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Social Embeddedness and the Willingness for Mutual Recognition of Medical Results: An Empirical Study in the Chinese Healthcare Sector

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Doctor of Management

Supervisor:
PhD Virginia Trigo, Emeritus Professor,
ISCTE University Institute of Lisbon

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BUSINESS
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Marketing, Operations and General Management Department

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Abstract

This study investigates the mutual recognition of medical examination and test results in China, emphasizing the effects of social embeddedness (trust structural embeddedness, trust relational embeddedness and cognitive embeddedness) on the willingness to implement mutual recognition and the role of organizational legitimacy and governmental intervention in the process. Integrating a mixed-methods approach, this thesis thoroughly examines how the above constructs affect the process and interrelations in the mutual recognition of medical results.

A pilot questionnaire was first conducted to determine the final questionnaire that was administered to 560 respondents of which 479 have been returned and considered valid with 85.54% return rate. Results indicate that trust relational embeddedness and cognitive embeddedness significantly and positively influence stakeholders' willingness to implement mutual recognition in medical examination and testing, while the impact of trust structural embeddedness is not supported. Additionally, the study finds that organizational legitimacy plays a mediating role between trust structural embeddedness, cognitive embeddedness, and the willingness to implement mutual recognition, but its mediating role between trust relational embeddedness and implementation willingness is not supported. Furthermore, governmental intervention positively moderates the impact of trust structural embeddedness, trust relational embeddedness, and cognitive embeddedness on the willingness for mutual recognition. A focus group was then organized for clarification of the results especially of the unsupported hypotheses to reveal the complexities and challenges in the mutual recognition of medical results.

This research extends existing theories of social embeddedness, particularly in their application to the field of healthcare management. Practically, it provides concrete suggestions for policymakers and healthcare administrators to improve medical service processes and enhance efficiency.

Keywords: Mutual recognition of medical results; trust; structural embeddedness; relational embeddedness; cognitive embeddedness

JEL: H83; I18

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Resumo

Esta tese investiga o reconhecimento mútuo de exames médicos e resultados de testes na China, enfatizando os efeitos da imersão social (imersão estrutural da confiança, imersão relacional da confiança e imersão cognitiva) na disponibilidade para implementar o reconhecimento mútuo e o papel da legitimidade organizacional e da intervenção governamental neste processo. Integrando uma abordagem de métodos mistos, este estudo examina detalhadamente como os construtos acima influenciam o processo e as inter-relações no reconhecimento mútuo de resultados médicos.

Foi primeiro desenhado um questionário piloto para determinar o questionário final. Este foi depois administrado a 560 respondentes tendo sido devolvidos e validados 479 representando uma taxa de retorno de 85,54%. Os resultados indicam que a imersão relacional da confiança e a imersão cognitiva influenciam significativa e positivamente a disponibilidade das partes interessadas em implementar o reconhecimento mútuo de exames médicos e testes, enquanto o impacto da imersão estrutural da confiança não é suportado. Além disso, o estudo constata que a legitimidade organizacional desempenha um papel mediador entre a imersão estrutural da confiança, a imersão cognitiva e a disponibilidade para implementar o reconhecimento mútuo, mas o papel mediador entre a imersão relacional da confiança e a disponibilidade para a implementação não é suportado. Além disso, a intervenção governamental modera positivamente o impacto das variáveis independentes na disponibilidade para o reconhecimento mútuo. Um grupo de discussão foi então organizado para esclarecer os resultados, especialmente das hipóteses não suportadas, a fim de revelar as complexidades e desafios no reconhecimento mútuo de resultados médicos.

Esta investigação amplia as teorias existentes de imersão social, particularmente no âmbito da gestão da saúde. Na prática, fornece sugestões concretas para a formulação de políticas e para administradores de saúde com vista à melhoria dos serviços médicos e aumento da eficiência.

Palavras-chave: Reconhecimento mútuo de exames médicos; confiança; imersão estrutural; imersão relacional; imersão cognitiva

JEL: H83; I18

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摘要

本研究探讨了中国医学检查检验结果互认的问题，重点关注社会嵌入性（信任结构嵌入、信任关系嵌入和认知嵌入）对实施相互认可意愿的影响，以及组织合法性和政府干预在此过程中的作用。本论文综合运用混合方法研究，全面考察了上述构建对医学检查检验结果互认过程和相互关系的影响。

本研究首先进行了一项预测试问卷调查以确定最终问卷。正式问卷共发放给560名受访者，其中479份有效回收，回收率为85.54%。结果表明，信任关系嵌入和认知嵌入对利益相关者实施医学检查检验结果互认的意愿有显著正向影响，而信任结构嵌入的影响未得到支持。此外，研究发现组织合法性在信任结构嵌入、认知嵌入与实施相互认可意愿之间起到了中介作用，但其在信任关系嵌入和实施意愿之间的中介作用未得到支持。此外，政府干预正向地调节了信任结构嵌入、信任关系嵌入和认知嵌入对相互认可意愿的影响。然后，本研究组织了一个焦点小组会议对研究结果进行梳理和讨论，特别是那些未得到支持的假设，以揭示医学检查检验结果相互认可过程中的复杂性和挑战。

本研究对现有的社会嵌入性理论进行了扩展，特别是在医疗管理领域的应用。实践方面，也为政策制定者和医疗管理者提供了改进医疗服务流程和提高效率的具体建议。

关键词：医学结果互认；信任；结构嵌入；关系嵌入；认知嵌入

JEL: H83; I18

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Chapter 1: Introduction

1.1 Research background

Maintaining health is a basic need and an instinct of human beings. Therefore, medical and health services affect thousands of households and concern the fundamental interests of hundreds of millions of people. In China, how to promote the efficiency of medical services and reduce the burden of residents' medical treatment has always been a common concern of the government and of all sectors of society.

With the rapid growth of China's economy, the aging of the population, the wide application of advanced technology in the medical and health field, and the increasing demand for medical and health services, China's annual total health expenditure continued to grow, from 1998.039 billion yuan in 2010 to 7684.499 billion yuan in 2021, and the proportion of total health expenditure to GDP increased from 4.84% in 2010 to 6.72% in 2021 (National Health Commission of China, 2022). The Chinese government has made positive efforts to optimize medical services, thus improving the coverage of health services to the whole population and, as a result, the annual per capita health expenditure also continued to grow, from 1490.10 yuan in 2010 to 5440 yuan in 2021 (National Health Commission of China, 2022).

According to the World Health Organization (2010), the incidence of catastrophic health expenditure and the incidence of disease-related poverty are very small if the proportion of total health expenditure paid by patients is less than 15%-20% (World Health Organization, 2010). The Chinese government has been committed to improving medical services and to reducing the burden of medical treatment for residents, and the proportion of total health expenditure in personal health expenditure has shown a downward trend year by year, from 35.29% in 2010 to 27.6% in 2021 (National Health Commission of China, 2022). Even so, there is still a gap with the standards advocated by the World Health Organization, indicating that the problem of Chinese residents' heavy medical burden is still prominent.

The World Health Organization (2010) proposed that to reduce the burden of medical expenses for residents and to achieve efficient use of health resources, it is necessary to address the issue of waste in health resources. Among these, excessive and repetitive medical examination and testing services are one of the key manifestations of waste in medical resources.

At present, Chinese residents often encounter a situation in the process of seeking medical treatment, that is, if they go to different hospitals when seeing a doctor, they will re-queue for examination, which not only costs more money, but also wastes time. This study has conducted a statistical analysis of the examination costs incurred by Chinese residents in hospital outpatient and inpatient services since 2010. It was found that the cost of examinations generated during the medical treatment process of residents has been increasing annually. The average examination fee for outpatients increased from 30.8 yuan in 2010 to 65.3 yuan in 2021; the average examination fee for inpatients increased from 460.8 yuan in 2010 to 1195.3 yuan in 2021 (National Health Commission of China, 2022). As per capita health expenditure continues to increase, there is a growing demand for mutual recognition of examination results.

In recent years, to improve the utilization efficiency of medical resources, avoid patients from repeating the same item of examination in different hospitals, improve the timeliness of medical treatment, and reduce the burden of medical treatment for patients, mutual recognition of medical examination and medical image test results among medical institutions has been widely promoted and carried out across China. The mutual recognition of medical examination results has become one of the focus issues in China referring to the process in which clinicians recognize the results of various clinical examinations and image tests from the application level during diagnosis and treatment, including mutual recognition of examination data and results (The Chinese Ministry of Health, 2006).

1.1.1 Policy of mutual recognition of medical examination results at the national level

Since 2000, the Chinese government has introduced several policies to promote the mutual recognition of examination results among medical institutions in order to reduce unnecessary repeated tests and alleviate the problem of “expensive medical treatment” for patients. The most relevant are listed below with an explanation of the respective contents.

The *Guiding Opinions on the Reform of the Urban Medical and Health System* issued by the State Council of China (2000) pointed out that relevant departments should adjust the excessively high medical service prices and reduce the excessively high medical examination fees. The policy pointed out the problem of excessive costs of medical examinations and emphasized the need to reduce their cost, but it is not clear on which specific measures should be implemented.

The Chinese Ministry of Health (2006) issued the *Notice of the General Office of the Ministry of Health on Issues concerning the Mutual Recognition of Medical Examinations and*

Medical Imaging Tests among Medical Institutions, vigorously promoting the system of mutual recognition of medical examination results. After the implementation of this policy, various provinces have implemented the system through different forms for the first time.

The *Administrative Measures for Medical Quality Control Centers (Trial)* issued by the Chinese Ministry of Health (2009) emphasized the construction and management of medical quality control centers to better ensure medical quality and safety, and more specifically clarified the main responsibilities of medical quality control centers in the mutual recognition of examination results.

The State Council of China (2010) issued the *Main Work Arrangement for the Five Key Reforms of the Medical and Health System in 2010*, which once again emphasized the implementation of the system of mutual recognition of medical examination results, and focused on promoting its implementation at the same level. The Chinese Ministry of Health (2010) subsequently issued the *Notice on Strengthening the Construction of Medical Quality Control Center and Promoting the Mutual Recognition of Examination and Test results among Medical Institutions at the Same Level*, requiring the implementation of the system under the premise of strengthening medical quality control, and requiring all provinces, autonomous regions and municipalities to achieve the goal of mutual recognition of routine clinical examination results and medical image data of medical institutions at the same level.

The State Council of China (2012) issued the *Twelfth Five-Year Plan for Health Development*, which emphasized the basic realization of mutual recognition of examination results of medical institutions at the same level. One year later, it (2013) issued the *Several Opinions on Promoting the Development of the Health Service Industry*, requiring medical institutions above the second level to open testing to all, once again emphasizing the need to further promote mutual recognition of medical examination results.

The *Guiding Opinions on Promoting the Healthy Development of the Pharmaceutical Industry* issued by the State Council of China (2016) pointed out that it is necessary to promote the sharing of equipment among medical institutions of various ownership systems, as well as the implementation of the mutual recognition system of medical examination results, reduce excessive inspections and duplicate inspections, and avoid the waste of medical resources.

The *Guiding Opinions on Promoting the Construction and Development of Medical Consortium* by the State Council of China (2017) emphasized the promotion of mutual recognition of in-depth examination results within the medical consortium and the continuous optimization of the medical resource sharing mechanism to meet the health needs of patients.

In 2022, the National Health Commission of China, the National Healthcare Security

Administration, the Traditional Chinese Medicine Administration of China, and the Health Bureau of the Logistics Support Department of the Central Military Commission (2022) jointly issued the *Administrative Measures for the Mutual Recognition of Examination and Test Results in Medical Institutions*, which refined the rules for medical institutions to carry out mutual recognition of inspection and test results, further specifying the prerequisites and quality control requirements.

For details on the policies related to the mutual recognition of medical examination and test results introduced by various levels of the Chinese government, please refer to Annex A.

1.1.2 Introduction of supporting policies for mutual recognition of clinical examination results in different regions

Since 2006, various provinces in China have successively formulated policies related to the mutual recognition of medical examination results, which was divided into two stages in various regions. The first stage was from 2006 to 2010. The second stage was from 2010 to now (Xiao et al., 2019).

In the first stage, there were 24 provinces clarifying mutual recognition items, 15 provinces clarifying mutual recognition scope, 10 provinces clarifying mutual recognition basis, eight provinces clarifying organizational assessment and evaluation, 17 provinces clarifying mutual recognition judges, six provinces clarifying unified mutual recognition of test sheet, and seven provinces clarifying medical record processing.

In the second stage, there were 12 provinces clarifying mutual recognition items, 12 provinces clarifying mutual recognition scope, 12 provinces clarifying mutual recognition basis, 12 provinces clarifying organizational assessment and evaluation, two provinces clarifying mutual recognition judges, six provinces clarifying unified mutual recognition of test sheet, and three provinces clarifying medical record processing. Compared with the first stage, the second stage is clearer and more detailed. It specifically pointed out that the confirmation of mutual recognition items and mutual recognition hospitals is based on the quality control status of medical institutions in the region participating in quality control centers and on the performance of hospital PT (proficiency testing), and that the mutual recognition judges are basically designated as diagnosis and treatment doctors. In addition, the basis of mutual recognition should be combined with clinical practice. Some provinces have increased or decreased mutual recognition items, others have added quality control centers in addition to health administrative departments, while provinces such as Hubei, have assigned the entire assessment and evaluation

function to the Hubei Provincial Quality Control Center (Chen & Lu, 2013).

1.1.3 Characteristics of the implementation of the policy of mutual recognition of medical examination results

With the implementation of the mutual recognition system for medical examination and test results, some of the contents have been more effectively guided and refined, and the following features have been presented.

Proposing technical standards related to mutual recognition of medical institutions: For example, the Beijing government put forward the Laboratory Management and Technical Requirements as the technical basis for mutual recognition, and established quality standards such as the Requirements for the Collection, Transportation and Storage of Clinical Samples, Requirements for Calibration and Maintenance of Inspection Equipment, and Requirements for the Integrity of Inspection Report Information (Xiao et al., 2019).

Exploring linkages with other health policies, especially the construction of mechanisms for division of labor: Some provinces, such as Shanghai, require mutual recognition among medical institutions within medical consortia (hospital groups) and with counterpart support relationships while the eight cities of Chengdu Economic Zone have established a number of division of labor and coordination mechanisms such as mutual recognition in the region, multi-site practice, outpatient general medical records, two-way referral, and emergency deployment of clinical blood (Chen & Hou, 2017). Through mutual recognition, the effect of equipment sharing, and time and cost saving can be achieved. For example, Chengdu City West Hospital Group is formed with five hospitals as the core to build the “one-hour medical circle”. Mutual recognition of examination results by hospitals within the circle not only saves waiting time and economic cost, but also establishes a green channel, which makes it possible to directly make an order to the higher level hospital for inspection, thus reducing repeated configuration of equipment and ensuring the quality.

Encouraging the establishment of independent laboratories by private capital (The State Council of China, 2016).

1.1.4 Implementation status of mutual recognition of medical examination results

At the moment, the implementation of mutual recognition of medical examination and test results is stalled, and doctors are still cautious about using patients' original medical examination data. More than half of patients reveal that hospitals do not use their original

medical examination results in the course of medical treatment or insist on repeating the examination even if the original findings are adequate (Xiao et al., 2019). In addition, some regions only stay on the policy publicity of mutual recognition, and no substantive work has been carried out. The provinces that have carried out mutual recognition of examination results have uneven progress, and the overall progress has not been fast (Sun & Gong, 2019).

So far, there has been little success in unified mutual recognition of test sheets, standardized medical record processing and the handling of medical disputes in the process of mutual recognition, which is one of the important manifestations of the little progress of mutual recognition. In terms of emphasizing physicians' duty of care and implementing patients' right to informed consent and choice, relevant provisions do not provide enough opinions and guidance methods. Most provinces do not have clear regulations on the mutual recognition of examination results among hospitals of different levels, but the transfer or exchange between higher and lower level hospitals is the medical treatment method with the most demand for mutual recognition (Sun & Gong, 2019).

1.1.5 Problems faced by mutual recognition of medical examination results

Up to now, insufficient attention has been paid to the promotion of mutual recognition of examination results. For a long time, China's medical service system has not established an effective division of labor and sharing mechanisms, general doctors do not understand the examinations and the quality control systems of other hospitals and have doubts about accepting others' tests for fear of misdiagnosis (Xiao et al., 2019).

The implementation of mutual recognition for medical examination and test results in China faces significant challenges, which arise from ambiguities in legal liabilities, standardization of mutual recognition results, revenue implications for medical institutions, and perceptual differences between medical practitioners and patients. These issues will be explored below.

1.1.5.1 The definition of legal liability for disputes arising from mutual recognition of results is not clear

Currently, there has been no clear legal provision on the mutual recognition of medical examination and medical image test results, so it is difficult to define the boundary of power and responsibility of medical institutions (He & Qiu, 2022). Doctors do not have a clear definition of their responsibilities, so they do not know who should take responsibility in the case of medical disputes, and patients do not know how to protect their legitimate rights and interests. According to the latest Physician law of the People's Republic of China adopted on

August 20, 2021, for those who have issued medical certification documents without personal examination, if the circumstances are relatively minor, they shall be ordered to correct their mistakes and have their illegal gains confiscated; if the circumstances are serious, they shall be ordered to suspend their practicing activities for more than six months but less than one year, or even have their practicing certificates revoked (The Standing Committee of the Chinese People's Congress, 2021). Due to the lack of relevant legal protection, doctors are always cautious in the mutual recognition of results (Xiao et al., 2019).

1.1.5.2 - The standards for mutual recognition of examination results have not been unified

At the institutional level, it is difficult to unify the standards for mutual recognition of examination results, and the implementation progress is slow. First, due to the different levels of economic and social development in different regions, there are certain differences in the development status of medical service capacity, so the establishment of mutual recognition standards for results is also affected by regional differences. Beijing, Tianjin, Hebei, and Shandong were the first to go from mutual recognition within key cities to mutual recognition across provinces, but there are still many objective differences in the examination equipment, the level of doctors in the laboratory department, and the judgment of the attending doctor. Secondly, in the process of implementing mutual recognition of examination results, hospitals are combined with their own actual situation and development level to establish personalized mutual recognition of results, so it is difficult to unify mutual recognition standards. The above two issues involve the level of economic development and resource allocation capacity, and in order to fundamentally alleviate the differences among regions and hospitals, and build a scientific and standardized mutual recognition standard for results, it is necessary to pay attention to the rational allocation of health resources (Xiao et al., 2019).

1.1.5.3 Decrease in the income of medical institutions

Some medical institutions support the mutual recognition of examination results, but in the specific implementation process, there are negative responses, which leads to the mutual recognition of results becoming a mere formality and the implementation progress being slow. Patients' tests and examination fees are an important source of income for medical institutions, and after the implementation of mutual recognition of examination results, the income of hospitals will be affected to a certain extent (He et al., 2021).

1.1.5.4 Doctors' concerns

Doctors are worried that they will face a new moral trial, and in order to achieve the best publicity effect, some media have hit the topic of “no need to repeat the examination in another hospital”. In fact, not all examinations are exempt from repetition, because the development of a disease is dynamic rather than static, which determines that many clinical examination results may change over time, and may also differ during the patient's different condition period as well as the urgency of the condition, requiring real-time monitoring. The document issued by the National Health Commission also clearly pointed out that the results of other examinations are mutually recognized under the premise of ensuring that the diagnosis and treatment of diseases are not affected. Out-of-context publicity by some media will cause “misunderstanding” among patients. With the publicity of “no need to repeat the examination in another hospital” gaining popularity, doctors are easy to be questioned about the examination, which is also harmful to the diagnosis and treatment process (Xiao et al., 2019).

1.1.5.5 Low cognitive level of the patients

The difference of cognitive level directly affects the attitude and behavioral orientation of patients towards the mutual recognition of medical examination results, so the improvement of cognitive level is very important for the development of the mutual recognition of results (He & Qiu, 2022). First of all, the knowledge structure and education level of patient groups are different, and some patients do not understand and support the mutual recognition of results, which makes it difficult to carry out the mutual recognition of results. Secondly, patients do not understand the benefits brought by the implementation of mutual recognition of results in hospitals, so they are indifferent or even do not support the mutual recognition of results. In some extreme cases, in the process of diagnosis and treatment, some patients strongly request the doctor to use the previous examination results report, but the mutual recognition report is not practical for the current diagnosis and treatment of disease. Patients may come from urban or rural areas, and patients with different backgrounds have different degrees of cognition and understanding of mutual recognition of results (Sun & Gong, 2019).

1.1.6 Research problem

Medical examinations are an important part of clinical diagnosis and treatment, and the diagnosis and treatment of modern diseases depend more and more on clinical examinations. Since 2006, although China has continued to promote mutual recognition of medical examination results and the scope of mutual recognition of examinations has become more and

more extensive, due to the adjustment of the interests of different stakeholders throughout the policy implementation process, the interests of key stakeholders cannot be reasonably satisfied, the results of mutual recognition are not satisfactory, and patients still feel that the phenomenon of “repeated/over-examination” is serious (Xiao et al., 2019). The lack of mutual recognition of medical examination results is a problem that has not been properly solved in China’s medical service sector.

In China there have been studies on the mutual recognition of medical examination results, mainly focusing on the analysis of the current situation and using qualitative research to uncover existing problems (Xiao et al., 2019) and to find out whether the policy is in place. However, there is no systematic theoretical system and no mature management model to guide the mutual recognition of medical examination results and there is insufficient research on the influence mechanism of stakeholders’ willingness to implement mutual recognition results in the process of policy implementation. It is not clear how different interest demands affect the implementation of this policy in the process of interaction, and there are many problems that need to be further explored.

1.2 Research questions

Based on the above background, this study focuses on the network interaction of stakeholders in the process of mutual recognition of medical examination results from the perspective of embeddedness, systematically analyzes the influencing factors of stakeholders’ willingness to implement mutual recognition of results in medical examinations, and aims at answering the following four research questions:

- (1) Who are the stakeholders in the implementation of the policy of mutual recognition of examination results? Is there a difference between core stakeholders and non-core stakeholders?
- (2) From the perspective of embeddedness, what are the embeddedness levels that affect the mutual recognition of medical examination results?
- (3) What factors in each embeddedness level influence stakeholders’ willingness to implement mutual recognition of results?
- (4) What is the influence mechanism of these embeddedness factors on stakeholders’ willingness to implement mutual recognition of results?

