transfer performance	0.608***	0.247***	Some intermediaries

Table 9. Analysis Results of Regulation Effect Test

independent variable	Regulating variable	dependent variable	Path coefficient	Significance	result
Psychological ownership	market orientation	University technology transfer performance	0.368***	0.000	establish

4. Conclusion and Implications

This research takes the transformation of scientific and technological achievements of universities as the research background, constructs a relationship model to study the mechanism of incentive measures on the performance of university technology transfer, and demonstrates the relationship between incentive measures, psychological ownership, market orientation and university technology transfer performance.

4.1 Conclusion

This research takes university researchers as the research object, constructs a theoretical model of incentive measures, psychological ownership, market orientation and university technology transfer performance, and draws the following conclusions through statistical analysis of the survey data:(1) Incentive measures have a positive impact on the performance of technology transfer in colleges and universities. This research conclusion is consistent with Fang Yangchun and Jia Dan's view that incentive measures are an important means to improve the performance of high-tech transfer,

stimulate personal creativity and produce high-quality technological achievements. In the incentive measures, scientific researchers are encouraged to focus more on scientific research, pay more attention to the quality and promotion of technology transfer achievements, so as to improve the quantity and quality of technology transfer.(2) Psychological ownership plays a part of intermediary role between incentive measures and university technology transfer performance, that is, incentive measures can not only have a direct impact on university technology transfer performance, but also have an indirect impact on it through psychological ownership. Psychological ownership often plays a connecting role between organizations and their members' behaviors, and is an important psychological intermediary mechanism. Incentive measures need psychological ownership as a medium to influence efficient technology transfer. Incentives will make researchers more clearly feel that I should make scientific research contributions to my organization and increase the sense of belonging of researchers. When researchers have psychological ownership, they will have a sense of ownership and responsibility for technology transfer. This positive psychological state will continue to promote researchers to have beneficial behaviors and attitudes towards organizations or technology transfer, thus promoting the performance of technology transfer in colleges and universities. (3) Market orientation positively regulates the relationship between psychological ownership and university technology transfer performance. That is, when the level of market orientation is higher, the relationship between psychological ownership and university technology transfer performance will be more significant. Although researchers will be more committed to technology transfer and more responsible for technology transfer results when they have psychological ownership, if they do not pay attention to market demand, it is likely that the number of technology transfers will be high and the quality will be low. Under the regulation of market orientation, we can better ensure the smooth transformation of technological achievements of colleges and universities and their successful entry into the market.

4.2 Theoretical Contribution

(1) It enriches the incentive system theory and the performance theory of university technology transfer. The current research on the performance of technology transfer in colleges and universities mainly focuses on resource factors such as human and financial resources, institutional factors such as management, technology transfer institutions and regional differences. The research perspective is relatively broad, and the literature on the psychological factors of R&D personnel is also rare. This research focuses on the personnel incentive factors in the management system, introduces the theory of psychological ownership, and analyzes the mechanism that affects the performance of technology transfer in colleges and universities from the institutional and psychological factors. This study explores the impact of incentive measures on the performance of technology transfer in universities with scientific research achievements, provides a new mechanism for the performance of technology transfer in universities, and enriches the theory of incentive system and the performance theory of technology transfer in universities.

(2) It expands the application scope of social exchange theory and the research on psychological ownership as an intermediary variable. This study is not limited to the direct study of the impact of incentives on the results of university technology transfer, but starts from the social exchange theory, introduces psychological ownership as an intermediary variable, and studies the impact of incentives on efficient technology transfer.

(3) It enriches the theory of market orientation and takes market orientation as the regulating variable of the study. This study applies market orientation to the performance of university technology transfer, tests the moderating role of market orientation between psychological ownership and university technology transfer results, and enriches the scope of this theory.

4.3 Management Enlightenment

(1) Build a talent incentive mechanism to stimulate talent innovation. Implement talent incentive policies, promote universities to continuously produce more innovative scientific and technological

achievements, and improve the performance of technology transfer. When implementing the incentive policy, we also need to pay attention to whether the incentive measures really relate to the core interests of scientific researchers, which requires only one step to understand the core interests of scientific researchers, so as to formulate more effective incentive policies and improve the enthusiasm and initiative of scientific researchers.

(2) Strengthen the construction of psychological ownership of scientific researchers and increase their sense of belonging and security. Once researchers gain psychological ownership, they will increase their sense of responsibility and focus on their responsible work and organization. This requires colleges and universities to optimize management, pay attention to scientific researchers, give them more autonomy and certain support in technology transfer, so that scientific researchers can obtain greater sense of income and achievement in the reform of scientific and technological progress, and promote the improvement of technology transfer performance.

(3) Pay attention to the market demand and improve the conformity between the results and the demand. Colleges and universities should create an open and cooperative atmosphere, encourage researchers to pay attention to market demand and enterprise cooperation; In addition, we should establish and improve market information communication channels to promote market demand and information sharing. On the other hand, it is also necessary to reform the traditional evaluation system and establish a set of market-oriented evaluation standards, so that the scientific and technological achievements of colleges and universities can better meet the market demand, reduce market risks, increase the benefits of technology transfer, and improve the ratio and sufficiency of technology transfer.

4.4 Research Deficiencies and Prospects

There are still some shortcomings in this study: First, the questionnaire survey method is adopted, the survey scope covers the Yangtze River Delta, and the sample selection scope is not wide enough to fully represent the scientific research situation of colleges and universities; Second, human resources, platform factors and other management measures all have an impact on the performance of university technology transfer. In the future, we can try to study its impact mechanism on the performance of university technology transfer.

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