1.3 Research significance

On a theoretical viewpoint, this research aims at contributing to enrich the research system of the Stakeholder Theory. Since the 1980s, academic circles have conducted extensive and in-depth research on this theory and obtained abundant results. Nevertheless, its development is not yet mature since there are still many major theoretical problems that need to be broken through and solved, and the shortcomings provide innovation space for this research. Although the Stakeholder Theory has been applied to a certain extent in the research of the medical service industry, there is still a lack of research literature on the issue of mutual recognition of medical examination results. This thesis may help to improve the explanatory power of this theory in the field of medical services.

In addition, it may provide a new perspective for the research of the theory of mutual recognition of medical examination results. Human economic activity is carried out in a certain social context, and the “embeddedness” has been regarded as a process in which social relations affect economic activities (Granovetter, 2018). “Embeddedness” affects an individual’s willingness and cognition of a particular behavior (Uzzi, 1997). In the process of mutual recognition of medical examination results, the willingness of stakeholders to implement mutual recognition will be affected by their own social network and social environment. Based on the Embeddedness Theory, this study analyzes the influence of embeddedness on stakeholders’ willingness to implement mutual recognition and its mechanism, which not only enriches the research perspectives and content of stakeholder and social network analysis, but also provides theoretical support for promoting mutual recognition of medical examination results.

In practical terms, the Chinese government has always attached great importance to the development of medical services. Since 1979, it has carried out several explorations of medical system reform and launched a new round of reforms in 2009. The basic ideas of those carried out before 2009 were mainly to reform the price formation mechanism of medical services, strengthen the independent economic accounting of public medical institutions, introduce social forces and competition mechanisms, and expand the supply of medical services. However, due to an inadequate understanding of the special laws of medical and health undertakings, some experiences of economic system reform were simply copied in the process of reform. In particular, spurred by economic interests, medical institutions generally formed a tendency to pursue profits, and the construction of medical security systems was neglected. In the process of continuous weakening, a large number of self-paying people are exposed to the risk of

medical expenses over a period of time, resulting in a strong social response to the problem of “difficult and expensive medical treatment to see a doctor”. As an important part of personal health costs, the continuous increase of the per capita examination fees makes the problem of “expensive medical treatment” go from bad to worse.

Medical examinations can provide reliable clinical objective data for clinical diagnosis, treatment monitoring and prognosis evaluation. TCM examinations in modern medicine play an important role in clinical diagnosis and treatment. The mutual recognition of medical examination results has become a hot topic in China’s medical industry, attracting the attention of patients and clinical care. The mutual recognition of medical examination results is an important measure in China’s medical system reform, which aims to improve residents’ medical experience, reduce examination expenses, and reduce the consumption of public medical resources. It has positive economic and social benefits.

Based on the Stakeholder Theory and the Social Network Theory, this study analyzes the influence mechanism of stakeholders’ willingness to implement mutual recognition of results in the process of policy implementation from the perspective of embeddedness, which provides guidance and reference for promoting the effective implementation of mutual recognition of medical examination results.

1.4 Research purpose

Based on the Stakeholder Theory and the Social Network Theory, this research aims to explore the influencing factors of stakeholders’ willingness to implement mutual recognition of medical examination results in China. Through literature review and social statistical survey, stakeholders of mutual recognition of medical examination results are identified. From the perspective of embeddedness, the relationship among the embeddedness, organizational legitimacy, governmental intervention and stakeholders’ willingness to implement the mutual recognition implementation results is studied, and the internal mechanism of the influence of the embeddedness on stakeholders’ willingness to implement the mutual recognition of results is deeply revealed, so as to provide scientific theoretical basis and methods for promoting the effect of mutual recognition of medical examination results and reducing residents’ medical burden.

1.5 Research methods

In this study, we adhere to the paradigm of management research, proposing hypotheses through theoretical analysis. These hypotheses are based on an extensive literature review of relevant theories. We explored the levels of embeddedness among stakeholders in the mutual recognition of medical examination and testing results, constructing a theoretical conceptual model centered around this. The model aims to reveal the factors influencing the willingness to recognize medical examination and testing results from an embeddedness perspective. The research process involves the following methods:

(1) Literature review: We systematically reviewed and summarized the literature related to stakeholder theory, social network analysis theory, and embeddedness theory. This included integrating relevant variables and constructing a theoretical conceptual model on the influence of mutual recognition willingness in medical examination and testing results from an embeddedness perspective, using deductive and inductive methods.

(2) Expert consultation: This study selects experts engaged in health administration management, hospital administration management, and medical and health system reform for expert consultation. Utilizing the Mitchell (1997) scoring method, we classified and ranked stakeholders involved in the mutual recognition of medical examination and test results, aiming to identify those stakeholders who have a significant impact on the research topic. This process not only helped us in identifying key groups of stakeholders but also laid a solid foundation and clear direction for the subsequent questionnaire survey.

(3) Questionnaire survey: This method was used to investigate the impact of stakeholder interactions on the mutual recognition of medical examination and testing results from an embeddedness perspective. We adopted or adapted existing scales and measurement methods to design and measure variables such as the level of embeddedness of stakeholders, organizational legitimacy, governmental intervention, and the influence on mutual recognition willingness. The survey was designed using a Likert 7-point scale and distributed to a defined sample to collect relevant data. The selection or adaptation of scales was primarily based on the impact factor of the source journals, reliability, validity, citation frequency, and applicability in the Chinese context. For foreign language scales, a back-translation procedure was employed to ensure content validity. Data collection was conducted using the Questionnaire Star platform. A small-scale pilot study was administered prior to the main study to analyze reliability and exploratory factors, forming the final survey questionnaire. The main study targeted key groups identified through expert consultation, which was conducted using a consultation questionnaire.

Data were collected through a detailed process of distribution, collection, screening, and organization, ensuring the provision of data for subsequent empirical analysis.

(4) Empirical research: The empirical part of this study was based on the constructed theoretical model, employing various statistical methods including descriptive statistics, reliability and validity analysis, structural equation modeling, and hierarchical regression analysis. We first pre-processed the collected data, followed by descriptive statistical analysis. Next, the data quality was assessed through reliability and validity tests. The study also used structural equation modeling to test hypotheses and hierarchical regression analysis to assess the mediating effect of organizational legitimacy and the moderating effect of governmental intervention. This study utilized SPSS 25 and AMOS 24 for statistical analysis.

(5) Focus groups discussions: Focus group discussions were employed to gain a deeper understanding of the results, practical issues and perspectives of relevant groups, providing valuable qualitative data for interpretation of the quantitative research. Focus group members included experts in the healthcare industry and direct stakeholders in medical examination and testing results.

1.6 Research content and chapter arrangement

Based on the above research purpose, the content of this thesis is divided into six chapters.

Chapter 1: Introduction – This chapter first expounds the reality and policy background of this research, clarifies the problems to be studied and the goals to be achieved, and then proposes the research significance and purpose, introduces the research methods, content and structure arrangement.

Chapter 2: Literature review – This chapter systematically reviews the relevant literature on the Stakeholder Theory, Social Network Theory and Social Capital Theory. It summarizes the development of the Stakeholder Theory from concept definition, identification and classification, stakeholder behavior analysis and behavior interpretation. The relationship among embeddedness, organizational legitimacy, governmental intervention, and behavioral willingness of stakeholders are analyzed and hypotheses proposed. On this basis, a theoretical model is built.

Chapter 3: Research design and methods – This chapter focuses on the design and methodology of the research, exploring the factors influencing the willingness for mutual recognition of medical examination and test results from an embeddedness perspective. Initially, the chapter delineates the composition of stakeholders involved in the mutual recognition of

medical examination and test results. Subsequently, it introduces the implementation and methods of expert consultation, including the selection of experts and consultation techniques. The design of the questionnaire is a focal point of this chapter, detailing the conceptualization of the questionnaire content, design process, as well as the selection of variables and measurement indicators. The data collection and processing section elaborates on the critical details of sample selection, data collection methods, and data quality control.

Chapter 4: Empirical results, analysis, and discussion – This chapter systematically presents the empirical results of the study. It starts with the classification of stakeholders involved in the mutual recognition of medical examination and test results based on expert consultations. Then, it elaborates on the results of the preliminary survey, including descriptive analysis of a small sample, reliability analysis, validity analysis, and correlational analysis. The discussion of the formal survey results forms the core of this chapter, covering descriptive statistical analysis of the sample, variable analysis, reliability testing, confirmatory factor analysis, testing for common method bias, examination of direct effects, testing of the mediating effect of organizational legitimacy, and exploration of the moderating effect of governmental intervention. The discussion section introduces focus groups to explore the main findings and provides in-depth analysis of the unsupported hypotheses.

Chapter 5: Conclusions – This chapter summarizes and reflects on the entire study. It first revisits the main findings of the research, including the identification and categorization of stakeholders, the impact of embeddedness factors, the role of organizational legitimacy and governmental intervention, and the in-depth insights from focus groups. Following this, the chapter discusses the contributions of this study to management theory and practice, encompassing theoretical extensions and practical implications. Based on the research findings, a series of strategies and recommendations are proposed. Finally, the chapter discusses the limitations encountered during the research process and suggests future research directions and potential breakthroughs based on the current study's findings.

1.7 Main contributions

The contributions of this study primarily manifest in two areas:

(1) Expansion of research perspectives: This research probes into the influence of embeddedness on stakeholders' willingness towards mutual recognition of medical examination results. Embeddedness delineates the relational structure of diverse stakeholders involved in this mutual recognition, influenced by network factors like structure, relationship, and cognition.

Stakeholders, under embeddedness, become interconnected and mutually reliant. Their willingness for mutual recognition is shaped both by their intrinsic social networks and environmental context and by the levels of embeddedness. Past research on the mutual recognition of medical examination results predominantly centered on current state analysis, uncovering existing issues (Xiao et al., 2019), and evaluating the effective implementation of relevant policies. While the Stakeholder Theory has found some application in the medical services arena, its utilization in mutual recognition of medical examinations remains limited. In contrast, this study, leveraging the lens of embeddedness, delves into the impact of structural, relational, and cognitive dimensions on mutual recognition willingness, thereby broadening the horizon of the theory and enriching its overarching framework.

(2) Mechanisms of embeddedness influence: A survey of existing literature reveals a burgeoning academic interest in how embeddedness sways stakeholders' willingness. Yet, its specific effect on the willingness for mutual recognition of medical examination results has seen sparse exploration. This research demystifies the workings of embeddedness on such willingness across its varied layers. Concurrently, it discerns the mediating role of organizational legitimacy and the moderating impact of governmental intervention on this willingness.

1.8 Summary

Anchored in both practical and theoretical backdrops, this chapter sheds light on the tangible challenges that emerged post the inception of the policy on mutual recognition of medical examination results. It then distills the pressing research quandaries - borne out of these real-world issues - elucidating the objectives of the study and its importance. Lastly, harmonizing the research queries with its goals, the chapter delineates the core content of the thesis, organizes its layout, and introduces the methods employed.

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Chapter 2: Literature Review

2.1 Stakeholder theory

As we delve into the stakeholder theory, it is crucial to understand its developmental trajectory. This understanding aids in fully grasping the core concepts and application areas of the theory.

2.1.1 Development of the stakeholder theory

In the 1960s and 1970s, the concept of stakeholder began to be applied to the field of strategic management. Ansoff (1965) elaborated on how to identify the importance of key stakeholders to enterprises in his classic book *Corporate Strategy*, and King and Cleland (1978) also developed a set of methods to analyze stakeholders in strategic decision-making.

The classic book *Stakeholder Management: A Strategic Approach* by Freeman (2010) is considered groundbreaking. His contributions to the Stakeholder Theory lie in his powerful expression of the concept of stakeholder and systematic application of the theory to the field of strategic management (Lorca & García-Diez, 2004). The Stakeholder Theory developed rapidly after Freeman (Donaldson & Preston, 1995).

The Stakeholder Theory has been used and interpreted by many different scholars in various ways, often resulting in contradictory views. Donaldson and Preston (1995) believe that the development and evaluation of the Stakeholder Theory are based on three elements: the accuracy of description, the effectiveness of analytical instruments, and the rationality of norms. Accordingly, Donaldson and Preston (1995) split the stakeholder research into three categories: the descriptive, the instrumental, and the normative. They further argued that the generalization of the concept is often caused by three different types of research on the three different levels of the Stakeholder Theory that are not clearly distinguished but intertwined, and their research provides a relatively clear path for its study.

Freeman's works quickly make the Stakeholder Theory one of the frontier fields in management. He established the theoretical framework of stakeholder analysis, pioneered the systematic study of stakeholder problems from the perspective of individuals, and opened up a broad research space for the study of this theory. To be specific, the contributions of Freeman mainly include the following aspects:

Firstly, Freeman systematized the Stakeholder Theory for the first time. The concept of stakeholder is not Freeman's invention and had been extensively studied by previous researchers. However, previous research only reflected the thoughts or views of stakeholders scattered among other theories and did not systematize the thoughts or views of stakeholders into a theory or put the research on stakeholders in a central position. In other words, the research on stakeholders was only one aspect to be considered in the research. Freeman's contribution to the Stakeholder Theory lies in that he expressed the concept in a powerful way so that other scholars could use this concept to revise their understanding of enterprises (Friedman & Miles, 2006). In view of the fact that drastic changes in the real environment have brought challenges to enterprise management, Freeman (2010) proposed that enterprise management must pay attention to stakeholders and keep stakeholder analysis as a habit. However, how to systematically investigate stakeholders, their interests and the bidirectional influence between them and enterprises in management to form strategic assumptions and formulate management strategies? Existing theories do not provide managers with such an operational theoretical framework or model. Therefore, Freeman's enterprise-centered strategic management model can be said to provide for the first time a theoretical framework for managers to deal with the stakeholder problem in the real environment. At this point, from the perspective of strategic management, Freeman systematized the stakeholder view and raised it to the level of theory (Phillips, 2003), which is of great significance both from the perspective of theory and management practice.

Secondly, the stakeholder map contains rich content and is extremely enlightening. In previous works before Freeman, scholars rarely specifically studied who the stakeholders in an enterprise actually were. In most studies, they either considered stakeholders as a general environmental factor, or only considered individual ones in the environment significant to their research. Many stakeholders that are of great significance and value to enterprise management had not received attention, such as consumer rights protection groups, media, and communities. In addition, Freeman identified the specific stakeholders in the enterprise environment and clearly and graphically described what is now regarded as the classic enterprise stakeholder map (Key, 1999). In this map, the enterprise is located at the center, and the stakeholders are radially around it, with the enterprise directly connecting with each stakeholder. From this map, we can see that Freeman not only identified stakeholders but also considered the special and hostile stakeholders not involved in most studies by drawing on corporate social responsibility (CSR). At the same time, the arrows between the enterprise and stakeholders are bidirectional, indicating that the map considers the interaction between the enterprise and the stakeholders,

which is consistent with Freeman's definition of a stakeholder as "any group or individual that can influence or be influenced by the realization of an organization's goals". Also, Freeman basically classified stakeholders from the three dimensions of ownership, economic dependence, and social interests, and realized that their influence on enterprises can be divided into economic, technological, social, political, and managerial, which makes people realize that stakeholders are not homogenous and that managers can manage according to the different characteristics of different stakeholders. Meanwhile, Freeman's stakeholder map is highly scalable. The bidirectional arrow connection between the enterprise and stakeholders contains the idea of the relationship, while the thought of stakeholder alliance contains the idea of the network. All these have reserved a broad theoretical space for the enrichment and deepening development of the subsequent Stakeholder Theory.

Thirdly, Freeman provided a systematic and complete stakeholder strategic management framework model. Different from the related research done by previous scholars, Freeman (2010) believes that the shift from "strategic planning" to "strategic management" meant an important action-oriented shift. It is not enough to plan only for the concerns of stakeholders. The development of programs and policies that can be implemented and controlled should be the ultimate outcome of the plan. The traditional strategic management theory, on the other hand, ignores the influence of stakeholders on the formation of strategy, arguing that the industrial structure itself determines the correct strategy (Friedman & Miles, 2006). Therefore, Freeman applied stakeholder analysis methods to corporate strategic management and programmatically explained its implementation mechanism. He looked at stakeholders from the perspective of the enterprise and focused his research on strategic management. The effective stakeholder management, like other forms of management, requires theories that can be applied to practice, which Freeman provided for the analysis of specific stakeholder management strategies to guide management practice. But unlike traditional strategic management processes, the stakeholder impact was fully considered in his analytical framework which serves for the formulation of corporate stakeholder management strategies centered on stakeholder identification, stakeholder behavior analysis and interpretation, the formation of general management strategies, the formulation of both specific and comprehensive management plans. According to the two dimensions of stakeholders' cooperation potential and competitive threat to the enterprise, Freeman defined a four-quadrant classification matrix and gave corresponding management strategies, which also allows managers to choose different plans for implementation according to the theoretical framework for different situations. In addition to its significance in management practice, Freeman's theoretical framework has also become the

basis for many scholars to analyze problems.

While the contribution of Freeman's stakeholder management theory is self-evident, shortcomings are inevitable. The shortcomings of Freeman's stakeholder management theory are mainly reflected in the following aspects:

First, Freeman's research did not point to specific criteria for stakeholder identification and prioritization. Although he identified stakeholders as "any group or individual capable of influencing the realization of an organization's goals or being influenced by such realization", and described possible stakeholders in the enterprise-centric star map, this only gave managers a general impression of who is likely to be a stakeholder in the organization and who has an impact on the enterprise's business goals. It is not enough for enterprises to have only a general understanding of the identification of stakeholders, because the stakeholders of the enterprise are different at different points in time, and what enterprise managers should do when conducting stakeholder management is to determine what the specific stakeholders of the enterprise are at each given moment. If only the definition given by Freeman is used to identify stakeholders, the identification process of stakeholders is too subjective. Therefore, Freeman did not provide a clear explanation on the primary fundamental issue of stakeholder management of enterprises, that is, how specific stakeholders are identified at a specific point in time and based on objective criteria. Some subsequent scholars, such as Mitchell et al. (1997), conducted research on this problem.

In addition, Freeman's study did not distinguish the degree of importance of stakeholders. According to his stakeholder map, the distance between stakeholders and the enterprise is equal. Although Freeman noted the differences among stakeholders in his research, such as recognizing the ownership relationship, economic dependence relationship, and social interest relationship between stakeholders and the enterprise, he did not distinguish how important stakeholders are to the enterprise and this is a seminal point. The resources of an enterprise are limited and it must face the requirements of many stakeholders at the same time. In most cases, the existing resources cannot meet the requirements of all stakeholders, so which stakeholder should the enterprise give priority? The answer to this question will determine how resources are allocated among existing stakeholders, and the solution to this problem is directly related to the effectiveness of stakeholder management and the realization of enterprise management goals.

Second, Freeman's research ignored many management scenarios that should be considered in corporate stakeholder management. Although in his stakeholder map, the arrows between the enterprise and stakeholders are bidirectional, in the specific analysis, he simply considered the

impact of stakeholders' behavior from the perspective of the enterprise, and did not fully consider stakeholders' perception of the enterprise behavior. Affected by enterprise behavior, stakeholders will constantly adjust and take different actions towards the enterprise, which in turn will have an impact on its behavior. Therefore, the relationship between the enterprise and stakeholders should be a bidirectional interaction. Being too enterprise-centric and ignoring such interaction can only greatly reduce the effectiveness of the analysis. In the real enterprise environment, stakeholders are not only connected to the enterprise, but there may also be various connections among them which affect their relationships. Although Freeman also mentioned that managers need to perform alliance analysis when formulating management strategies, that is, the potential for alliances among stakeholders, he did not delve into the reasons for such alliances (Friedman & Miles, 2006).

In addition, the relationship among stakeholders is not as simple as the alliance analysis, and whether these stakeholders cooperate, or conflict will affect their relationship with the enterprise. Stakeholders also have their own stakeholders, which also affects the established relationships (Rowley, 1997). Although Freeman's interpretation also mentioned that the second step is to conduct a stakeholder analysis of stakeholders, he simply used it as a tool to understand and explain stakeholder behavior, without specifying what impact such behavior will have, and the possible connection between stakeholders and the enterprise. These complex relationships are reflected in the follow-up network research conducted by Rowley (1997). Freeman's stakeholder map only described a situation centered on the enterprise, while in the real environment, the enterprise may or may not be in this central position. Therefore, if we can consider the status of enterprises in the real environment, it may be more conducive for managers to make realistic management decisions.

The formation of an enterprise overall stakeholder management plan is not the simple sum of specific stakeholder management plans, and in this regard, Freeman did not provide a convincing overall stakeholder management model. When dealing with stakeholder issues, enterprises are not only facing the pressure of one stakeholder, but also of multiple stakeholders. Sufficient resources used by an enterprise to deal with the problems of a single stakeholder may be insufficient when dealing with the problems of multiple stakeholders at the same time. Under such pressure, the formulation of an overall management plan must picture multiple relationships (Rowley, 1997). Although Freeman believed that it is necessary to give an idea and process of a comprehensive approach to multiple stakeholders on multiple issues, he did not provide such one (Key, 1999). When developing stakeholder management strategies, Freeman followed the idea of first identifying specific stakeholders, then conducting behavior

analysis, behavior explanation, and alliance analysis for each stakeholder, proposing general management strategies, specific stakeholder plans, and finally proposing a comprehensive stakeholder management plan. Since he regarded the enterprise and stakeholders as a one-to-one correspondence, the focus of his analysis was how to form a management plan for each specific stakeholder, not giving a satisfactory answer to the formulation process of a comprehensive plan. Some scholars have pointed out that Freeman's theory is only a management strategy aimed at stakeholders of enterprises in general. However, the formation of stakeholders and strategic plans at different stages of growth of the same enterprise or in different types of enterprises do have their own particularities. Freeman's study did not address this issue (Jawahar & McLaughlin, 2001).

2.1.2 Concept definition of stakeholders

In defining stakeholders, it is essential to address the question of who the stakeholders of a corporation are. The definition of the Stanford Research Institute (1963) is believed to be the earliest, and it appears in an internal memorandum of the Stanford Research Institute. In this memorandum, stakeholders were defined as groups without whose support the organization would cease to exist (Freeman, 2010). Since then scholars have proposed a large number of definitions, and the perspectives of these definitions and the theoretical basis on which they are built are different, which actually reflects that the development of the Stakeholder Theory is still in a relatively active and chaotic period, and that a unified theoretical foundation and research paradigm have not yet been formed (Friedman & Miles, 2006). Among all definitions, the one provided by Freeman (2010) is arguably the most influential. Freeman defined stakeholders as any individual or group that can affect the achievement of an organization's objectives, or is affected by the realization of these objectives. This definition has been adopted in many studies. Friedman and Miles (2006) summarized 55 definitions in chronological order from 75 papers since the Stanford Research Institute began dabbling with stakeholder issues in 1963, reflecting an overarching picture. Different scholars have proposed different definitions based on different studies, and none of them is universally agreed (Donaldson & Dunfee, 1994).

Scholars usually divide stakeholders into broad and narrow concepts (Clarkson et al., 1994). While a broad concept such as Freeman's leaves a wide space for subsequent research, some scholars adopt the "narrow" concept of stakeholders, and try to define them in a small range. In the narrow sense, the concept only captures a certain key feature of stakeholders, highlights the part of stakeholders' interests related to the core economic interests of the enterprise, and

focuses on their legitimacy (Mitchell et al., 1997). Scholars such as Clarkson (1995), Blair (1995), Kochan and Rubinstein (2000), and Orts and Strudler (2002) emphasized that stakeholders provide dedicated capital to enterprises and that they take on certain risks as a result.

By comparing the broad and narrow concepts, the broad concept is mainly based on the description, which emphasizes those individuals or groups that are ultimately affected in the real life of the enterprise, regardless of whether these individuals or groups have legal rights. The narrow concept, on the other hand, is largely based on normative principles, emphasizing a small number of legitimate individuals or groups.

2.1.3 Stakeholder identification and classification management

The identification and classification of stakeholders have always been a basic issue that scholars pay attention to. From the existing literature, in the late 1980s, scholars have generally realized that it is not enough to define the stakeholders of an enterprise, and that it is also necessary to identify and classify them. Although the survival and development of enterprises are inseparable from the support of all stakeholders, the influence of different types on the enterprise and the degree to which they are influenced by enterprise activities are different (Donaldson & Dunfee, 1994). Therefore, the classification of stakeholders according to different criteria or analysis dimensions can help managers to implement different management strategies for different types of stakeholders.

2.1.3.1 Multi-dimensional classification and its application

As mentioned above, Freeman (2010) classified stakeholders from three dimensions: ownership, economic dependence and social interests. Stakeholders who possess ownership of the enterprise encompass the managerial personnel, the directors, and all others who hold company's shares. Those who have economic dependence on the enterprise include managers, creditors, internal service agencies, employees, consumers, suppliers, competitors, local communities, management agencies and others. Those related to the social interests of the enterprise involve special groups, government leaders and the media.

Frederick et al. (1988) divided stakeholders into direct and indirect in accordance with the degree to which they may influence decision-making. The former primarily refers to stakeholders who have direct market transactions with enterprises, such as shareholders, employees, creditors, suppliers, retailers, consumers, and competitors, while the latter concerns chiefly stakeholders who have non-market transactions with enterprises like the central

government, local governments, foreign governments, social activity groups, media, the general public, and other groups.

Savage et al. (1991) believe that previous studies did not construct a reasonable relationship between the classification of stakeholders and their management strategies. Therefore, they hold that the primary task of stakeholder management is to classify them according to a certain standard, which should be stakeholders' potential for threat or potential for cooperation with the enterprise. Based upon this standard, they classified stakeholders into four types, namely, supportive, marginal, mixed blessing, and non-supportive. In fact, the classification dimension adopted by Savage et al. is the same as that adopted by Freeman (2010) when proposing the general management strategy of stakeholders. However, Freeman did not put forward it as the standard for stakeholder classification while Savage et al. further came up with the management strategies that match each stakeholder. The first type is supportive stakeholders, characterized by low potential for threat and high potential for cooperation, which is consistent with the features described by Freeman's "offensive" strategy. In terms of strategy selection, the one proposed by Freeman is "offensive" and that of Savage is "involving". The former places more emphasis on the power of the enterprise, while the latter takes more consideration on balancing stakeholders' interests. The second type is marginal stakeholders, characterized by low potential for threat and low potential for cooperation, which stay in line with the characteristics described by Freeman's "holding" strategy. In terms of strategy selection, Savage et al. adopted a strategy similar to Freeman, namely "monitoring", to guard against changes in the characteristics of such stakeholders due to changes in specific circumstances. The third type is mixed blessing stakeholders, characterized by high potential for threat and low potential for cooperation, which is corresponding to the characteristics described by Freeman's "defensive" strategy. The strategy advocated by Savage et al. is also "defending". The fourth type is non-supportive stakeholders, who have high potential for cooperation and high potential for threat and correspond to the characteristics described by Freeman's "swinging" strategy. Nevertheless, Savage et al. proposed a "collaborative" strategy, differing from that of Freeman.

From the research on stakeholder classification and strategy matching by Savage et al. (1991), the same classification dimension as Freeman's was adopted. However, in terms of strategy selection, Savage et al. have taken more consideration on the participation and cooperation of enterprise stakeholders. These authors believe that the significance of these four types of stakeholders to enterprise management decisions is varied. They furthered Freeman's research when proposing that managers had better minimize the interests of marginal stakeholders and maximize the interests of supportive and mixed stakeholders to increase their

support for the enterprise. In addition, Savage et al. (1991) clearly put forward that stakeholders' potential for threat and potential for cooperation with the enterprise are variable, and it is one of the pivotal tasks of enterprise managers to strive to guide the potential in a direction beneficial to the enterprise. Their research, demonstrating a dynamic perspective, has broken the static model of Freeman's research that only involved four management strategies for four quadrants each.

Unlike Freeman (2010), who only proposed the importance of stakeholders' potential for threat and potential for cooperation in the formulation of enterprise management strategies, Savage et al. (1991) analyzed in detail which factors may affect stakeholders' potential for threat and potential for cooperation with the enterprise. The potential for threat derives from the resource dependence, the capability of stakeholders to form alliances, and their ability to have an influence on specific issues. The analysis of the quality and continuity of the relationship between enterprises and stakeholders is conducive to evaluating stakeholders' threats. Their potential for cooperation depends upon their willingness and capability to develop interdependence with enterprises and the more they rely on enterprises, the higher their willingness to cooperate. Moreover, stakeholders' potential for cooperation is also affected by the business environment and in some circumstances, they must seek cooperation with enterprises to survive in competition. It is worth mentioning that, similar to Freeman's (2010) research, the thought of alliance among stakeholders also reflects the network theory. Although Savage et al. did not clearly propose that their research was based upon the Resource Dependence Theory, they believe that the interdependence of resources between enterprises and stakeholders determines stakeholders' potential for threat and potential for cooperation, which displays the idea of Resource Dependence Theory. Their study serves as the source for later scholars' research who have adopted this idea as their research foundation. Additionally, Savage et al. (1991) hold that the analysis of the quality and continuity of the relationship between enterprises and stakeholders will help evaluate the threats posed by stakeholders. Although they did not explain how to conduct such an evaluation, their research contains the idea of behavioral variables of the relationship between enterprises and stakeholders, leaving a broad space for subsequent research.

Charkham (1994) divided stakeholders into contractual and public stakeholders according to whether they have transactional contractual relationships with enterprises. The former chiefly includes shareholders, employees, customers, distributors, suppliers, and creditors; while the latter involves all consumers, regulators, government departments, pressure groups, media, and local communities. Clarkson (1995) further holds that stakeholders can be divided into

voluntary and involuntary stakeholders pursuant to the types of risks they bear in business activities. Voluntary stakeholders refer to the individuals and groups that have actively invested in material or human capital in the enterprise, while involuntary ones are the individuals and groups that have passively taken risks due to business activities of the enterprise. When studying the issue of stakeholders, Clarkson (1995) also noticed that their significance in the survival of enterprises can be varied. In this regard, he divided them into primary and secondary based on this standard. The former are the groups that have a direct influence on the survival of enterprises; without their continuous participation, enterprises cannot survive, including shareholders, investors, employees, customers, suppliers, and other groups. The latter are the groups that indirectly affect operations, although they do not trade with enterprises, and do not play a vital role in their survival, such as environmentalists, media, scholars, and other specific interest groups.

Clarkson (1995) also mentioned that the interests of stakeholders are sometimes in conflict, indicating that managers inevitably have to solve the conflicts among the primary stakeholders in the process of wealth distribution. If any stakeholder group thinks that they are not treated fairly or adequately, whether being employees, customers, or shareholders, they will make a choice and eventually withdraw from the system. If this happens, the survival of the enterprise will be threatened. Clarkson not only placed an emphasis on the significance of the primary stakeholders for the survival of the enterprise but recognized the weight of balancing those stakeholders' interests. This author also made a combination of the research method of social responsibility with the research on Stakeholder Theory, which is his great theoretical contribution. However, his research may also be considered flawed in that he only proposed the RDAP (Reactive, Defensive, Accommodative and Proactive) model of stakeholder management strategy to compensate for the lack of research on Corporate Social Responsibility. This is a research limitation for he merely employed the stakeholder framework as a tool to analyze and evaluate corporate social performance thus failing to make explanations for the application of the RDAP model in stakeholder management. Moreover, Clarkson proposed the classification of primary stakeholders and secondary stakeholders, which is widely accepted by scholars, yet he did not establish the necessary connection between the stakeholder classification and stakeholder management strategies. This means that he did not point out what kind of specific management strategies should be adopted for different stakeholders, since his original focus was not on stakeholder management.

Carroll and Buchholtz (2012) divided stakeholders into core, strategic, and environmental stakeholders. Core stakeholders are individuals or groups that have a vital relationship with the

enterprise; strategic stakeholders are individuals or groups that matter when an enterprise faces specific threats or opportunities; environmental stakeholders comprise the enterprise's external environment.

Wheeler and Sillanpa (1998) introduced the social dimension into the definition of stakeholders, and further divided them into four categories combined with the closeness dimension proposed by Clarkson (1995). The first category is primary social stakeholders, who are directly impacted and affected by the enterprise and involved in business activities, such as local communities, suppliers and business partners, customers, investors, employees, and managerial personnel. The second is secondary social stakeholders, who form an indirect connection with the enterprise through social activities, such as government and civil society, society and the outside world, pressure groups and trade unions, media and commentators, trade groups, and others. The third category is primary nonsocial stakeholders, who have a direct impact on the enterprise, but do not have contact with specific people, such as the natural environment, non-human species, and human descendants. And lastly, the fourth category is secondary nonsocial stakeholders, who do have some indirect impact on the enterprise yet without contact with people, such as environmental pressure groups, animal rights pressure groups, and others.

Walker (2002) evaluated stakeholders according to their varying levels of commitment to the enterprise, and then classified them into four types based on their attitudes and behavioral loyalty: full loyalty, vulnerable, insurable, and high-risk. Stakeholders with full loyalty are the most ideal type and are more active in both behavior and attitude, who enjoy their existing relationship with the enterprise and hope to maintain and strengthen this relationship. Vulnerable stakeholders have a favorable attitude towards the enterprise, who are also open and vulnerable to the influence of the enterprise's endeavors in obtaining more loyalty. They hold a positive attitude towards the nature of their relationship with the enterprise yet have reservations about deepening or maintaining this relationship. Insurable stakeholders are somewhat reluctant to keep in touch with the enterprise while still staying temporarily. In turn, the relationship of high-risk stakeholders with the enterprise is considered non positive, as they may intend to end the relationship in their own way. Walker (2002) believes that the ultimate goal in stakeholder management is to maximize the group of strategic stakeholders and commit to retaining these stakeholders with full loyalty.

Su et al. (2007) divided stakeholders into internal and external on the basis of their relationship with the enterprise. They believe that internal stakeholders are core ones, while external can be further divided into primary and marginal stakeholders. Based on the impact of

these stakeholders on the enterprise, all of them can be further divided into primary and secondary stakeholders.

In Table 2.1 below some representative classifications of stakeholders are presented:

Table 2.1 Representative classifications of stakeholders

Proposers	Time	Classification criteria	Source
Freeman	1984	Ownership, economic dependence, and social interests.	Freeman (2010)
Frederick et al.	1988	Direct stakeholders and indirect stakeholders whether there are a direct market transaction relationship with the enterprise, and the degree of influence on the enterprise decision-making.	Frederick et al. (1988)
Savage et al.	1991	Supportive, marginal, mixed blessing and non-supportive stakeholders - the potential of threat and cooperation to the enterprise.	Savage et al. (1991)
Charkham	1994	Contractual stakeholders and public stakeholders - whether there is a transactional contractual relationship with the enterprise.	Charkham (1994)
Clarkson et al.	1994	Voluntary stakeholders and involuntary stakeholders – the risks taken by them in business activities.	Clarkson et al. (1994)
Clarkson	1995	Primary and secondary stakeholders – their impact on enterprise survival.	Clarkson (1995)
Carroll and Buchholtz	1996	Core, strategic, and environmental stakeholders.	Carroll and Buchholtz (2012)
Wheeler and Sillanpa	1998	Primary social stakeholders, secondary social stakeholders, primary nonsocial stakeholders and secondary nonsocial stakeholders - the social dimension is introduced into the definition of stakeholders.	Wheeler and Sillanpa (1998)
Walker	2002	Full loyalty, vulnerable, insurable, and high-risk stakeholders based on their attitude and behavioral loyalty - the different levels of corporate commitment, stakeholders can be divided into.	Walker (2002)
Su et al.	2007	Internal and external stakeholders - their relationship with the enterprise.	Su et al. (2007)

The above idea of subdividing stakeholders into multiple dimensions has greatly deepened people's understanding. Nevertheless, these classification methods are still largely restricted to academic research without adequate operability, thus confining the practical application of the theory.

2.1.3.2 Mitchell score-based approach and its application

In the late 1990s, Mitchell et al. (1997) put forward a score-based approach to classify stakeholders, which is simple and easy to operate and widely praised by the academia and business realm, thus contributing to promote the application and practice of stakeholder theory.

Mitchell et al. (1997) think that the two fundamental issues of stakeholder theory are: who

are the stakeholders of the enterprise and who deserves the most attention. However, there has not been a unified understanding of the stakeholder management principle that Freeman claimed as “who or what is worth paying attention to”. Mitchell et al. (1997) believe that the Stakeholder Map proposed by Freeman (2010) is greatly beneficial for understanding the problem of enterprise stakeholders, yet it cannot explain how to distinguish between stakeholders and non-stakeholders. At the same time, this map is static, which is helpful for managers to understand the structure of stakeholders at a certain time, but fails to show the dynamic change trend of stakeholders. Moreover, it cannot demonstrate which stakeholders’ interests should be prioritized by managers. To improve this, Mitchell et al. (1997) proposed the stakeholder identification and salience theory, that is, whether an individual or group is a stakeholder of an enterprise is determined by whether they have certain characteristics, which primarily include legitimacy, power, and urgency. Specifically, legitimacy refers to whether an individual or group has been given the legal or moral rights of claim to the enterprise; power refers to whether an individual or group has the status, ability, and corresponding means to influence the enterprise’s decision-making; and urgency refers to whether the claims of an individual or group can demand the immediate attention of the enterprise’s managerial personnel.

Stakeholders of the enterprise are those who have at least one of these characteristics, while those who do not are not stakeholders. In the past, some narrow definitions of stakeholders only emphasized that stakeholders obtain the legitimacy characteristic through contractual or transactional relationships, legal power, moral power, risk status, or moral interests. However, they hold that it is not enough for stakeholders to only require them to have the legitimacy characteristic. Whether a group has legitimacy is not the only reason why managerial personnel should pay attention to them, nor is it the only attribute to confirm whether a group is a stakeholder. To define stakeholders, managerial personnel also need to consider individuals who have a certain power in the environment where the enterprise is located as well as those who demand urgent satisfaction. Therefore, power and urgency are also important characteristics for identifying stakeholders. Based upon this, it is fair to say that the stakeholder concept put forward by Mitchell et al. not only includes stakeholders who have legitimate requirements for enterprises but involves those who have power and urgency but not legitimacy.

When discussing which stakeholders will be prioritized by managers, Mitchell et al. (1997) proposed a classification into latent and expectant stakeholders. Latent stakeholders only have one of the three characteristics therefore they are not so important to managers. In turn, expectant stakeholders possess two of the three characteristics, and their importance is

comparatively greater than their latent counterparts. In this regard, managers' concern about their requirements lies in between and they will give priority to the interest requirements of the identified stakeholders, for they simultaneously have the characteristics of legitimacy, power, and urgency.

Mitchell et al. (1997) made a contribution in ranking the importance of stakeholders in that they believe the attributes owned by stakeholders are constantly changing instead of being static. These attributes can be affected by their own conditions and social structure so that they may change from one form to another due to gaining or losing certain attributes. Such factors as the utilization of political power, the establishment of various alliances, and changes in socioeconomic conditions may change stakeholders. Therefore, the task of managers is to analyze and monitor these changes. These authors also particularly stressed the function of managers' subjective feelings as it is believed that stakeholders may define themselves as stakeholders of the enterprise through the power, legitimacy, and urgency identified. They may have these attributes but not be aware of them and fail to take action. Regardless of how they may think or act, it is the managers who are responsible for identifying the stakeholders of the enterprise and how to rank them and take management measures against them. The reason for managers' practice of environment scanning is quite divergent, and their values are also different, not all the characteristics of stakeholders can be recognized by managers. Instead, only the characteristics that managers pay attention to have substantive significance for stakeholder management. This is a typical view of the enterprise perspective.

There are however shortcomings in Mitchell et al.'s (1997) research. Are stakeholders equally important to the enterprise for their three attributes of power, legitimacy, and urgency? For instance, who is more important for the enterprise when there is a stakeholder with only legitimacy and another stakeholder with only power? The weight of undifferentiated attributes is a huge limitation for the research on the ranking importance of stakeholders. Another limitation of this theory is that Mitchell et al. explained the meaning of each attribute of stakeholders in detail and proposed the significance of their combination, yet they failed to put forward specific management strategies and implementation measures for each specific type of situation.

From the above research on the classification of stakeholders, we can notice that scholars generally recognized the fact that the types of stakeholders are different and need to be differentiated. Although scholars have adopted varied classification standards and methods for the classification of stakeholders, they have somehow deepened their understanding from different respects and their research outcomes also laid a theoretical foundation for the follow-

up research.

2.1.4 Behavioral analysis and interpretation of stakeholders

Freeman (2010) believes that it is important for managers to conduct behavioral analysis and interpretation of stakeholders for the development of management strategies. The behavioral analysis involves the actual behavior, willingness to cooperate, and competition threats. Through the investigation of stakeholders' past behaviors (which depend on the environment scanning information of the enterprise), his explanation is from three levels: stakeholders' goals, stakeholders' perceptions of the enterprise, and the stakeholders' stakeholders. He also stated that managers should put themselves in the position of stakeholders to feel their situation, and only then could they make a reasonable interpretation of behaviors and develop a correct strategy. Therefore, the role of environment scanning information is very crucial in the process of analyzing and interpreting, which is also emphasized in the studies by Frederick et al. (1988) and Svendsen (1998). In addition, Freeman (2010) emphasized the need to focus on the possible formation of alliances among stakeholders, as this would imply an increase in their influence, which actually echoes the idea of stakeholder networks. Based on Freeman's theory, Savage et al. (1991) believe that the potential of stakeholders to pose threats and cooperate with the enterprise depends on their dependence on the enterprise resources, stakeholders' strength, stakeholders' possible actions in response to specific issues, and stakeholders' ability to form alliances, according to which their potential to threaten and cooperate with the enterprise can be analyzed. From this perspective, Savage et al. (1991) had a contribution in combining the Resource Dependence Theory and the behavior analysis and interpretation of stakeholders.

Hill and Jones (1992) explained the reasons for stakeholders' actions through principles of economics. They considered enterprises as an association of all stakeholders in explicit or implicit contracts and believe that the market process is the result of the operation of these contractual relationships. Managers are agents of all stakeholders as well as agents of the enterprise, thus a series of principal-agent relationships are developed. Since the market is imperfect, opportunistic behavior will arise and there is inevitably an agency cost issue between the principal and the agent, with utility losses among stakeholders. They defined the utility loss as the difference between the utility gained by managers acting in the best interest of the stakeholders and the utility gained by managers acting in their own best interest. To reduce the utility loss, stakeholders tend to increase the complexity of the organization to monitor and enforce the implicit contract. Behaviors that increase organizational complexity, such as stock

option plans, advance commitments by managers, requiring companies to make their annual reports public, and hiring intermediary organizations to produce analytical and consumer reports, can effectively reduce managers' opportunistic behavior, but the behaviors that increase organizational complexity will also incur costs. From the perspective that the equilibrium of stakeholders' benefits lies in the equivalence between the marginal benefit (reduced benefit loss) under a certain organizational complexity and the marginal cost (the benefits sacrificed by adopting the structure), the stakeholders' actions are beneficial, otherwise, it is not.

In Rowley's (1997) study, the perspective of the stakeholder alliance is further emphasized and studied in depth. He introduced the social network approach to the behavioral analysis and interpretation of stakeholders, arguing that network density determines the stakeholders' ability to exchange information and act collaboratively, and that the greater the network density, the more helpful it will be for stakeholders to communicate information and act collaboratively, and the greater the possibility there will be for them to form alliances among themselves, and thus may exert a stronger influence on the enterprise. In addition, the centrality of the enterprise determines its ability to gain a comparative advantage and an important position to influence and control the stakeholders' behaviors. An enterprise with strong centrality has the ability to control the information exchange among other stakeholders, thus their behaviors will be constrained.

Mitchel et al.'s (1997) study pointed out that potential stakeholders, having only one of the characteristics of legitimacy, power, and urgency, usually lack sufficient influence. Among potential stakeholders, static ones are usually in a dormant state with little or no contact with the enterprise, those who are autonomous have no power to influence the enterprise and no urgency, and they will decide whether to play their stakeholder role depending on the functioning of the enterprise while demanding stakeholders have only urgency but lack legitimacy and power and will not have a big influence. Expectant stakeholders, with two characteristics, have sufficient motivation to take action. Among them, dominant stakeholders have both legitimacy and power and are often able to achieve their goals because they want to be noticed by management; dependent stakeholders lack power, but have urgency and legitimacy and can only rely on other powerful people or management's good deeds to achieve their wishes, so they may take measures such as making alliances, participating in political actions, and appealing to management's conscience; dangerous stakeholders do not have legitimacy, but have urgency and power, and they usually resort to strong-arm violence to make the situation urgent, so they are very dangerous for the enterprise. Deterministic stakeholders have all three characteristics and have the power to influence the organization and the need for

urgency and legitimacy, therefore managers should pay particular attention to their actions and demands.

Frooman (1999) examined the stakeholders' strategies of exerting influence on the enterprise from the stakeholder's perspective and the foundations from which such strategies emerge. From the perspective of the Resource Dependence Theory and the social network analysis approach, he suggested that enterprises and their stakeholders form a multifaceted interaction of constraining and being constrained. Stakeholders can choose two strategies to constrain or influence the enterprise: one is the resource control strategy, and the other is the influence path. Resource control strategy involves two specific strategies, namely, exit strategy and cooperation strategy. The exit strategy refers to stakeholders' interruption of resource supply to constrain the enterprise; the cooperation strategy refers to stakeholders' conditional provision of resources to constrain the enterprise. The choice of strategy is determined by whether stakeholders depend on the enterprise. If so, they will choose the cooperation strategy; otherwise, they will adopt the exit strategy. The influence path also involves two specific strategies: direct and indirect. Direct strategy means that individual stakeholders control (withdraw or provide) resources independently; indirect strategy means that stakeholders form an alliance to control (withdraw or provide) resources collaboratively, which in essence tilts the balance of power in favor of the weak. The choice of influence path is determined by whether the enterprise depends on stakeholders. If so, they will choose the indirect strategy, that is, stakeholders must form an alliance to deal with the enterprise; otherwise, the stakeholders will choose the direct strategy.

Based on the above view, Frooman (1999) built a two-dimensional matrix of stakeholder influence strategies based on whether they are dependent on the enterprise and whether the enterprise is dependent on them, and accordingly proposed four possible influence strategies, namely, indirect exit, direct exit, indirect cooperation, and direct cooperation. If an enterprise and its stakeholders are not dependent on each other, they will choose the indirect exit strategy to influence the enterprise; if they are dependent on the enterprise, they will choose the indirect cooperation strategy to influence it; if the enterprise is dependent on the stakeholders, they will choose the direct exit strategy to influence the enterprise; if the enterprise and its stakeholders are mutually dependent on each other, stakeholders will choose the direct cooperation strategy as a way to influence the enterprise.

Also from a stakeholder perspective, Rowley and Moldoveanu (2003) delved into the analysis of the behaviors of the individuals who make up the stakeholder group. They hold that the traditional rationality-based reasons for stakeholders to pursue their benefits do not

adequately explain why stakeholder groups choose to act in some cases when they know that the action will not produce the desired effect or will even bring losses. Based on this question, they introduced the Social Identity Theory into the analysis of the reasons for such actions, combining interests and identities together. In terms of the interest base, Rowley and Moldoveanu (2003) suggested that stakeholder groups that have taken unified action in the past are more likely to mobilize to take action to influence the central enterprise than those stakeholder groups that have not taken unified action in the past because they have more experience, mature mechanisms, mutual trust among members, and well-established rules that reduce the cost of the action.

The relationship density of stakeholder group members also affects the possibility of undertaking mobilizing actions to influence the central enterprise: the higher the relationship density is, the greater the possibility of taking mobilizing actions to influence the central enterprise, which is actually a reflection of Rowley's (1997) network perspective. In terms of the identity base, these authors assumed that members of stakeholder groups who are more likely to take action to influence the central enterprise value their identity as a member of the stakeholder group more than stakeholder groups that are only tied by interests, because the action itself is more important than the outcome of the action for stakeholder group members who value the meaning of their identity. In addition, they hold that the degree of interest and identity overlap among stakeholder groups is important in influencing whether stakeholders take action. In real-life situations, it is common for different stakeholder groups to have members with overlapping interests or identities.

Rowley and Moldoveanu (2003) argued that from an interest-based perspective, the likelihood that a stakeholder group will mobilize to take action increases as the mutual overlap of interests among the members of the stakeholder group increases; if members of the stakeholder group have conflicting economic interests in different stakeholder groups, they will dilute their personal sense of urgency and therefore will not be inclined to take action. From the identity perspective, if stakeholder group members define themselves as unique in terms of identity, then they will resent organizations that are the same or similar to them in terms of identity, meaning that if two stakeholder group members have a high degree of overlap in identity, the likelihood of the stakeholder group taking action to influence the enterprise will decrease, because taking unified action will hinder the identity establishment of the stakeholder group. Rowley and Moldoveanu (2003) further suggested that two stakeholder groups with a high degree of identity overlap will act differently. These findings indicate that in situations where stakeholder group members have high levels of interest overlap but low identity, the

stakeholder group is most likely to take action; in the case of high overlap of both interests and identity of stakeholder group members, the stakeholder group will be less likely to take action; in the case of the low overlap of both interests and identity of stakeholder group members, the difference in identity will motivate them to act, but the conflict of economic interests among stakeholder group members will influence their action; in the case of low interaction of interests and high interaction of identities, the stakeholder group will not be motivated to take action.

Hendry (2005) developed Frooman's stakeholder influence strategy model based on Frooman's (1999) research by conducting an empirical study on four environmental non-governmental organization stakeholders. Arguing that Frooman's four-strategy model is overly simplified, he added a communication strategy for forming potential alliances and supplemented each strategy with specific tactical tools. He assumed that multiple strategy types may be employed simultaneously, and that four main factors will determine what actions the non-governmental organization will take: first, whether it has experienced and/or is good at using a particular strategy/tactic; second, the opportunity to use the particular strategy/tactic; third, the economic cost of using the particular strategy/tactic; and fourth, the profile of potential alliances that support the particular strategy/tactic, such as the type of potential alliances, the number of potential alliances, the power to influence potential alliances, and the ability to link potential alliances.

2.1.5 Research on stakeholder management strategies

The study on general stakeholder management strategies is important in related research. As stated before, Freeman (2010) established a two-dimensional classification matrix from the perspective of enterprises based on stakeholders' level of relative threat and their level of relative willingness to cooperate, according to which he proposed general stakeholder management strategies for four situations and pointed out the possible stakeholder management plans under each management strategy. In the case of high threat and high willingness to cooperate, the enterprise should adopt a swing strategy aimed at changing the rules that bind the relationship, such as using formal government rules to change them, changing the resolution forum, and changing the type of resolution made to change the transaction process; in the case of high willingness to cooperate and low threat, the enterprise should adopt a proactive offensive strategy, such as making efforts to change the goal concept of stakeholders, thinking in the stakeholders' position or linking the issue with other issues more favored by stakeholders; in cases of low willingness to cooperate and high threat, a proactive defensive strategy should

be used, such as maintaining current practices, monitoring current plans, reinforcing the current view of the company, and preventing changes in the deal process. Freeman also recognized that the sum of specific management plans is not the same as the overall stakeholder management plan, and that it is important to identify and seek commonalities among specific plans to develop a comprehensive one.

Savage et al. (1991) matched four management strategies with four stakeholder types. The management strategy for supportive stakeholders is to involve, which means sharing decision-making power with these stakeholders and involving them in corporate management according to the principles of management by participation (involving employees and lower management) or decentralization (power is decentralized to middle management), to stimulate their cooperative potential. The management strategy for marginal stakeholders is to monitor to ensure that the situation does not change, and to take action to increase the potential for support and decrease the potential for opposition only when the decision involves an issue that could seriously affect marginal stakeholders. For mixed stakeholders, the management strategy is to collaborate, so as to increase the likelihood that such stakeholders will remain supportive through the most extensive possible collaboration. For opposing stakeholders, the management strategy is to defend, which means minimizing dependence on stakeholders. Managers should minimize the interests of marginal stakeholders and maximize the interests of supportive and mixed stakeholders in order to increase their support to the company.

Clarkson (1995) applied Carroll's (1979) model in stakeholder management and argued that for different stakeholder groups enterprises can use four management strategies: reactive, defensive, accommodative, and proactive (RDAP). The proactive strategy is used when the enterprise tries to increase the benefits of a particular group and does a lot of work to deal with stakeholders, including anticipating and actively dealing with special problems or directing the enterprise's efforts to do so; the accommodative strategy is adopted when the enterprise lacks the motivation to deal with stakeholder issues and accepts responsibility but expects concessions; with the defensive strategy, the enterprise only minimally (only to meet legal requirements) deals with stakeholder issues and accepts responsibility but expects concessions; the adversarial strategy advocates against solving stakeholder problems, ignores stakeholders, and denies responsibility for them.

Rowley (1997), who developed the study of stakeholder management strategies from a network perspective, established a two-dimensional classification matrix based on the density of stakeholder networks and the centrality of the enterprise in the network, and proposed four targeted management strategies. In the case of high network density and centrality, enterprises

should adopt a compromiser strategy, because high centrality implies that the enterprise has the ability to exert influence on stakeholders. While high network density helps stakeholders to act in concert, enterprises are faced with an environment with high uncertainty and necessarily choose to establish mutual coordination mechanisms to reduce uncertainty and respond to stakeholders in a negotiated manner. In the case of high network density and low centrality, enterprises should adopt a subordinate strategy, because low centrality means that enterprises are unable to discipline stakeholders. In fact, high network density helps stakeholders to communicate information and act collaboratively, thus making enterprises to eventually become subordinate to well-organized stakeholders and be forced to satisfy their demands.

In case of low network density and high centrality, enterprises should adopt a commander strategy because low network density means that it is difficult for stakeholders to communicate and act collaboratively, and high centrality allows enterprises to control stakeholders effectively, so they can respond in a controlling and dominant manner. In the case of low network density and low centrality, enterprises should adopt a solitarian strategy, because in this case, they cannot exert effective influence on stakeholders. A low network density means that stakeholders lack sufficient information and ability to monitor the enterprise, facilitating marginal enterprises to effectively conceal their behavior. Since enterprises and stakeholders are less likely to bind each other, enterprises can do their best to avoid stakeholder rights claims.

Jawahar and MacLaughlin (2001) developed Clarkson's (1995) RDAP model and introduced the organizational life cycle theory into the study of stakeholder management strategy, arguing that in different stages of their organizational life cycle enterprises face stakeholder groups of different importance, therefore the development of their stakeholder management strategy also relies on their identification and judgment on stakeholders in different life cycle stages. A lifecycle-based stakeholder management strategy model is proposed, based on the identification and judgment of stakeholders at different life cycle stages.

In turn, Friedman and Miles (2002) developed the Stakeholder Theory from the perspective of the enterprise-stakeholder relationships. They classified these relationships into four categories based on whether they are compatible, that is mutually consistent in terms of conceptual and material interests and whether the relationships are necessary, that is socially structured and logically contextualized or extrinsically non-holistic, and classified these four relationship types and the four different types of contractual relationships that exist between enterprises and stakeholders (such as explicitly recognized contract, implicitly recognized contract, implicitly unrecognized contract, and no contract), and proposed management strategies that can be used in each case. The first type is the necessary compatible relationship,

in which both the enterprise and stakeholders lose their interests if the relationship is broken, so the enterprise can choose a defensive strategy and take measures to protect the relationship. The second type is the accidental non-compatible relationship, in which the enterprise and stakeholders are opposed in terms of economic interests or perceptions, and conflicts will occur if one party insists on balancing them. In order to survive in the relationship, stakeholders and enterprises compete, both trying to unite other parties to gain support and eliminate people's trust in their opponents, so they can adopt elimination strategies, and eventually achieve competition victory by eliminating their opponents. The third type is the necessary non-compatible relationship, in which an increase in the interests of one party will lead to a decrease in the interests of the other, but both parties can benefit from continuing their relationship, which means that the opportunity cost of leaving the relationship is greater than the cost of keeping it, so a compromise strategy can be adopted. The fourth type is the accidentally compatible relationship, in which the relationship between the enterprise and the stakeholders is loose, a contractual relationship may be formed temporarily or not, if profitable, which will naturally end when there are no benefits, so the enterprise can adopt a speculative strategy to gain benefits through speculative behavior.

2.1.6 The application of the Stakeholder Theory in public policy

Bryson (2004) stated that there is a lack of application of the Stakeholder Theory and stakeholder analysis in the public policy literature and that more attention should be paid on its development and specific analysis tools. He made a continuous discussion on the Stakeholder Theory, especially on the progress of specific stakeholder analysis techniques. Bryson (2004) made it clear how important it is to define stakeholders and who can be considered as such, especially from the perspective of norm. He explored how to use the theory for analysis, which may help the public sector to develop specific approaches to the management process and stressed some important factors that should be paid special attention to in the stakeholder analysis. This includes clarifying the feasibility of certain goals and taking measures to make them more likely to occur; the importance of making stakeholders satisfied (according to their own thoughts); ensuring that managers act in accordance with procedural justice, rationality, and legitimacy. Based on these insights, Bryson proposed that the systematic application of stakeholder analysis in the public sector would lead to better performance.

According to Bryson (2004), Stakeholder Theory should not only focus on those who are powerful or easily identified, but should also strive to consider a wider range of people, groups

or organizations, including those that nominally have no rights. He claimed that key stakeholders must be satisfied at a minimum level and that organizations need to pay attention to the information and concerns of stakeholders.

Friedman and Mason (2004) discussed stakeholder analysis and stakeholder management, as well as their practicality, from which important public policy decisions are studied in depth. Their article emphasized the importance of stakeholder analysis, the need to help and improve policy management, and the need to integrate it into the public domain. When reviewing the relevant literature, they inferred from Freeman's (2010) work that the application of stakeholder management principles can better meet the needs of stakeholders, and in the long run it will also help organizations achieve their goals.

Provan and Milward (2001) used the Stakeholder Theory to analyze the organizational network of the public sector. They pointed out that the organizational network issue and the multi-level analysis involved poses a great challenge for researchers. At the same time, they believe that this kind of network cooperation in the public sector is an important development and deserves scholars' attention. Provan and Milward (2001) mentioned that the effectiveness of public sector organizational networks can be understood through at least three levels: society, network and organizational participants. With the help of Agency Theory and stakeholder group analysis technique, they incorporated effectiveness criteria at different levels and discussed how to design each level from three aspects: hierarchical analysis, key stakeholder group and effectiveness measures. Provan and Milward (2001) also put forward a special challenge - the change in the perceptions and attitudes of external stakeholders from the network to individual organizations, that is to say, external stakeholders tend to focus on the activities of individual organizations while often missing the links with larger networks and their activities. Despite the challenges mentioned above, Provan and Milward (2001) believe that it is essential to analyze the effectiveness of organizational networks in the public sector.

Noring et al. (2021) proposed that the field of public policy is a polycentric system in which a large number of different stakeholders participate in the local public policy decision-making process. The essence of a polycentric system is the diversity of relatively independent stakeholders in hierarchical and non-hierarchical relationships. The diversity of stakeholders indicates different interests and areas of activity in political and social and economic life. In addition to the traditional mechanisms related to bureaucracy and politics, open decision-making also involves communication, negotiation or competition (Denters, 2011; Steels, 2015).

Vitálišová et al. (2021) discussed the participation of stakeholders in the local government autonomy in the Slovak Republic and its development. The role of establishing relationships

with stakeholders in the context of sustainable development was clarified and the relationship between high participation rates and the quality of local government governance was also verified. They believe that, based on the different forms of partnership and cooperation, the quality of local government governance can be improved through stakeholders' participation in public policy plans and public service processes.

Major initiatives in public administration require the coordination of efforts of multiple different stakeholder groups. However, the perceptions and objectives of stakeholders tend to vary, which causes coordination conflicts. Stakeholders come from different institutions, receive different education, and hold different core values. If they cannot understand the framework behind the goals, the seed of conflicts will be planted among stakeholders in the process of coordination (South, 2019).

In the discussion of Stakeholder Theory in public policy, little attention has been drawn on the normative research of the theory. The research has mainly focused on the analytical techniques used and the issue of goals raised in public policy, especially what kind of goals and whose interests are important, are either ignored or assumed to be addressed through models with stakeholders' participation. Though stakeholder participation and approaches involving stakeholder goals and values may be helpful, they are no substitute for more direct emphasis on the normative issues of a system.

2.1.7 Application of stakeholder theory in healthcare

Stakeholder Theory has also become a focus of scholars in the field of health care and the terminology has clearly been stated in many articles. Most of these studies are conducted from the instrumental and descriptive aspects, in which the theory is used to analyze the influencing forces in the health care industry to learn from them to improve organizational performance. Some studies dig into the standardization of the Stakeholder Theory, whose focus is the role of choice and representation (Emanuel, 1999). More exploratory questions were raised for the construction of the health care system, or the challenges for certain practices and priorities in the health care industry.

Savage et al. (1997) emphasized the importance of network and system theory as a way of thinking in health care. They understand the mechanism of complex and dynamic operation in health care from the perspective of the Stakeholder Theory, believing that health executives must learn to manage the combination of stakeholders and understand their strategic significance. Their hypothesis is that the existence of stakeholders is both an opportunity and a

threat. Managers need to shift from emphasizing the management of individual stakeholders to considering multiple relationships and they should manage stakeholders for the benefit of the organization.

Brugha and Varvasovszky (2000) tracked the role of the Stakeholder Theory in health policy and public policy literature. They described Stakeholder Theory as a method of policy analysis. They believe that much of the literature in health policy emphasizes retrospective or synchronic analysis of health policy-making processes in different contexts. It is found that stakeholder analysis is more predictable (that is, forward-looking), systematic and structured than other tools used by researchers in this field. Besides, the term stakeholder analysis should be used when the decision-making process involves a systematic analysis of the roles, relationships, interests and impacts of stakeholders.

Martineau et al. (2022) discussed the human resource structure and capacity of the medical services of public health in Malawi, Nepal and Sudan from an embeddedness perspective, in which the importance of stakeholder perception and action coordination was emphasized and the demands of the stakeholders in health human resource management were understood by promoting and maintaining a full dialogue among multiple stakeholders. The possibility of stakeholder coordination mechanism of health human resources was discussed, and the mechanism of improving health human literacy was established by providing good communication channels of health human resources information, so that stakeholders and decision makers could know more about the planning of health human resources and the dynamics of the ever-changing health manpower. Action coordination was used to improve the adaptability and flexibility in response to shocks and emergencies, thus promoting the sustainable development of health manpower.

In this literature, stakeholder analysis varies, depending on the purpose of its use, including finding ways to benefit the organization, putting policies into practice, assessing the development of specific policies, and planning in which aspects they may develop in the future. Specific stakeholder analysis should be further refined, with the consideration of cultural background and the analysis level aimed to achieve. Whether stakeholders are threats or opportunities, how much power they have, and what issues are most important to them. This study holds that it is very important to understand the special nature of stakeholder analysis and its appropriateness to the task, and then apply it to appropriate management situations.

2.2 Social network theory

This study provides a comprehensive overview of the application of social network theory in management, focusing on how ideas of social structure analysis, embeddedness theory, the dynamics of weak and strong ties, structural hole theory, and social capital theory shape the interactions and influences among organizations and individuals.

2.2.1 The thought of social structural analysis

The thought of social network analysis can be traced back to the social structural views of classical sociologists, such as Emile Durkheim (1858-1917) or Georg Simmel (1858-1918). Emile Durkheim paid special attention to the analysis of social structure and social relations, although he did not explicitly use the term social structural analysis. He believed that people's social connections vary in different social structures or forms and proposed that because of the emergence of social division of labor, individuals get rid of the state of isolation and begin to depend on society, forming relationships with each other, which plays a role in mutual accommodation and mutual assistance (Scott & Carrington, 2011).

Radcliffe-Brown (1952) agreed with Durkheim's view of social structural analysis and functionalism. He advocated that social research should address the social relations between individuals and proposed that social structure refers to the allocation of people in institutionalized roles and relationships (the sum of social relations) expressed through the relationship between groups or between people. Radcliffe-Brown (1940) used the concept of social relationship network to illustrate the social structure, which he regarded as the actual relationship network. He explained that all social relations among people can be regarded as part of the social structure, and that individual and class differences can be analyzed under the social structure according to people's social roles. However, the concept of network proposed by Radcliffe-Brown is only a metaphor to visualize the structure of social relations, which is different from the concept of network used by scholars later in the analysis of social networks (Scott & Carrington, 2011).

2.2.2 Embeddedness theory

Network Embeddedness Theory is a very important branch of the Social Network Theory system. In recent years, scholars in related fields have conducted extensive and in-depth discussion and research on network embeddedness from various angles. The term

embeddedness was first put forward by Polanyi, an economic historian. Polanyi (1957) believes that economy does not exist alone, but needs to rely on politics, culture, religion and other factors. Society is a complex construct, in which economy is only a part, and the improvement of social functions needs the coordinated development of all factors. He regarded the market as an entity embedded as a social component to explain the relationship between the market and the society. While admitting that the market is economic, he stressed its social attribute derived from the social structure, thus bringing the concept of the overall embeddedness of the economy. Although Polanyi's thought of embeddedness has far-reaching influence, he did not give a clear definition of embeddedness (Gemici, 2008).

On the basis of critically inheriting Polanyi's point of view, Granovetter (2018) further expounded and expanded the concept and connotation of embeddedness from the social background closer to reality, and laid the theoretical basis of network embeddedness. Granovetter (2018) proposed structural embeddedness and relational embeddedness. He believes that individuals, groups, or organizations are embedded in the social network, and their behaviors and activities are influenced by other individuals, groups, or organizations in the same network.

There is an essential difference between the embeddedness concepts clarified respectively by Polanyi and Granovetter, mainly shown in the academic orientations on the issue of market and social relations. The former is the embeddedness of the market entity while the latter is the embeddedness of the market form. Granovetter (2018) emphasized the importance of analyzing the economic process by embedding it into the continuously running interpersonal relationship, but paid little attention to the embedded economic action, and did not explain in depth what kind of social relationships affects the economic action.

Granovetter (2018) argues that most behaviors are closely embedded in the social network which is the relationship in which the unit is located. Through the analysis of the relationship network, low socialization and excessive socialization can be avoided. Although Granovetter did not give a precise definition of the concept of embeddedness, he reiterated the view that economic action is made in the process of interaction within the social network.

From the perspective of methodology, Granovetter (2018) believes that relationships are the real cause of social action, and social network analysis is the best way to carry out causal analysis, because it is situational and operable. He proposed that social network is the key medium in the causal connection of changing individual action into an overall form, and the social network provides the possibility for the individual to transform the overall social form. He mentioned that the purposeful actions are actually embedded in the real and functioning

social systems, which are situational factors of action, and action is a reasonable response to a situation.

Granovetter's research on network embeddedness has drawn much attention from other scholars and further studies have been conducted. Zukinh and Dimaggio (1990) believe that human economic activities are embedded in social networks such as social structure, culture, cognition and political system and are influenced by their embedding states. Barber (1995) thinks that economic activities in real society are embedded in the social network structure, and that economic behavior processes and results are affected by embedded social networks.

Uzzi (1997) developed a multi-layer embedding norm. He posits that embeddedness promotes the understanding of how social structure affects economic life. The operation and results of inter-enterprise networks are discussed as enterprises will not only gain obvious benefits from the embeddedness of economic behavior, but also be significantly affected by such embeddedness in terms of allocation efficiency and price determination. By improving the degree of integration of social processes and comprehensively considering resource dependence, the increase of the vulnerability of networked organizations can play a positive role in promoting productivity, living standards, mobility, and wealth creation.

Echols and Tsai (2005) pointed out that network embeddedness is more related to the degree of connection among members of social networks. They believe that the impact of each niche on corporate performance depends on network embeddedness, that is, the extent to which enterprises participate in interrelated business relationship networks. Through the research, they found that when the degree of network embeddedness is high, the degree to which enterprises provide unique products or processes will be more actively related to corporate performance.

According to the literature related to the network embeddedness, this study sorted out some representative definitions and classification as shown in Table 2.2 and Table 2.3.

Table 2.2 Partial representative definitions of embeddedness

Proposers	Time	Definitions	Source
Polanyi	1957	The human economy is embedded and intertwined in economic and non-economic institutions.	Polanyi (1957)
Granovetter	1985	The series of social relationship patterns are caused by the situation of economic activities, which are also the situation formed by the continuous operation of economic activities under the social structure.	Granovetter (2018)
Barber	1995	The laws of economic operation, organization selection and individual behavior of the objective world are not	Barber (1995)

		operated in accordance with the established assumptions of economics.	
Zukin, Dimaggio	1990	The possible phenomenon or state that economic activities under the influence of cognition, culture, social structure, and political system.	Zukin and Dimaggio (1990)
Halinen, Tornroos	1998	Embeddedness refers to the degree of relationship or dependence between enterprises in different network forms.	Halinen and Tornroos (1998)
Uzzi, Gillespie	2002	Network embeddedness refers to the inter-enterprise connection embedded in social relations and networks, which is called ties.	Uzzi and Gillespie (2002)

Table 2.3 Partial representative classification of embeddedness

Proposers	Time	Classification	Source
Granovetter	1985	Structural embeddedness and relational embeddedness	Granovetter (2018)
Zukin, Dimaggio	1990	Structural embeddedness, cognitive embeddedness, cultural embeddedness and political embeddedness	Zukin and Dimaggio (1990)
MartinHess	2004	Social embeddedness, network embeddedness and regional embeddedness	Hess (2004)
Halinen, Tornroos	1998	temporal, spatial, social, political, market, and technological embeddedness	Halinen and Tornroos (1998)
Hagedoorn	2006	Environmental embeddedness, interorganizational embeddedness and bilateral embeddedness	Hagedoorn (2006)

2.2.3 Weak ties and strong ties

Granovetter (1973) put forward the concept of tie strength. Ties are classified into strong and weak, according to four dimensions, namely interaction frequency, emotional strength, intimacy, and reciprocal exchange. He believes that it is difficult for individuals with high homogeneity in the network to provide each other with the information they need, while heterogeneity can offer channels for information seekers to expand their horizons of information resources. With the labor market as a starting point, it is proposed that strong ties make people have overlapping information, while the information about new ideas and new opportunities can only be spread among independent groups through weak relationships.

Rowley et al. (2000) believe that both relationship and structural embeddedness affect the behavior and performance of enterprises. They surveyed the interaction of these factors and believe that the impact of these factors on corporate performance depends on the industry environment. Their research pointed out that strong ties in highly interrelated strategic alliance networks have a negative impact on corporate performance.

According to Krackhardt et al. (2003) strong ties provide reliable results when there are decision costs or risks. Weak ties have the advantage of information transmission, while strong ties are suitable for conveying emotion, trust, and influence.

2.2.4 Structural holes theory

An overview of the structural hole theory is provided in this section, focusing on how structural holes confer competitive advantages and the intricate interplay between structural holes and network closure, exploring how these concepts impact inter-organizational relationships and strategic decision-making.

2.2.4.1 Competitive advantage of structural holes

Burt (1995) expounded on the concept and connotation of structural holes and how they may serve to gain competitive advantage. Taking how the participants gain advantages in the competitive field as the starting point of his research, Burt (1995) believes that the social structure of the competitive field is the key factor to determine their return on investment, and he proposed that homogeneous and repetitive networks will not lead to the increase of social capital.

Burt's Structural Holes Theory absorbs many research achievements in the field of sociology (Ahuja, 2000). Structural holes refer to the phenomenon in which one or more individuals in the social network are directly connected with some, but not directly connected or in disconnection with other individuals, so that viewed from the whole network, it seems that there are holes in the network structure. Due to the structural holes, contacts on both sides of the hole can obtain cumulative rather than overlapping network benefits. As Burt said, thoughts and behaviors within groups are more homogeneous than those among groups, so people across groups will be more familiar with alternative ideas and behaviors, thus getting more choices and opportunities. The advantage of this kind of thought and opportunity is the mechanism by which brokerage becomes social capital (Burt & Soda, 2021).

Burt's Structural Holes Theory is put forward in the competitive social structure, which holds that the winning or losing of the competitive participants is not determined by the characteristics of the participants, but by the competition of the relationship, so the party who occupies the structural holes will gain competitive advantage (Burt, 1995). Structural holes and weak ties seem to describe the same phenomenon, but the Structural Holes Theory has its own profound connotations. First, the strength of the relationship is only a related factor of information transmission. The structural hole is not used to explain the strength of the

relationship, but the mechanism and reason for information transmission. Secondly, the weak ties only contribute to the information interests in the network, but do not clearly control the interests, so they cannot ensure the acquisition of competitive advantage. Most importantly, Structural Holes Theory goes beyond the strength relationship between two actors and it proposes a network structure with at least three actors as the basis of social networks (Lin et al., 2021).

Gnyawali and Madhavan (2001) believe that in the interpretation of the competitive behavior of enterprises in strategic theory is mostly used to analyze the enterprise as an independent element with isolated actions, ignoring the evolution of competitive behavior in the social network. These authors use the network embeddedness to describe the competitive behavior of enterprises in cooperative network from the aspects of actors, enterprises, and industry. They analyzed the impact of the social network framework on the competitive behavior and competitiveness of enterprises: on the one hand, the network will enhance the heterogeneous ability of enterprises and trigger their motivation for competitive behavior; on the other hand, the motivation of enterprise competitive behavior is affected by four network mechanisms: network centrality, structural autonomy, structural allele and network density, among which network density is the regulating variable of the other three network structures.

2.2.4.2 Structural holes and network closure

Social capital can be obtained through two kinds of network mechanisms. Through studying the low high school dropout rate in network closure, Coleman (1988) drew the conclusion that network closure is a source of social capital. In a closed network, people in the organization can obtain more reliable information at a lower cost, and any untrustworthy behavior will face the sanctions of the organization, so this network structure promotes trust and unity within the organization. Greif (1989) suggested that network closure was crucial to the success of medieval Maghreb merchants in North Africa. In turn, Burt's (2004) Structural Holes Theory emphasizes the benefits of the cross-structural holes of open networks and proposes that performance is maximized when the group is the most closed and there are a large number of non-redundant contacts outside the group.

Structural holes can obtain the additional value that cannot be reached by closed networks, while network closure can get the values that will be swallowed by structural holes.

2.2.5 Social capital theory

Since the birth of economics, capital has been a very core concept. Adam Smith, David Ricardo,

and Keynes all emphasize the important role of capital. The early capital mainly referred to the productive resources in the form of machinery, equipment, and currency with a lack of attention to the group human capital (Lin et al., 2001).

Bourdieu (1984) put forward the concept of social capital, elaborating on field and capital, on the basis of his relational methodology. According to him, field is a network or a configuration of objective relations between various positions. A field is connected by different social elements, which exist and play a role in the field by occupying different positions. The field is like a social web, and the position can be seen as a knot on the network. Position is the premise for people to form social relations. Social members and social groups get different social resources and rights because they occupy different positions. The field, as a network of relations formed by various elements, is a process with dynamic changes, whose driving force is social capital, which is a collection of actual or potential resources associated with the social network. The network is a kind of institutional relationship, which is familiar to and is recognized by all (Lin et al., 2001).

Bourdieu (1984) criticized traditional economic theories which rely solely on economic capital to explain the operation of social economy, and he believes that the structure and function of society can only be truly understood through the view of the overall framework of three types of capital. According to Bourdieu (1986), capital can be divided into economic, cultural, and social capital by its form. Economic capital is primary, and is the basis of social and cultural capital. Social capital exists in the form of relational networks, which create a valuable resource for solving social problems and provide members with collectively owned capital, even if they do not fully trust each other.

According to Coleman (1988), in addition to the existing financial and human capital, social capital should also be introduced to explain human behavior. He emphasizes the relationship between social and human capital, and believes that without the former, the accumulation of human capital cannot be realized. This author further defines the concept and content of social capital. Social capital is the social structure of resources owned by individuals, including social groups, social networks, and network intake. Only through the connection between the members of social groups and social networks and with network intake, can individuals get the return of social capital. According to Coleman (1988), social capital is composed of the elements that constitute the social structure, which mainly exists in interpersonal relationships, facilitating individual action within the social structure and is mainly about the role of individual social capital in society and its improvement. Different forms of social capital are given, including obligations and expectations, information network, norms, and effective

punishment, authority relations, multi-functional social organizations, and intentional social organizations.

Putnam (1993) introduced the concept of social capital when studying the performance of northern and southern Italian governments. He interpreted social capital as trust, norms, and networks that can improve social efficiency by promoting coordinated action. The basic relationship that has long been ignored by mainstream economics is translated into the concept of explaining potential economic capacity and behavioral differences. It is an interpretation of collective behavior and long-term choice, as well as the structural and institutional arrangements on which economic development depends. An important factor leading to the gap in the performance of the government between the north and the south of Italy is the difference in their social capital, which improves the efficiency of society through promotion and action. Putnam (2000) believes that social trust is the most critical factor of social capital, and reciprocity norms and citizen participation networks can produce social trust.

Bourdieu, Coleman, and their contemporary social capital research experts have tried to use the new concept of social capital in economics and other fields, but the application has been limited. Scholars' attention to social capital was mainly in the field of sociology until Putnam changed this situation. Putnam (1995) believes that social capital is no longer a resource owned by one person, but the wealth owned by the whole society. The economic and democratic development of a society is largely restricted by the abundance of its social capital. Putnam's argument triggered a wide discussion among researchers on the relationship between social capital, civil society, and democratic politics. His research established the relationship between social capital and political science, and introduced social capital into economics, political science, and other fields.

Fukuyama (1996) proposes that social capital can promote cooperation within groups, and it is often associated with virtues such as honesty, keeping promises, fulfilling obligations, and reciprocity. He considers this concept in terms of economic development and social characteristics and believes that the strength of social capital is an important factor in achieving socio-economic differences. He regards the popularity of trust among members of a society or groups as a kind of social capital, and believes that social economic prosperity depends to a considerable extent on the degree of trust within the society.

Portes (1998) defines social capital as the ability of individuals to obtain scarce resources in the network or in the broader social structure through their membership, and he believes that social capital is the result of embeddedness. His logic is that the structure exists first, and that it provides the actors with two kinds of structural constraints: reciprocal expectation and

enforceable trust, under which actors can have a certain membership through rational embeddedness or structural embeddedness, to obtain the potential to obtain scarce resources. In order to demonstrate that social capital does not have such positive effects as Putnam said, he puts forward the concept of negative social capital and believes that social capital has at least four negative consequences: exclusion of outsiders, excessive demands on group members, restrictions on individual freedom and elimination of differences with norms. He further argued that too intimate social networks are closed, and such social capital not only brings strong benefits to members within the network, but also limits the opportunities for non-network members to enter and obtain social capital. Besides, it also leads to excessive requirements on the group members themselves, too many restrictions, and hinders their spirit of innovation.

Nahapiet and Ghoshal (1998) divided social capital into three dimensions: first, the structural dimension, which refers to the overall model of the relationship among actors, emphasizing the impersonal side of the social relationship network and focusing on the characteristics of network connections and network structure, that is, the existence of network connections, the intensity of connections, the density of the network, center and edge, and connectivity; second, the relationship dimension, which refers to the assets acquired through the creation of relationships or by relationship means, including trust and credibility, norms and punishments, obligations and expectations, and identifiable identity. This dimension emphasizes the personification of the social relationship network, that is, it is related to the actors of social relations, showing as specific and ongoing interpersonal relationships, which is the specific relationship established by the actors in the process of interaction. The third is the cognitive dimension, which refers to those resources that provide different subjects with common understanding, expression, interpretation and meaning system, such as language, symbols, and cultural habits, as well as tacit knowledge in the organization. They believe that social capital constructs some aspects of social structure and facilitates individual actions in these structures. At the same time, social capital in the network is conducive to the acquisition and creation of intellectual capital, thus improving the competitiveness of enterprises.

Based on Putnam's (1993) definition, Newton (1999) understands social capital from three aspects: first, social capital is composed of a series of attitudes and values related to citizens' trust, reciprocity and cooperation, and the key is to make people tend to cooperate, trust, understand and sympathize with each other; second, the main characteristics of social capital are reflected in the personality networks that connect friends, family, community, work and public and private life; third, social capital is a characteristic of social structure and social relations, which helps to promote social action and get things done. According to Newton

(1999), through reciprocity and trust, social capital binds societies together by transforming individuals from self-interested and egoistic calculators who lack social conscience and social responsibility into members of communities with common interests, common assumptions about social relations and a sense of common interests.

Uphoff (2000) divides collective social capital into structural and cognitive. Structural social capital promotes collective action of mutual benefit by relying on roles and social networks established by rules, procedures, and precedents, which is relatively objective and manifested in a visible form and can be designed and improved through the conscious action of the group. Because it is an external performance, it can be observed directly and is easy to change or correct. On the other hand, cognitive social capital guides people to the collective action of common benefit on the basis of common norms, values, attitudes, and beliefs, which reflects people's thoughts and feelings, so it is more subjective. Since it is inherent to the individual and resides in people's minds, it is difficult to change.

On the basis of the illustrations of Bourdieu's (1984) social capital, Coleman (1988) and Putnam (1993), Lin (2002) emphasized that social capital is a kind of resource that invests in social relations and hopes to get a return in the market. It is a kind of resource embedded in the social structure and can be acquired or flowed through purposeful actions. When defining social capital, Lin emphasized that social capital exists in a certain social structure, and people must follow the rules in order to obtain the social capital needed for action, a definition that also shows the initiative of human activity. People can obtain social capital through purposeful action. Lin's definition of social capital contains three aspects: first, social capital is rooted in social networks or social relations, and we cannot consider social capital without social relations; second, social capital is a kind of resource that can bring value, which is reflected not only in material capital such as money and property, but also in human capital and social capital such as prestige, trust, and norms; third, social capital is not only a resource embedded in social relations, but also an investment activity for people to obtain various benefits. Lin (2008) divides social action into instrumental action and emotional action. Instrumental action is understood as obtaining resources that are not owned by actors, while emotional action is understood as maintaining resources already owned by actors.

Different from Coleman and Putnam, Lin (2002) promotes the choice of actors in the structure from the perspective of Interactive Relationship Theory based on the principle of individualism. Considering the motivation of human action or interaction, he divides human action into instrumental and emotional action, and believes that emotional action occupies a basic position, which actually recognizes the rational and perceptual aspects of human

consciousness and the basis of sensibility relative to reason. Combining previous research results, Lin (2002) developed the theory of social capital from the perspective of individualism and highlighted the two important attributes of social capital: relationship and productivity, which laid a good theoretical foundation for the development and improvement of Social Capital Theory.

Although social capital has received extensive attention from many disciplines, the diversity of research contexts also makes the concept definition of social capital diversified and inconsistent (Grootaert & Van Bastelaer, 2002; Portes, 1998). This study summarizes these definitions as shown in Table 2.4.

Table 2.4 Partial representative definitions of social capital

Proposers	Time	Definitions of social capital	Source
Bourdieu	1986	The aggregate of actual or potential resources associated with group members that can provide the group members with the support of collective property.	Bourdieu (1986)
Coleman	1988, 1990	A kind of responsibility and expectation, information channel and a set of normative and effective constraints that can limit and encourage certain behaviors of group members. Social organizations constitute social capital, facilitating the achievement of goals. Such goals could not be achieved in its absence or could be achieved only at a higher cost.	Coleman (1988, 1990)
Putnam	1993, 2000	Social capital is features of social organization such as networks, norms, and trust that facilitate coordination and cooperation for mutual benefits. Social capital refers to connections among individuals: social networks and the value or norms of reciprocity and trustworthiness that arise from them.	Putnam (1993, 2000)
Fukuyama	1999	Social capital is informal values or norms shared among members of a particular group.	Fukuyama (1996)
Lin et al.	2001	Social capital is resources embedded in network of relations, and accessed and used by actors for their own benefit. The concept has two important aspects. First, it represents the resources embedded in personal network of relations rather than directly owned by individuals. Second, individuals can access and use these resources through the network of relations.	Lin et al. (2001)

2.3 Trust

Trust is a pivotal research theme in management studies, extensively applied across myriad

domains such as leadership, team collaboration, partnership relations, organizational change, and knowledge sharing. Sabel (1993) contends that trust is a mutual reliance between parties, believing that neither will commit actions detrimental to the other during transactions. Trust is a keystone in individual, group, and societal behavior, shaping our interactions, collaborations, and the dynamics of our socio-economic structures. It underpins social interaction, reduces transaction costs, elevates transparency, and augments collaboration efficiency (Cook et al., 2013). Fukuyama (1996) posits that trust is a form of social capital capable of curbing transaction costs, thus fostering economic development and societal prosperity. Putnam (1995) perceives social trust as the linchpin of social capital, underscoring the role of trust, norms, and networks in social interaction. McKnight et al. (1998) authenticated that trust directly influences behavioral intention through their trust-behavioral intention model.

Trust plays an instrumental role in medical practices. The trust amongst patients, doctors, and healthcare institutions can sway treatment decisions, medical compliance, satisfaction levels, and health outcomes and has been studied by different scholars. Hall et al. (2001) provided an integrative review of trust towards doctors and medical institutions, delving deep into their definition, measurement, and impact. Thom et al. (2004) dissected how to gauge patients' trust in doctors when assessing medical quality, as well as the nexus between trust and medical quality. Blendon et al. (2014) contrasted the trust quotient of the American public in doctors with that of other nations and its repercussion on healthcare system satisfaction and utilization. Birkhäuser et al. (2017) discerned a significant correlation between patients' trust in medical professionals and health outcomes. Guanais (2015) opines that forging trust relations between healthcare institutions and the community is pivotal for superior health outcomes. Haverfield et al. (2020) evaluated the influence of patient-provider interpersonal interventions on the Quadruple Aim (patient experience, population health, costs, and provider experience), identifying trust as a keystone therein.

From the literature review, the salience of trust in medical practices stands out, especially in understanding how trust in healthcare professionals impacts health outcomes and how trust-building can ameliorate health services and outcomes. In the context of mutual recognition of medical examination results, trust could be the cornerstone influencing stakeholders' actions and decisions. For instance, if doctors harbor skepticism about test results from laboratories in other regions, they might mandate retesting. Consequently, trust might be pivotal in grasping the nuances of the challenges in mutual recognition.

2.4 Social cognition

Social cognition is a psychological theory predominantly examining how individuals acquire, process, and utilize social information. Its roots can be traced back to the 1970s when psychologists began to focus on cognitive processes of individuals within social environments. The definition of social cognition is not static, but delves into how individuals understand, interpret, and respond to various pieces of information in social settings (Fiske & Taylor, 2013). This encompasses our interpretation of others' behaviors, the formation and alteration of attitudes, and the guidance of our actions based on our comprehension of the social world.

Bandura (1986) emphasized the significance of observational learning, suggesting we learn how to act in certain situations by observing the actions of others. He further accentuated the importance of self-efficacy, or our confidence in successfully completing a task. This confidence plays a pivotal role in determining whether we attempt the task and if we persevere when faced with challenges. Devine (1989) spotlighted the role of stereotypes and prejudices in social cognition. She introduced both automatic and controlled components of stereotypes and prejudices, indicating that social cognition is a dynamic and multifaceted process.

Scholars have shown interest in how social cognition impacts and reshapes individual health behaviors and the enhancement of healthcare delivery. On the one hand, social cognitive theory has been employed to elucidate and predict health behaviors such as smoking cessation, dietary habits, and physical activities. Albert Bandura's (1977) theory of self-efficacy has been instrumental in such research. He proposed that an individual's confidence in their ability to successfully execute behaviors (for instance, introducing changes to promote a healthy lifestyle), termed self-efficacy, is key to determining whether they will try and maintain those behaviors. On the other hand, social cognitive theory has been leveraged to enhance healthcare delivery. For instance, studies have shown that a doctor's communication style and demeanor can mold patients' cognitions and emotional reactions, thus influencing patient satisfaction and adherence (Zolnieriek & DiMatteo, 2009). Moreover, grasping patients' cognitions and beliefs, like their understanding of illnesses and treatment expectations, is crucial for delivering personalized medical care (Leventhal et al., 2020).

2.5 Organizational legitimacy

Organizational legitimacy is a pivotal concept in neo-institutional theory, concerning the extent to which an organization is accepted and recognized in its environment. Achieving legitimacy

can facilitate an organization's access to resources, thus influencing its survival and growth. Suchman (1995) suggests that organizational legitimacy, embedded institutionally, exerts a profound impact on an organization's sustenance and evolution, being a fundamental element influencing the organization's regular operations. The survival and growth of organizations are constrained and influenced by various factors, among which the market and institutional environments are paramount (Scott & Davis, 2001).

The application of the organizational legitimacy theory in the healthcare industry predominantly revolves around understanding and interpreting the behaviors of medical institutions and professionals. This chiefly manifests in how medical institutions and professionals attain and maintain their legitimacy and how they decide their actions based on this legitimacy. Scholars like Scott et al. (2000) delved into understanding the behaviors of medical institutions through the lens of their institutional environment. They underscored the centrality of legitimacy in this process, especially when it influences institutional structure and behavior while concurrently affecting institutional survival and development. Moreover, Hoffman (2011) examined from a professionalism standpoint how doctors attain and preserve legitimacy. He discerned that, beyond professional knowledge and skills, doctors also require moral and social acknowledgment to uphold their professional standing and legitimacy.

2.6 Governmental intervention

The theoretical origins of governmental intervention can be traced back to various schools of economic thought. Governmental intervention has been extensively applied in the academic research of economics and public policy, and it denotes the government's regulation or influence on market economic activities through legislative, administrative, and financial means to achieve certain social and economic objectives. Such interventions typically encompass taxation, subsidies, price controls, monetary policies, among others aiming at rectifying market failures, ensuring fair competition, protecting consumers and the environment, and achieving universal welfare (Stiglitz & Rosengard, 2015).

Scholars have shown an interest in the relationship between governmental intervention and stakeholders. Studies indicate that the goals of governmental intervention are not solely to address market failures or achieve economic objectives but also to safeguard and promote the interests of various stakeholders. Governmental intervention may impact stakeholders including consumers, businesses, investors, workers, and other social groups. The choice and implementation mode of government policies, along with its ability to rectify market failures,

achieve fairness and efficiency, protect vulnerable groups, and address information asymmetry, will all influence stakeholder welfare. Olson Jr. (1971) discussed the challenges of collective action and how it impacts the provision of public goods and services, especially highlighting the critical role of the government in resolving these challenges. Stiglitz (2002) explored how information asymmetry can lead to market failures, necessitating governmental intervention. He paid particular attention to how stakeholders are affected by information asymmetry and how governments can rectify this imbalance through policies.

The study of governmental intervention and healthcare behaviors has garnered considerable attention from scholars. Owing to the numerous market failures in the healthcare industry, governments might intervene in various aspects, including addressing information asymmetry and moral hazards, ensuring public health, adjusting the distribution of healthcare human resources, designing, and implementing health insurance policies, and more.

Cutler and Zeckhauser (2000) discussed the characteristics of the health insurance market, including issues like information asymmetry, adverse selection, and moral hazard, and the role of the government in addressing these issues while safeguarding public health. Gruber (2008) analyzed the problems associated with the uninsured population and the government's policy choices in expanding insurance coverage, reducing medical impoverishment, and enhancing public health. Chandra and Skinner (2012) studied how the evolution of medical technology impacts the growth in healthcare expenditures and discussed the government's role in controlling medical expenses and promoting medical technology innovation.

2.7 The proposal of hypotheses

On the basis of the above literature review, the hypotheses of the relationships between variables involved in the logical framework is put forward to lay the foundation for subsequent research.

2.7.1 Related concepts

In the following section, the primary concepts of this study will be defined.

2.7.1.1 Stakeholders

This study adopts Freeman's (2010) concept of stakeholders as its foundational point: stakeholders are defined as organizations or individuals who can directly or indirectly influence the implementation and outcomes of mutual recognition of medical examination results and are

in turn affected by the policy outcomes.

2.7.1.2 Trust embeddedness

The social network explored in this study consists of stakeholder network organizations related to the activities of mutual recognition of medical examination results, composed of closely related organizations or individuals.

Embeddedness in this study describes the relational structure of stakeholders involved in the mutual recognition of medical examination results within the socio-economic system. This connection is influenced by various factors within the system, with different stakeholders interrelating and depending on each other under the influence of embeddedness.

In the research on mutual recognition of medical examination results in China, trust is a key factor in establishing effective social capital, affecting the implementation intentions of various stakeholders. Trust serves as an adhesive in the social network, strengthening the relationships among stakeholders, making them more inclined to implement mutual recognition. Furthermore, trust acts as a medium for the exchange of resources and information, promoting the information flow of medical examination and test results. Moreover, trust fosters the accumulation of social capital, subsequently influencing the willingness for mutual recognition. Therefore, drawing on Granovetter's (2018) perspective, this study perceives trust as a vital element in the social network. It emphasizes the exploration of embedded features of the stakeholder network in mutual recognition of medical examination results from two dimensions: trust structural embeddedness and trust relational embeddedness.

2.7.2 Relationships between variables

In the following section, an analysis of the relationships between the constructs in this study will be conducted.

2.7.2.1 Impact of trust structural embeddedness on the willingness to implement mutual recognition in medical examination results

Trust structural embeddedness focuses on the distribution and pattern of trust within social networks. This includes the network position of trust (e.g., whether an organization or individual is a central node or a peripheral node in the network) and the structure of trust within the network (e.g., whether the network is dense, clustered, or sparse). In a network with a high degree of trust structural embeddedness, the distribution and pattern of trust might significantly impact the behaviors and decisions of network members. For instance, an organization

positioned at the core of a trust network may access more information and resources, thus wielding greater influence.

Within medical activities, the position of various stakeholders within the network and the degree of their connectivity might affect their trust level regarding the mutual recognition of examination results. For example, if a stakeholder occupies a central position in the medical network and maintains close ties with network members, they may be more inclined to trust the examination results of other members since they possess numerous channels to verify the accuracy of these results. Conversely, if a stakeholder holds a more peripheral position with limited connections to other members, they might be more skeptical about the examination results from other institutions.

Therefore, this study proposes the following hypothesis:

Hypothesis 1: Trust structural embeddedness has a positive effect on stakeholders' willingness to mutually recognize medical examination and test results.

2.7.2.2 Impact of trust relational embeddedness on the willingness to implement mutual recognition in medical examination results

Relational trust embeddedness focuses on the nature and strength of trust within specific social relations. This encompasses the reciprocity of trust and the stability of trust. In a relationship characterized by a high degree of trust relational embeddedness, the nature and intensity of trust may significantly affect the behaviors and decisions of the involved parties. For instance, if an organization shares a mutual and stable trust with its partners, they may achieve higher collaboration efficiency and outcomes. Positive experiences between stakeholders can enhance the willingness of both parties to adopt joint actions (Gruber & Köszegi, 2004).

In medical activities, the strength and stability of trust relational embeddedness between various medical institutions can shape their attitudes towards the mutual recognition of examination results. For example, if two medical institutions maintain a long-standing cooperative relationship and have cultivated reciprocal trust through past interactions, they might be more open to accepting each other's examination results. On the other hand, if the trust relational embeddedness between two medical institutions is weak or marred by past conflicts and uncertainties, they might approach each other's examination results with reservations.

Thus, this study proposes the following hypothesis:

Hypothesis 2: Trust relational embeddedness has a positive effect on stakeholders' willingness to mutually recognize medical examination and test results.

2.7.2.3 Impact of cognitive embeddedness on the willingness to implement mutual recognition in medical examination results

Social cognition refers to people's understanding and interpretation of the social world, typically achieved through their thinking, perception, and memory processes. It can shed light on how organizations perceive and respond to various pressures and opportunities in their environment (Fiske & Taylor, 2013). In the context of network discussions, cognition includes the shared perceptions, norms, beliefs, and experiences of network members (Nahapiet & Ghoshal, 1998; Reagans & McEvily, 2003). Cooperative and communicative behaviors at the cognitive level can reduce conflicts among members (Inkpen & Tsang, 2005), enhance information transmission (Nahapiet & Ghoshal, 1998), encourage innovation, and provide opportunities for sharing knowledge and resources (Dyer & Nobeoka, 2000).

Cognitive embeddedness emphasizes the role of social cognition in shaping organizational behavior (Dacin et al., 1999). In the context of medical examinations and testing, social cognition may affect the organization's willingness to mutually recognize test results since organizational decision-making processes are often influenced by its environmental perceptions (Weick, 1995). For instance, if an organization believes that mutual recognition of test results can enhance efficiency and reduce errors, it might be more inclined to embrace such recognition. Furthermore, this desire could influence stakeholders in medical testing and examination, as their behaviors and decisions are typically influenced by their perceptions of organizational behavior (Mitchell et al., 1997). Therefore, if an organization expresses a desire for test result recognition, its stakeholders might also be more inclined to support and promote such recognition. Thus, the following hypothesis is proposed:

Hypothesis 3: Cognitive embeddedness has a positive effect on stakeholders' willingness to mutually recognize medical examination and test results.

2.7.2.4 Mediating role of organizational legitimacy

Neo-institutional theorists argue that the essential foundation for an organization's survival and continuous development is its legitimacy, thereby playing a crucial role in an organization's willingness to undertake specific actions. Addressing mutual recognition issues in Chinese medical examination results is a complex process, potentially involving a critical mediating variable, notably organizational legitimacy.

Trust structural embeddedness pertains to the formation of relationships between an organization and other organizations in its environment, and the strength and complexity of these relationships might influence the degree to which an organization is accepted in its

environment, thereby affecting its legitimacy (Granovetter, 2018). Trust relational embeddedness primarily refers to the specific relationships between two organizations with a certain level of trust, which might affect the organization's acceptance in its environment and, consequently, its legitimacy (Uzzi, 1997). Cognitive embeddedness involves the organization's understanding and interpretation of its environment, which may influence its perception of actions and, in turn, its legitimacy (Baron, 2004). Simultaneously, as a mediating variable, organizational legitimacy can moderate the influences of trust structural embeddedness, trust relational embeddedness, and cognitive embeddedness on stakeholders' willingness to implement mutual recognition of medical examination results. Organizations with high legitimacy might find it easier to gain acceptance and endorsement from stakeholders, thereby facilitating mutual recognition of medical examination results (Suchman, 1995). Hence, the following hypotheses are proposed:

Hypothesis 4: Trust structural embeddedness has a positive effect on organizational legitimacy.

Hypothesis 5: Trust relational embeddedness has a positive effect on organizational legitimacy.

Hypothesis 6: Cognitive embeddedness has a positive effect on organizational legitimacy.

Hypothesis 7: Organizational legitimacy positively impacts stakeholders' willingness to mutually recognize medical examination and test results.

Hypothesis 8: Organizational legitimacy mediates between trust structural embeddedness and stakeholders' willingness to mutually recognize medical examination and test results.

Hypothesis 9: Organizational legitimacy mediates between trust relational embeddedness and stakeholders' willingness to mutually recognize medical examination and test results.

Hypothesis 10: Organizational legitimacy mediates between cognitive embeddedness and stakeholders' willingness to mutually recognize medical examination and test results.

2.7.2.5 Moderating role of governmental intervention

In the field of management, the influence of governmental intervention has been widely accepted and is considered to have the capacity to shape and guide the behaviors of organizations and individuals (Le Riche et al., 2022; North, 1971). The power of governmental intervention manifests in its ability to, directly or indirectly, mold the behaviors of organizations and individuals through various policies, regulations, and guidelines. North (1971) deepened its role, viewing it as part of the institutional environment, which is seen as a key factor affecting economic and organizational behaviors. Scott (2013) further elaborated on how the institutional

environment, including governmental intervention, impacts organizational structure and behavior.

In the context of mutual recognition of medical examination results, governmental intervention can be seen as a potential moderating variable that might influence the dynamics of the recognition process. Through the formulation and implementation of relevant policies and regulations, as well as through incentive measures, the government can modulate trust structural embeddedness, trust relational embeddedness, and cognitive embeddedness, thereby influencing stakeholders' willingness to recognize examination and test results mutually.

Specifically, the government might enhance medical quality standards to bolster trust in medical institutions, thereby influencing stakeholders' trust structural embeddedness, trust relational embeddedness, and cognitive embeddedness in these institutions, further affecting their willingness for mutual recognition of examination results. Alternatively, the government could intensify the implementation of mutual recognition policies, thereby impacting stakeholders' willingness for such recognition. Therefore, the following hypotheses are proposed:

Hypothesis 11: Governmental intervention positively moderates the impact of trust structural embeddedness on stakeholders' willingness to mutually recognize medical examination and test results.

Hypothesis 12: Governmental intervention positively moderates the impact of trust relational embeddedness on stakeholders' willingness to mutually recognize medical examination and test results.

Hypothesis 13: Governmental intervention positively moderates the impact of cognitive embeddedness on stakeholders' willingness to mutually recognize medical examination and test results.

The research hypotheses are summarized as shown in Table 2.5.

Table 2.5 Summary of research hypotheses

Hypotheses	Content
1	Trust structural embeddedness has a positive effect on stakeholders' willingness to mutually recognize medical examination and test results.
2	Trust relational embeddedness has a positive effect on stakeholders' willingness to mutually recognize medical examination and test results.
3	Cognitive embeddedness has a positive effect on stakeholders' willingness to mutually recognize medical examination and test results.
4	Trust structural embeddedness has a positive effect on organizational legitimacy.
5	Trust relational embeddedness has a positive effect on organizational legitimacy.
6	Cognitive embeddedness has a positive effect on organizational legitimacy.
7	Organizational legitimacy positively impacts stakeholders' willingness to mutually recognize medical examination and test results.

8	Organizational legitimacy mediates between trust structural embeddedness and stakeholders' willingness to mutually recognize medical examination and test results.
9	Organizational legitimacy mediates between trust relational embeddedness and stakeholders' willingness to mutually recognize medical examination and test results.
10	Organizational legitimacy mediates between cognitive embeddedness and stakeholders' willingness to mutually recognize medical examination and test results.
11	Governmental intervention positively moderates the impact of trust structural embeddedness on stakeholders' willingness to mutually recognize medical examination and test results.
12	Governmental intervention positively moderates the impact of trust relational embeddedness on stakeholders' willingness to mutually recognize medical examination and test results.
13	Governmental intervention positively moderates the impact of cognitive embeddedness on stakeholders' willingness to mutually recognize medical examination and test results.

2.8 Conceptual model

Drawing from the above literature review and analysis, this study postulates that stakeholders' networks exert influence on the willingness of stakeholders to mutually recognize medical examination and test results through three dimensions: trust structural embeddedness, trust relational embeddedness, and cognitive embeddedness. However, based on existing research, there is limited investigation into the pathways through which these embeddedness perspectives affect the mutual recognition willingness for medical examination and test results. Based on the inferred relationships among these constructs, this study hypothesizes that organizational legitimacy may act as a mediator in the influence of embedded features of stakeholder networks on the willingness to mutually recognize medical examination and test results. Additionally, governmental intervention may play a moderating role in this relationship.

Therefore, this study proposes a theoretical conceptual model concerning the impact on the willingness to mutually recognize medical examination and test results, as depicted in Figure 2.1 below.

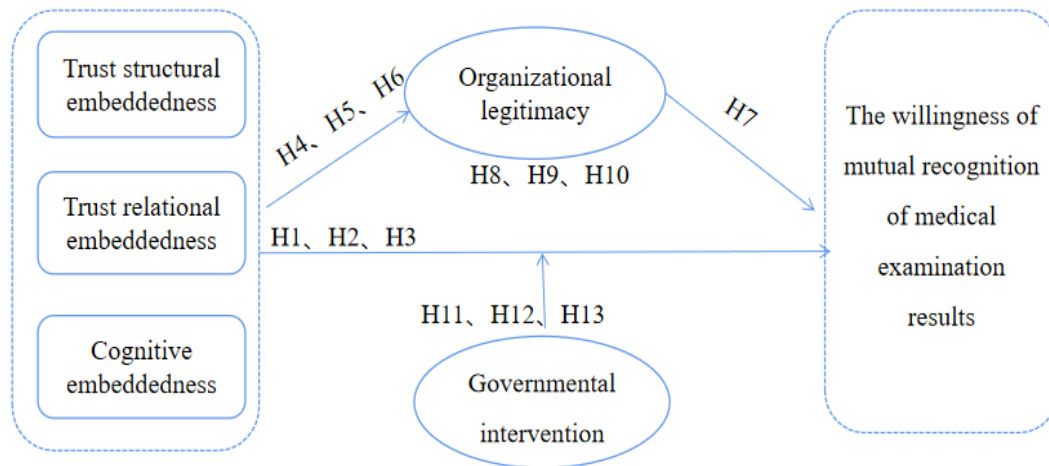


Figure 2.1 Conceptual model

2.9 Summary

Since the 1980s, scholars have conducted extensive and in-depth studies on stakeholder management theory, yielding rich research outcomes.

Firstly, Freeman's (2010) pioneering work ignited scholarly enthusiasm for this theory and, although it has seen rapid development since then, a unified research paradigm has yet to be established. This might correlate with the inability to achieve consensus on the normative dimension, as identified by Donaldson and Preston (1995) as the core among the three levels of analysis. Jones and Wicks (1999) attempted to create an integrated stakeholder theory, but faced critiques from many scholars. For instance, Freeman (1999) believed that an integrated stakeholder theory is unnecessary, and instead, a plurality of perspectives should be encouraged. Donaldson (1999) also opined that different stakeholder theories seemingly adhere to their distinct research approaches, suggesting that various methodologies can coexist under the same theoretical framework of stakeholder principles.

Secondly, from the perspective of stakeholder management theory, research on corporate stakeholder management can be broadly categorized into individual, relational, and network perspectives. Among these, the individual perspective dominates, especially that originating from corporations, with the relational and network perspectives being comparatively under-represented. Existing studies within these perspectives tend to address them in isolation, neglecting the interconnectedness between them. Yet, in reality organizations exist within a network of stakeholders, underscoring the importance of systematically reviewing the multiple perspectives of stakeholder management theory.

Most research from the individual perspective mainly focuses on stakeholder identification and classification and proposes corresponding management strategies based on this categorization (Clarkson, 1995; Freeman, 2010; Jawahar & McLaughlin, 2001; Jones & Wicks, 1999; Mitchell et al., 1997; Savage et al., 1991). Such research often overlooks the bidirectional interactions between firms and stakeholders. At the same time, studies from relational and network perspectives are sparse. Current literature on stakeholder management that addresses relationships often only refers to the principal-agent relationships within company-stakeholder relations (primarily using economic theories) and the complementary and essential properties of these relationships (Friedman & Miles, 2002; Hill & Jones, 1992), neglecting other elements reflecting the nature and features of relationships. Network-oriented research tends to focus on the density of stakeholder networks and firms' centrality within them, neglecting the impact of individual relationships that constitute the network (Rowley, 1997). Thus, stakeholder management must consider both direct and indirect relationships between organizations and stakeholders, as well as the structural features of firms and stakeholders within networks.

With the increasing maturity of social network analysis methods in sociology and their expanding applications within management studies, the possibility of integrating stakeholder research under the network perspective emerges, paving the way for new theoretical constructs and developments. As mentioned, social network theory provides a lens for our analysis.

Chapter 3: Research Design and Methods

Management studies have consistently emphasized the importance of employing a mixed-methods approach, combining both qualitative and quantitative research (Creswell & Creswell, 2017). When investigating the willingness to mutually recognize medical examination results, it is imperative not only to base theoretical research on ample literature but also to validate it through scientific methodologies. Valuable research conclusions can be drawn through appropriate expert consultations, the design of structured questionnaires, the application of scientifically rigorous sampling and survey methods, and suitable data analysis procedures. To scientifically validate the research hypotheses posited earlier, this chapter will provide a detailed account of the expert consultations conducted, the content and process of designing the questionnaire, the selection criteria for the model variables' measurement indicators, the data collection and survey process, as well as the research methodologies adopted. This lays a solid foundation for the empirical research in the subsequent chapter (King et al., 2021).

3.1 Composition of stakeholders in mutual recognition of medical examinations and test results

Identifying stakeholders in the mutual recognition of medical examination and test results is foundational and preliminary to studying the mechanisms influencing this recognition. Presently, there exists a variety of definitions for stakeholders, with no definite consensus among researchers (Friedman & Miles, 2006). Based on the stakeholder theory review from Chapter 2, this research analyzes organizations or individuals that directly or indirectly influence the implementation and outcomes of mutual recognition of medical examination and test results and are affected by policy outcomes (Freeman, 2010). Based on the definition of stakeholders provided by the literature and considering the specific problem studied – mutual recognition of medical examinations and test results – the following 20 potential stakeholder categories have been identified, as described in section 3.2 below:

Finance Departments: Act as the financial guarantors for public health projects, ensuring the smooth functioning of the medical system.

Health Administration Departments: Oversee the formulation and execution of health

policies, including the standardization and normalization of medical examinations and tests.

Social Security Departments: Execute social insurance policies, closely linked to the financial burden of medical examinations and tests.

Drug Regulation Departments: Supervise the entire lifecycle of drugs, from production to consumption, including those utilized in medical examinations and tests.

Administration for Industry and Commerce: Regulate business behaviors, encompassing medical institutions and testing facilities.

Technical Supervision Bureau: Responsible for establishing and overseeing technical standards, including those for medical examinations and tests.

Comprehensive Tertiary Class A Hospitals, Comprehensive Secondary Class A Hospitals, Primary Health Care Institutions, and Community Centres since, as healthcare providers, they rely on medical test results for diagnosis and treatment.

Patients: Have a crucial need for the accuracy of medical examination and test results to obtain appropriate treatment.

Non-Governmental Organizations, Consumer Protection Associations, General Public, Red Cross, and Social Medical aid Institutions: These entities continuously monitor the accuracy, fairness, and general acceptability of medical examinations and tests.

Industry Associations (hospitals, physicians): Represent the medical industry, focusing on standards and regulations for medical testing and their impact on the sector.

Pharmaceutical, Medical Equipment, and Instrument Suppliers: Hold significant interest in the technical requirements and market size for medical examinations and tests.

Third-party Medical Examination and Testing Institutions: Provide independent medical testing services to healthcare institutions and patients.

Medical Education Institutions: Responsible for training doctors and medical technicians, directly influencing educational and training needs for medical testing.

3.2 Expert consultation

We recognize that identifying and ranking stakeholders in the mutual recognition of medical examination and test results is crucial. Using expert consultation, we identified and ranked the 20 potential stakeholder categories, categorizing them into three types: definitive stakeholders, expectant stakeholders, and latent stakeholders (Mitchell et al., 1997).

3.2.1 Selection of experts

Initially, a list of experts familiar with the subject was recommended by staff from hospital medical examination and testing departments. Further, renowned experts were identified from relevant journals and publications. An electronic questionnaire link for expert consultation was sent via email to both groups. We also inquired about each expert's availability for the complete evaluation and requested them to recommend 1 to 2 additional experts in the domain.

To ensure breadth, representation, and authority, these experts spanned the industries and specialized fields of the 20 types of potential stakeholders. For each stakeholder category, a minimum of two experts were selected to guarantee equal and appropriate representation. For key stakeholders who might have a more significant influence in decision-making and execution, such as Health Administration Departments, Finance Departments, Comprehensive Tertiary Class A Hospitals and Primary Health Care Institutions, the number of experts was increased to three.

In total, 32 experts were selected for consultation. These experts, on the one hand, represent major health policy decision-makers, offering in-depth insights into policy backgrounds, trends, and regulatory details. On the other hand, they represent practitioners and scholars in the medical field, directly involved in the mutual recognition of medical examination results, thus providing valuable firsthand feedback on techniques, processes, and standards. Most were aged 40 and above, constituting 65.6% of the group. Over half of these experts have garnered more than 10 years of experience in their respective fields, reflecting a wealth of life and professional experience. Furthermore, academically, and professionally, they have achieved high stature; 71.9% of the experts possess at least a master's degree, and 65.6% hold respected positions in their disciplines, underscoring their substantial expertise and unique, influential insights into the mutual recognition of medical examination results. The data is detailed in Table 3.1.

Table 3.1 Descriptive analysis of expert profiles

Variable	Category	Frequency	Percentage (%)
Gender	Male	18	56.3
	Female	14	43.8
Age	≤30 years	1	3.1
	31-40 years	5	15.6
	41-50 years	19	59.4
	≥ 51years	7	21.9
Educational level	Master's Degree or higher	23	71.9
	Bachelor's Degree	7	21.9
	Associate Degree or other	2	6.3
	Full Senior	8	25.0
Professional title	Associate Senior	13	40.6
	Intermediate	9	28.1

Position	Junior	2	6.3
	Departmental Level	8	25.0
	Sectional Level	13	40.6
	Other	11	34.4
Years in main field	≤10 years	10	31.3
	11-20 years	10	31.3
	≥ 21years	8	25.0
	Not reported	4	12.5

3.2.2 Implementation of expert consultation

The expert consultation was conducted via a consultation questionnaire (see Annex B) utilizing a 7-point Likert scale. Initially, experts were asked to select the stakeholders they recognize from a list of 20 potential stakeholder types. Subsequently, for the identified stakeholders, we requested the experts to rank these stakeholders based on the Mitchell's (1997) scoring method from three dimensions: power, legitimacy, and urgency.

Upon obtaining consent from the experts, we dispatched the first round of consultation materials via email, which included an expert letter, background information on this study, and a link to the electronic questionnaire. Within the expert letter, we briefly outlined the purpose and objectives of the study, emphasizing the role of the experts' responses in the evaluation. Additionally, we provided a thorough explanation of both the concept of stakeholders and the fundamental principles of Mitchell's scoring method. After collecting the responses from the first round, we consolidated, organized, and analyzed the completed questionnaires, gauging the level of authority and consensus in expert opinions.

Fifteen days later, we initiated the second round of survey using the same consultation form. In this round, the statistical results from the initial survey, as well as each expert's personal responses from that round, were attached to the second round's questionnaire. These were sent to the experts who participated in the first round via email. We further elucidated the objectives of the study, the current state of mutual recognition of medical examination results, and the concept of stakeholders. After presenting the aggregated results of the first round, we inquired if any of the experts wished to alter their projections.

After completing and organizing the materials from the second round of consultations, we determined that an additional round was not required since consensus had been achieved.

3.3 Questionnaire survey

A scientifically and reasonably constructed survey can effectively collect and analyze information about the entire sample as well as its individual components (Creswell & Creswell,

2017). Given the challenges of obtaining data related to the influencing variables of the mutual recognition of medical examination results from industry public materials, this study employs a questionnaire survey method to collect the required data for empirical research.

3.3.1 Questionnaire content

The questionnaire designed for this study focuses on several main components to gain an in-depth understanding of the issue of mutual recognition of medical examination results in China:

(1) Respondent's basic information: The information collected will help understand the respondent's basic knowledge concerning the stakeholders of the medical examination and testing, encompassing the attributes, size, and relationships of these stakeholders.

(2) Embeddedness influence: This section aims to understand stakeholders' embeddedness in the social network of mutual medical examination result recognition, starting from the three dimensions of structural embeddedness, relational embeddedness (Granovetter, 2018), and cognitive embeddedness (Zukin & Dimaggio, 1990).

(3) Organizational legitimacy: This segment delves into the level of legitimacy (Suchman, 1995) of stakeholders in the mutual recognition of medical examination results. By understanding the respondents' views on the legitimacy of these stakeholders, we can better grasp their attitudes and behaviors towards the mutual recognition issue.

(4) Governmental intervention: This section emphasizes analyzing the impact of governmental intervention on the willingness for mutual recognition of medical examination results. The role of the government and its policies might have significant implications for the decisions and behaviors of various stakeholders (Scott, 2013).

(5) Willingness for mutual recognition of medical examination results: The final section aims to evaluate the willingness towards the mutual recognition of medical examination results from the perspective of various stakeholders.

3.3.2 Questionnaire design

The quality of questionnaire design, the selection of measurement indicators, as well as the reliability and validity of the scales, are all closely associated with the ultimate value and scientific integrity of the research conclusions (Bradburn et al., 2004). Hence, this study adhered to the following steps and methods for questionnaire design:

Firstly, we extensively reviewed existing literature, focusing on established scales for various variables. Drawing from theories like stakeholder, embeddedness, social networks,

organizational legitimacy, and governmental intervention, we consolidated key insights and elements. This led to the initial design of our research items, forming our questionnaire's prototype. A central step was operationalizing variables, turning abstract concepts into measurable statements. By referencing widely used scales from academic research and tailoring them to the needs of our study, we ensured the accuracy and relevance of our research.

Secondly, we consulted the experts for feedback. Considering the limitations of current scales (Bradburn et al., 2004), the draft questionnaire was repeatedly revised to address ambiguous items. These revisions involved discussions with stakeholders such as health officials, industry leaders, and medical peers, refining the questionnaire for clarity and precision, resulting in its improved second draft.

Thirdly, before launching the main study, we conducted a pilot study to evaluate the phrasing, item design, and its capacity to capture the desired information. Based on the feedback from this pilot study, we finalized the questionnaire (Annex C).

3.3.3 Variable design and measurement indicator selection

Based on the theoretical foundation, model framework, and research hypotheses outlined in Chapter 2, this study addresses constructs including trust embeddedness (both trust structural and relational embeddedness), cognitive embeddedness, organizational legitimacy, governmental intervention, and willingness for mutual recognition of medical examination results (Granovetter, 2018; Hu et al., 2020; Meyer & Rowan, 1977). We employed subjective perception methods to construct measurement scales, specifically using Likert scales. While both 5-point and 7-point scales (Likert, 1932) are common in management research, this study utilized a 7-point scale, with “7” indicating “strongly agree,” “4” being neutral, and “1” indicating “strongly disagree” aiming at a greater accuracy.

3.3.3.1 Dependent variable

The willingness for mutual recognition of medical examination results serves as the dependent variable in this research. Behavioral intent is broadly employed in behavioral and social sciences as a pivotal variable to explain and predict behaviors. This concept predominantly draws from the Theory of Planned Behavior and the Expectation Confirmation Theory.

Ajzen (1991) proposed the Theory of Planned Behavior model, a widely adopted scale measuring behavioral intent. This model encompasses attitudes toward the behavior, subjective norms, and perceived behavioral control. Applied extensively across various behavioral studies, this theory suggests that to understand a stakeholder's intention towards the mutual recognition

of medical examination results, their attitude, subjective norms, and perceived behavioral control towards the act must be evaluated.

Oliver (1980) introduced the Expectation Confirmation Theory, positing that individual satisfaction is linked to the consistency between their expectations and actual experiences. Here, if stakeholders (e.g., hospitals, patients, government bodies) find that implementing mutual recognition meets their expectations (e.g., enhanced medical service quality, efficiency), their satisfaction and subsequent behavioral intention might increase.

In social behavior, behavioral intent is used to predict and elucidate socially impactful actions. For instance, Ajzen and Fishbein (1972) theoretical model "Beliefs, Attitudes, Intentions, and Behavior" assesses anticipated intentions across various societal and health behaviors. Davis (1989) in his Technology Acceptance Model (TAM) viewed user acceptance as behavioral intent, predicting user behaviors towards IT. Additionally, Venkatesh et al. (2003) presented the TAM to measure user intentions towards new technology acceptance, focusing on perceived usefulness and ease of use.

In the realm of medical services, behavioral intent also examines patient acceptance of novel medical services and medical personnel's willingness towards new technologies and practices. Holden and Karsh (2010) analyzed the TAM's application in healthcare, especially measuring healthcare professionals' intent towards new technology adoption.

Therefore, based on the existing literature on behavioral intention measures, we designed relevant questionnaire items to form a scale evaluating the mutual recognition willingness of medical examination results. Annex D provides a detailed list of measurement items.

3.3.3.2 Independent variable

This research identifies embeddedness as the independent variable. Based on the literature review and theoretical analysis in Chapter 2, this study measures embeddedness from three dimensions: trust structural embeddedness, trust relational embeddedness, and cognitive embeddedness.

(1) Trust structural embeddedness

Trust structural embeddedness is widely applied in the medical services domain to explain various issues like service quality, efficiency, and patient satisfaction (Jones & George, 1998; Tsai & Ghoshal, 1998). Drawing on existing literature on the concept and measurement of structural embeddedness, appropriate items were designed to measure it.

(2) Trust relational embeddedness

In the field of medical services, trust is seen as a pivotal factor influencing patients'

perceptions of service quality, satisfaction, and loyalty. Gilson (2003) investigated the relationship between trust and medical service quality, noting that trust enhances patients' perception of the quality of medical services, especially when addressing complex or sensitive issues. Relying on existing literature regarding the concept and measurement of relational embeddedness, appropriate items were crafted to measure it.

(3) Cognitive embeddedness

In the realm of medical services, stakeholders' cognitive embeddedness pertains to understanding and processing information, decision-making, and coordinating actions. These cognitive embedded patterns may influence the standards, execution, and mutual recognition of medical examinations. Tsoukas and Vladimirou (2001) posited that knowledge is cognitively embedded within organizational practices, both individually and collectively. When different medical institutions possess diverse cognitive embeddedness regarding examination standards and guidelines, it could hinder the mutual recognition of medical results. Drawing from the extant literature on the concept and measurement of cognitive embeddedness, this study designed suitable items for its measurement.

3.3.3.3 Mediating variable

Organizational legitimacy serves as the mediating variable in this research. In the realm of healthcare services, organizational legitimacy pertains to the trust and acceptance of healthcare providers by patients, the general public, policy makers, and other stakeholders. Research by Elg et al., (2012) indicates that the quality of healthcare services is a critical element in establishing organizational legitimacy. They found that by delivering high-quality medical services, healthcare institutions can enhance their organizational legitimacy, subsequently acquiring more resources and support. This study adopted the conceptual definitions and measurement metrics of organizational legitimacy from existing research and designed appropriate items to measure it.

3.3.3.4 Moderating variable

Governmental intervention functions as the moderating variable in this study as it can play a vital role in regulating the relationship between organizational behavior and outcomes. In many instances, governmental policies and regulations can influence organizational decisions and actions, thereby altering their outcomes. Jensen (2003) developed a scale to measure the impact of governmental intervention on the inflow of foreign direct investment. Frye and Shleifer (1997) crafted a scale to assess the impact of governmental intervention on economic

development.

Within the domain of healthcare services, government regulations and oversight are crucial for ensuring public health and safety. Their influence is typically manifested through modifications to policies, regulations, and procedures, affecting the delivery, quality, equity, and efficiency of medical services. Research by Wiig et al., (2014) indicates that government regulations and oversight can enhance the quality of healthcare services. Their study measured the degree of regulatory rigor and the strictness of regulations for healthcare providers. Moscelli et al., (2018) noted that government policies and interventions can affect the equity of medical services. Their research explored the decision-making authority of the government in healthcare resource allocation and its control over medical service pricing. Godager and Wiesen (2013) studied the government's investment in healthcare service provision and regulations regarding its geographic distribution. They pointed out that government policies and interventions can influence the accessibility of healthcare services. This study drew from the aforementioned research on the conceptual definitions and measurement metrics of governmental intervention and crafted suitable items to measure it.

3.3.3.5 Control variables

In the research design, to mitigate potential confounding factors, the following control variables were introduced to enhance the explanatory power of our research model:

Respondent's gender: Gender may influence human behaviors or perspectives. Given the potential variations in experiences and views between males and females, gender differences might impact research outcomes. The influence of gender on clinical decisions underscores its significance as a control variable (Westen & Rosenthal, 2003).

Respondent's educational level: An individual's level of education can influence his/her knowledge and understanding, which in turn affects viewpoints and behaviors. Existing research has found a significant relationship between educational attainment and job satisfaction (Kurtulus & Kruse, 2017). Thus, when addressing issues related to knowledge, attitudes, or preferences, it is essential to consider the educational level of respondents as a control variable.

Type of evaluated stakeholder: Different types of medical institutions or departments may vary in their operations and management. Different types of organizations might have distinct management styles and outcomes (Bear et al., 2010). Therefore, incorporating this variable as a control ensures that any variations do not impact the research outcomes.

Relationship between respondent and stakeholder: The relationship between the respondent

and the stakeholder can influence viewpoints and attitudes. Likewise, the relationship between an individual and an organization can significantly affect his/her job satisfaction and efficacy (Van der Vegt et al., 2006).

Total Number of Stakeholder Employees: The size of an institution can influence its operations, management, and relationships with other stakeholders. Existing research demonstrates that organizational size affects its behavior and effectiveness (Hitt et al., 2001). Hence, to prevent research outcomes from being influenced by the total number of stakeholder employees, it is examined as a control variable.

3.3.4 Data collection and processing of the survey

The type of data collected in this study is exclusively cross-sectional. To ensure rigor and depth in the research, data collection occurs in two stages: the pilot study and the main study. This approach contributes to gathering data with a high degree of reliability and validity.

3.3.4.1 Sample selection

In this study, the identification and classification of stakeholders are based on the expert consultation, following the Mitchell et al. (1997) framework, which assesses stakeholders on three dimensions: legitimacy, power, and urgency. Based on the scores in these dimensions, stakeholders are categorized into three types:

Definitive stakeholders: This group scores above 5 in all three dimensions: legitimacy, power, and urgency. They are the primary implementers and beneficiaries of mutual recognition of medical examination and test results. Due to their clear and direct interests in the entire process, their perspectives, attitudes, and feedback are crucial.

Expectant stakeholders: This group scores above 5 in two of the three dimensions. Although they might not currently hold direct power or influence, they are anticipated to become more deeply involved in this process in the future. Understanding their expectations and concerns helps in forecasting and addressing potential challenges and opportunities down the line.

Latent stakeholders: This group scores above 5 in any one of the three dimensions. While they might be impacted by the mutual recognition of medical examination and test results, they haven't directly participated yet. Surveying this group provides a more comprehensive understanding of the needs and views of all parties, ensuring that the interests of all stakeholders are balanced.

3.3.4.2 Data collection

Given the convenience and scope of data collection, this research employed electronic questionnaires. Considering data security and user-friendliness of the questionnaire, the study chose "Questionnaire Star", an online survey tool widely utilized in China's academic community, for the design and distribution of the questionnaire.

Pilot study: The pilot study commenced in April 2023 and lasted for one month, during which 150 questionnaires were distributed. A total of 135 questionnaires were collected. After careful review, 10 questionnaires with poor quality answers or excessively short response times were excluded. As a result, 125 valid questionnaires were obtained, with an effective response rate of 83.33%. After analysis using SPSS 25 software, we observed that all items met the anticipated measurement standards, validating them for the main study.

Main study: To accurately target the intended demographic, we first familiarized ourselves with the stakeholders of mutual recognition of medical examination and test results, especially their employees, clients, and partners. The official survey commenced in June 2023, spanned along three months during which 560 questionnaires have been distributed, and 479 valid responses were retrieved, yielding an effective response rate of 85.54%.

3.3.4.3 Data quality control

To ensure data quality, we instituted quality control measures during both the questionnaire design and subsequent data processing including:

Optimized questionnaire design: To prevent random or erroneous entries by respondents, we incorporated logical checks and mandatory questions during the design phase, ensuring that respondents provide consistent and complete information.

IP address and device monitoring: By recording respondent IP addresses and device information, we ensured that each respondent submitted only one questionnaire, eliminating the potential for duplicate entries.

Data cleaning: Upon completing data collection, preliminary data cleaning was conducted. Questionnaires with notably short response times or those showing significant inconsistencies with other questionnaire contents were discarded. We checked for missing values and based on the nature of the omissions, adopted either imputation or deletion methods. Outlier detection was set up, and any data identified as an outlier underwent individual review to determine its potential removal from the dataset.

3.4 Focus group discussions

This section aims to elucidate the application of focus group discussions in this research. As a qualitative research method, focus group discussions are designed to explain why certain hypotheses were not supported in the empirical study and to reveal the underlying deep-seated reasons behind these phenomena. This method not only helps in gaining a deeper understanding of the perspectives and attitudes of stakeholders but also facilitates intellectual exchange among members, prompting new reflections on existing concepts. Through these discussions, we can uncover specific problems and challenges in practice, providing practical suggestions for improving the efficiency and effectiveness of mutual recognition of medical examination and test results (Saldanha & O'Brien, 2014).

3.4.1 Composition of the focus group

The focus group consisted of six professionals, encompassing a doctor, a laboratory technician, a representative from the healthcare industry regulatory authority, a policy maker, a representative from a health insurance company, and a medical information technology expert, with one individual from each specialty field. This diverse composition ensured a comprehensive coverage of perspectives and experiences related to mutual recognition of medical examination and test results.

3.4.2 Arrangement of the discussion meeting

The discussion meeting was semi-structured, conducted in a neutral and informal setting. The meeting began with open-ended questions, gradually delving into specific and complex issues. While ensuring the free expression of opinions by the participants, we ensured that the discussions remained focused on the core issues.

3.4.3 Preparation and outline for discussions

To ensure participants had a comprehensive understanding of the research content, we introduced the research background, hypotheses, and empirical results in detail before the discussions. Moreover, to maintain the focus and efficiency of the discussion, we designed a detailed discussion outline, including:

- (1) Views and perceptions of current policies on mutual recognition of medical examination and test results.

(2) Identification of major barriers and challenges encountered in the implementation process of mutual recognition.

(3) Exploration of the impact of trust structural embeddedness, trust relational embeddedness, cognitive embeddedness, and organizational legitimacy in mutual recognition.

(4) Discussion of the role and efficacy of governmental intervention in promoting mutual recognition.

(5) In-depth analysis of unsupported hypotheses in the empirical study, exploring potential reasons and underlying dynamics.

3.4.4 Data collection and analysis

After obtaining consent from all six participants, we recorded the entire discussion process. The use of recordings not only allowed us to capture and analyze the details of the discussions more accurately but also ensured that the views and insights of each participant were fully considered in subsequent analyses, especially in discussions of hypotheses not supported by empirical research. Furthermore, we placed a high value on the privacy and anonymity of the participants. All participants appeared anonymously in this study to ensure that their personal information and views were not disclosed. This approach, in line with ethical standards, helped create a more open and honest discussion environment.

The discussion lasted for two hours, after which we transcribed the recordings verbatim, producing a transcript of 22,000 words. This transcript provided us with a valuable data resource for qualitative analysis. By meticulously analyzing these texts, we were able to gain a more comprehensive understanding of the complexities and challenges of mutual recognition of medical examination and test results, particularly the subtle dynamics and deeper factors that are not easily observable in quantitative empirical research.

3.5 Summary

This chapter provides a systematic description and explanation of the research design and methods. There exists a close logical relationship among these research methods, as they complement and reinforce each other, collectively providing multi-dimensional and multi-level data support and theoretical deepening, thereby ensuring the comprehensiveness and reliability of the research.

Firstly, we employed expert consultation to classify and rank the candidate stakeholders. The purpose of this step is to identify the key stakeholders in the research, providing clear

direction for subsequent research work. The results of expert consultation laid the foundation for selecting appropriate survey respondents.

Subsequently, we conducted the design of the survey questionnaire. During the questionnaire design phase, we ensured that each question was closely related to the research objectives and designed various types of questions to collect data from different perspectives. The formulation of these questions was directly inspired by expert consultation, ensuring that the questionnaire covered key stakeholder groups.

To ensure the reliability and validity of the questionnaire, we conducted a pilot study. The purpose of the pilot study was to test the feasibility of the questionnaire and revise it based on feedback from respondents. This step provided us with a more reliable tool for data collection, ensuring that the collected data are highly accurate and credible.

Finally, this study also introduced focus group discussions as a supplementary research method. By organizing diverse professionals to participate in discussions, we delved into the complexity and challenges of mutual recognition of medical examination results. Focus group discussions not only deepened our understanding of empirical data but also revealed the underlying reasons behind the research findings. The inclusion of this qualitative method expanded the research's perspectives and provided deeper insights.

The research design and methodological choices in this chapter are driven by the requirements of the objectives of the study and also consider the demands of empirical research. In the subsequent chapters, we will delve into a comprehensive analysis of the collected data, furthering both theoretical and empirical discussions.

Chapter 4: Results and Discussion

This chapter primarily employs statistical analysis methods to analyze data obtained from expert consultations and questionnaire collections, conducting direct tests, and examining mediating and moderating effects. After validating the model's efficacy, the study also tests the mediating effect of organizational legitimacy and the moderating effect of governmental intervention.

4.1 Classification of stakeholders for the mutual recognition of medical examination and test results based on expert consultation

We detail the results of identifying and ranking the potential stakeholders through expert consultation, as follows:

4.1.1 Activeness and authority levels of experts

A total of 32 experts were invited to participate in the questionnaire consultation. The valid response rate for the first round of expert consultation was 100%, and the second round also had a valid response rate of 100%. The response rates from both survey rounds meet statistical requirements.

The authority level of the experts is reflected by their basis for making judgments (C_a) and their familiarity level with stakeholders of the mutual recognition of medical examination and test results (C_s). The calculation formula is:

$$(C_r) = (C_a + C_s) / 2 \quad (4.1)$$

The scoring standards for related options are detailed in Annex E.

The average authority level of experts from both consultation rounds is >0.70 , indicating a satisfactory level of expert authority. The authority levels from the two rounds of consultation are shown in Table 4.1.

Table 4.1 Quantification of expert authority

Round 1				Round 2			
Expert No.	Familiarity (C_s)	Basis of Judgment (C_a)	Authority Coefficient (C_r)	Expert No.	Familiarity (C_s)	Basis of Judgment (C_a)	Authority Coefficient (C_r)
1	0.80	0.50	0.65	1	0.80	0.75	0.78
2	1.00	0.25	0.63	2	1.00	0.50	0.75
3	0.80	0.75	0.78	3	0.80	0.75	0.78
4	0.60	0.50	0.55	4	0.60	0.50	0.55
5	1.00	1.00	1.00	5	1.00	1.00	1.00
6	0.80	1.00	0.90	6	0.80	1.00	0.90
7	0.60	0.75	0.68	7	0.60	0.75	0.68
8	0.40	0.50	0.45	8	0.40	0.50	0.45
9	0.40	1.00	0.70	9	0.40	1.00	0.70
10	1.00	0.75	0.88	10	1.00	0.75	0.88
11	1.00	1.00	1.00	11	0.80	1.00	0.90
12	0.60	0.25	0.43	12	0.60	0.75	0.68
13	0.80	1.00	0.90	13	0.80	1.00	0.90
14	0.80	1.00	0.90	14	0.80	1.00	0.90
15	0.40	0.25	0.33	15	0.40	0.25	0.33
16	1.00	0.75	0.88	16	1.00	0.75	0.88
17	0.80	1.00	0.90	17	0.80	1.00	0.90
18	1.00	1.00	1.00	18	1.00	0.75	0.88
19	0.60	1.00	0.80	19	0.80	0.75	0.78
20	0.60	1.00	0.80	20	0.60	1.00	0.80
21	0.80	1.00	0.90	21	0.80	1.00	0.90
22	0.60	1.00	0.80	22	0.60	1.00	0.80
23	0.80	1.00	0.90	23	0.80	1.00	0.90
24	0.60	0.25	0.43	24	0.80	0.50	0.65
25	0.60	1.00	0.80	25	0.60	1.00	0.80
26	0.80	1.00	0.90	26	1.00	0.75	0.88
27	1.00	0.75	0.88	27	1.00	0.75	0.88
28	0.60	0.50	0.55	28	0.60	0.75	0.68
29	0.80	1.00	0.90	29	0.80	1.00	0.90
30	0.80	1.00	0.90	30	0.80	1.00	0.90
31	0.60	1.00	0.80	31	0.60	1.00	0.80
32	0.80	1.00	0.90	32	0.80	1.00	0.90
Mean	0.744	0.805	0.776	Mean	0.756	0.828	0.794

4.1.2 Consistency of expert opinions

The consistency of expert opinions is denoted by the Kendall (1955) coefficient W . For the two rounds of expert consultations on stakeholders for the mutual recognition of medical examination and test results, the Kendall coefficients W were 0.478 and 0.583, respectively. With significance levels less than 0.05 for both, this suggests that the evaluations from the 32 experts exhibit good consistency and are relatively aligned. Detailed data can be found in Annex F.

4.1.3 Analysis of the first round of expert consultation

This study employs the expert consultation method as one of its primary research approaches, starting with the first round aimed at gaining a profound understanding of stakeholders in the mutual recognition of medical examination and test results. In this round, we provided experts with preliminary information about 20 categories of potential stakeholders and sought their opinions and assessments. The experts evaluated and commented on each category of potential stakeholders based on three dimensions: legitimacy, power, and urgency. We collected and summarized this data, including the number of experts supporting each category and the corresponding percentage of support. This comprehensive assessment based on the three dimensions provided us with an in-depth understanding of the first round of consultation. A subsequent table, arranged in descending order of support rates, detailed the analysis results for each category of potential stakeholders. For more details, see Table 4.2.

Table 4.2 Results of the first expert consultation

Stakeholder Candidate	Number of Supporters	Support Rate (%)	Legitimacy	Power	Urgency
Comprehensive Tertiary Class A Hospital	32	100.0	6.38	5.53	5.41
Comprehensive Secondary Class A Hospital	32	100.0	6.25	4.91	4.94
Patients	32	100.0	5.97	4.91	5.78
Primary Healthcare Institutions	31	96.9	5.97	4.52	4.61
Health Administrative Department	30	93.8	6.40	6.47	5.00
Third-party Medical Examination Institution	30	93.8	5.17	4.43	4.57
Social Security Department	29	90.6	6.34	5.97	5.07
Financial Department	25	78.1	5.68	5.52	4.40
Community Center	25	78.1	5.76	4.44	4.68
Industry Association (Hospitals, Physicians)	19	59.4	5.11	4.58	3.74
Pharmaceutical, Medical Equipment, and Device Suppliers	19	59.4	4.63	3.95	3.37
Pharmaceutical Regulatory Department	16	50.0	5.44	4.75	4.13
Technical Supervision Bureau	16	50.0	5.50	4.63	3.81
General Public	11	34.4	4.82	3.55	4.27
Social Medical Assistance Institutions	11	34.4	4.45	3.91	4.09
Administration for Industry and Commerce	10	31.3	5.60	4.60	3.80
Consumer Protection Association	10	31.3	2.90	2.40	2.70
Non-Governmental Organization	9	28.1	3.00	2.00	3.44
Medical Education Institutions	9	28.1	3.89	2.44	1.89
Red Cross Society	7	21.9	3.71	3.29	2.71

The data reveals that comprehensive tertiary class A hospitals, comprehensive secondary

class A hospitals, and patients received unanimous support, with a support rate of 100%. The unanimity among experts underscores the fundamental role and indispensability of these institutions and individuals within the domain of medical examinations and tests.

Analyzing the dimension of legitimacy, the health administrative departments stood out with the highest average score of 6.40. This emphasizes the statutory authority and legitimacy these departments hold within the healthcare sector. Concurrently, comprehensive tertiary class A hospitals followed closely with an average score of 6.38, reflecting their central role in and respect within the healthcare community.

In terms of power, health administrative departments led with an average score of 6.47, highlighting their considerable influence and authority in decision-making. This can be attributed to their regulatory role in the industry. Social security departments also demonstrated notable power, with an average score of 5.97.

Regarding urgency, patients distinguished themselves with a relatively high score of 5.78. This indicates that patients' needs and considerations are given urgency and priority. Health administrative departments and comprehensive tertiary class A hospitals also achieved significant scores in this dimension.

4.1.4 Analysis of the second round of expert consultation

To verify the consistency and stability of the results from the first round and to further deepen our understanding, a second round of expert consultation was conducted. In this round, we presented experts with the aggregated results from the first round and requested them to re-evaluate and adjust their opinions, particularly for those stakeholders where there were significant differences in the first round. The results were organized according to the support rate and can be found in Table 4.3.

Table 4.3 Results of the second expert consultation

Stakeholders	Number of Supporters	Support Rate (%)	Legitimacy	Power	Urgency
Comprehensive Tertiary Class A Hospital	32	100.0	6.38	5.78	5.66
Comprehensive Secondary Class A Hospital	32	100.0	6.31	5.31	5.16
Primary Healthcare Institutions	32	100.0	6.03	5.13	5.28
Patients	32	100.0	6.09	5.50	5.94
Health Administrative Department	31	96.9	6.42	6.48	5.16
Social Security Department	30	93.8	6.37	5.90	5.07
Third-party Medical Examination Institution	30	93.8	5.60	5.10	5.03
Financial Department	27	84.4	5.89	5.44	4.44
Community Center	27	84.4	6.00	5.07	4.37

Industry Associations (Hospitals, Physicians)	25	78.1	5.76	5.48	3.76
Technical Supervision Bureau	24	75.0	5.63	4.25	3.46
General Public	22	68.8	5.50	3.91	4.05
Pharmaceutical, Medical Equipment, and Device Suppliers	22	68.8	5.68	4.91	3.64
Pharmaceutical Regulatory Department	21	65.6	5.48	4.43	4.05
Medical Education Institutions	11	34.4	3.27	2.55	2.18
Administration for Industry and Commerce	9	28.1	5.00	4.00	3.67
Consumer Protection Association	9	28.1	2.00	1.89	1.78
Social Medical Aid Institutions	9	28.1	4.11	3.67	3.89
Non-Governmental Organization	7	21.9	2.71	2.86	2.71
Red Cross Society	5	15.6	3.00	3.00	3.20

In this second round, we observed significant unanimity in comprehensive tertiary class A hospitals, comprehensive secondary class A hospitals, primary healthcare institutions, and among patients, with all these entities receiving a 100% support rate. Health administrative departments and social security departments were also held in high regard, with support rates of 96.9% and 93.8%, respectively.

Regarding legitimacy, the health administrative departments (6.42) and social security departments (6.37) scored the highest, closely followed by the comprehensive tertiary class A hospitals with a score of 6.38.

In terms of the attribute of power, health administrative departments ranked the highest with a score of 6.48, while comprehensive tertiary class A hospitals followed closely with a score of 5.78.

On the urgency dimension, patients received the most acknowledgment with a score of 5.94, whereas comprehensive tertiary class A hospitals and primary healthcare institutions scored 5.66 and 5.28, respectively.

4.1.5 Classification results of stakeholders in the mutual recognition of medical examination and test results

In the second round of expert consultations, experts demonstrated a high degree of consistency and stability regarding their attitudes towards each potential stakeholder. Given this, we decided not to conduct a third round of expert consultations and based our stakeholder classification on the results of the second round. We selected 14 out of the 20 potential stakeholder categories as stakeholders in the mutual recognition of medical examination and test results in this study and categorized them based on scores in legitimacy, power, and urgency dimensions.

(1) Definite stakeholders (scoring above 5 in all three dimensions): Comprehensive tertiary

class A hospital, comprehensive secondary class A hospitals, primary healthcare institutions, patients, health administrative departments, social security departments, and third-party medical examination and testing institutions.

(2) Expectant stakeholders (scoring above 5 in two dimensions): Financial departments, community centers, and industry associations (hospitals, physicians).

(3) Latent stakeholders (scoring above 5 in a single dimension): Pharmaceutical, medical device, and equipment suppliers, pharmaceutical regulatory departments, technical supervision bureaus, and the general public.

4.2 Pilot study results

The target audience of this pilot study included definitive, expectant, and latent stakeholders. The scale can be found in Annex C, with the data analysis as follows:

4.2.1 Descriptive analysis of the pilot study

Regarding gender distribution, males constituted 46.4%, totaling 58 participants, while females represented 53.6% with 67 participants, slightly outnumbering the males. In terms of educational level, 5 individuals (4.0%) held doctoral degrees, 18 (14.4%) had master's degrees, 68 (54.4%) possessed bachelor's degrees, and 34 (27.2%) had associate degrees. This indicates that the majority (72.8%) of our respondents had at least a bachelor's degree.

Regarding the stakeholders being assessed, there was a wide variety in respondents' evaluations. For instance, 14 participants (11.2%) assessed comprehensive tertiary class A hospitals, 11 (8.8%) assessed comprehensive secondary class A hospitals, and 15 (12.0%) evaluated primary healthcare institutions.

Concerning the total number of employees among the stakeholders, the majority of respondents (57.6%, or 72 individuals) were from entities with fewer than 50 employees. 29.6% of respondents (or 37 individuals) came from stakeholders with a staff count ranging from 51 to 100. Fewer were from entities with staff counts between 101-200 (4.8%, or 6 individuals), 201-500 (4.0%, or 5 individuals), and over 501 (2.4%, or 3 individuals).

Of the stakeholders with fewer than 50 employees (57.6%), these included primary healthcare institutions, third-party medical examination and testing institutions, industry associations, medical equipment and device suppliers, health administrative departments, and financial departments. Their selection as preliminary study subjects was based on the following reasons:

Primary healthcare institutions, as the primary providers of basic medical services to Chinese residents, often find their test results unrecognized by higher-tier comprehensive hospitals. Representing the most urgent need for mutual recognition at the grassroots medical service level, their feedback is crucial for understanding the acceptance level of medical examination and test result mutual recognition policies and potential implementation obstacles.

Third-party medical examination and testing institutions offer examination and testing services independent of hospitals. Their perspectives help understand the needs and challenges of non-traditional medical entities and their views on mutual recognition.

Industry associations provide insights into the general demands and expectations of the medical field and potential challenges faced. Medical device and equipment suppliers, essential for medical examinations and tests, reveal trends in medical examination and testing technology and equipment and potential market shifts due to mutual recognition.

The health administrative and financial departments, representing the government, give insights into policy direction, constraining factors in mutual recognition of medical examinations, economic benefits, and impacts on healthcare funding allocation.

Regarding the relationship between the respondents and stakeholders, 29.6% of respondents (or 37 individuals) were in a collaborative relationship, 32.0% (or 40 individuals) were in a partnership, 18.4% (or 23 individuals) were employees, and 20.0% (or 25 individuals) were clients. This illustrates the comprehensive and diverse nature of our study, encompassing various relationships ranging from partners to employees and clients. Detailed in Table 4.4.

Table 4.4 Descriptive statistics of respondents (N=125)

Item	Category	Frequency	Percentage
Gender	Male	58	46.4
	Female	67	53.6
Education Level	Doctorate	5	4
	Master's	18	14.4
	Bachelor's	68	54.4
	Associate Degree	34	27.2
	Patient (Individual)	2	1.6
Total Number of Employees at Stakeholder	50 or Fewer	72	57.6
	51-100	37	29.6
	101-200	6	4.8
	201-500	5	4
	More than 501	3	2.4
Relationship with Stakeholder	Collaboration	37	29.6
	Partner	40	32
	Employee	23	18.4
	Customer	25	20
Evaluated Stakeholder	Comprehensive Tertiary Class A Hospital	14	11.2
	Comprehensive Secondary Class A Hospital	11	8.8

Primary Healthcare Institution	15	12
Third-Party Medical Examination Institution	17	13.6
Health Administration Department	3	2.4
Social Security Department	7	5.6
Patients	2	1.6
Finance Department	9	7.2
Community Center	1	0.8
Industry Association (Hospitals, Physicians)	9	7.2
Pharmaceutical, Medical Equipment, and Device Suppliers	19	15.2
Pharmaceutical Regulatory Department	11	8.8
Technical Supervision Bureau	6	4.8
General Public	1	0.8

4.2.2 Reliability analysis

Reliability analysis measures the consistency of results. It gauges the extent to which actual measurements reflect true values while considering potential errors. High reliability indicates stable and consistent results across different situations. Reliability can also be seen as how test scores might differ among participants. Although a previously developed scale might be reliable, it is essential to verify its reliability for each specific study (Sürücü & Maslakci, 2020).

Tools with high reliability are consistent over time and across scenarios. Reliability can be assessed using methods such as test-retest, split-half, and Cronbach's alpha. Cronbach's alpha is frequently used in Likert scales to ensure internal consistency. Given that scales often have multiple facets, it is crucial to gauge the reliability of each facet and the entire scale. Summarizing related literature, the criterion of this study for the internal consistency reliability coefficient is that the coefficient for each facet should be at least 0.5, while the coefficient of the whole scale should be at least 0.7 (DeVellis & Thorpe, 2021).

In this pilot study, the SPSS 25 software was employed to test the reliability of the scale. Each variable dimension was tested for reliability separately, as shown in Table 4.5. All dimensions had Cronbach's alpha values above 0.8, and the overall questionnaire scored 0.927, exceeding the reference value of 0.7, indicating that all five dimensions and the questionnaire possess strong reliability. Additionally, the Cronbach's alpha values for each item dimension, when deleted, are less than the current Cronbach's alpha value, suggesting no current item needs to be omitted.

Table 4.5 Reliability test of the pilot study

Dimension	Item	Average	Standard	Deviation	Cronbach's α value	
				Cronbach's α value after item deletion		
Trust structural embeddedness	TSE1	4.24	1.638	0.93	0.936	0.927
	TSE2	4.11	1.627	0.927		
	TSE3	4.18	1.656	0.93		
	TSE4	4.06	1.722	0.929		
	TSE5	3.98	1.746	0.922		
	TSE6	4.13	1.492	0.93		
	TSE7	4.05	1.768	0.925		
	TSE8	3.9	1.692	0.927		
Trust relational embeddedness	TRE1	4.26	1.56	0.842	0.867	
	TRE2	4.38	1.554	0.848		
	TRE3	4.34	1.556	0.843		
	TRE4	4.42	1.404	0.848		
	TRE5	4.3	1.561	0.844		
	TRE6	4.28	1.543	0.841		
Cognitive embeddedness	CE1	4.67	1.625	0.859	0.883	
	CE2	4.46	1.639	0.86		
	CE3	4.62	1.424	0.868		
	CE4	4.58	1.541	0.866		
	CE5	4.66	1.616	0.86		
	CE6	4.55	1.563	0.863		
Organizational legitimacy	OL1	4.49	1.533	0.812	0.843	
	OL2	4.27	1.489	0.808		
	OL3	4.42	1.577	0.815		
	OL4	4.66	1.626	0.767		
Governmental intervention	GI1	4.33	1.559	0.834	0.862	
	GI2	4.15	1.508	0.827		
	GI3	4.25	1.63	0.836		
	GI4	4.18	1.581	0.831		
	GI5	4.24	1.531	0.839		
Willingness to recognize medical test result	W1	3.97	1.534	0.879	0.895	
	W2	4.05	1.513	0.878		
	W3	4.07	1.612	0.879		
	W4	4.35	1.509	0.885		
	W5	4.12	1.594	0.876		
	W6	4.05	1.58	0.881		
	W7	4.09	1.561	0.883		

4.2.3 Validity analysis

Validity measures the extent to which a test accurately represents the intended psychological or behavioral trait (Sürücü & Maslakci, 2020). For surveys, it indicates how well the questionnaire reflects the construct under study. While reliability is essential for validity, a reliable test may not always be valid (DeVellis & Thorpe, 2021).

Content validity assesses the appropriateness and representativeness of the content of the scale, whether the trait under study is adequately reflected (DeVellis & Thorpe, 2021).

Construct validity evaluates the extent to which a test measures a theoretical trait or concept. It comprises Discriminant Validity and Convergent Validity. Discriminant Validity reflects the low correlation between results measuring different concepts, while Convergent Validity shows the high correlation among items measuring the same concept (DeVellis & Thorpe, 2021). Factor analysis is a common method to assess construct validity, aiming to reveal whether items under the same concept cluster together as theoretically predicted.

We conducted a factor analysis to assess construct validity, starting with the KMO measure and Bartlett's test of sphericity.

The KMO measure evaluates the adequacy of the relationships among items for factor analysis. Kaiser's (1974) guidelines state: KMO values below 0.5 are unsuitable; above 0.5 but below 0.6 indicate weak relationships; values above 0.6 are acceptable; above 0.7 are good; above 0.8 are great, and above 0.9 are superb for factor analysis.

Bartlett's test of sphericity examines the significance of the entire correlation matrix. A significance level below 0.000 indicates that the matrix differs significantly from an identity matrix, justifying factor analysis. The Principal Component Method was used for the factor analysis, applying varimax rotation. The criterion for factor selection was an eigenvalue greater than 1 (DeVellis & Thorpe, 2021).

The pilot study employed SPSS 25 for an exploratory factor analysis on six variables and 36 measurement items. Firstly, the suitability of each variable for exploratory factor analysis was determined using the KMO value calculation and Bartlett's Test of Sphericity. Secondly, the principal component analysis method was adopted, using an eigenvalue greater than one as the criterion and the varimax method for factor extraction and rotation. For ease of testing, the initial letters of the English equivalent were used to represent the variables in this research, as seen in the corresponding items of the attached survey questionnaire.

Beginning with the KMO value calculation and Bartlett's Test of Sphericity for each variable, the results are displayed in Table 4.6. With the exception of organizational legitimacy, which had a KMO of 0.79, all other constructs had KMO values exceeding 0.8. Additionally, the significance levels of Bartlett's Test of Sphericity were all less than 0.001, confirming the suitability of the variables for exploratory factor analysis.

Table 4.6 Results of KMO and Bartlett's Test of sphericity of the pilot study

Variable	KMO	Bartlett's Test of Sphericity		
		Approx. Chi-Square	df	Sig.
Trust structural embeddedness	0.936	713.52	28	0
Trust relational embeddedness	0.895	295.642	15	0
Cognitive embeddedness	0.885	348.078	15	0
Organizational legitimacy	0.79	201.782	6	0

Governmental intervention	0.864	258.141	10	0
Mutual Recognition Willingness	0.911	420.282	21	0

In the pilot study, the exploratory factor analysis results for each variable can be found in

Table 4.7.

Table 4.7 Results of exploratory factor analysis of the pilot study

Variable	Rotated Component Matrix Item Number	Component 1
Trust structural embeddedness	TSE5	0.888
	TSE7	0.863
	TSE2	0.837
	TSE8	0.837
	TSE4	0.818
	TSE3	0.807
	TSE6	0.8
	TSE1	0.799
	Initial eigenvalue	5.532
	Explained variance (%)	69.15
Trust relational embeddedness	TRE6	0.791
	TRE1	0.785
	TRE3	0.781
	TRE5	0.776
	TRE4	0.759
	TRE2	0.758
	Initial eigenvalue	3.606
	Explained variance (%)	60.105
Cognitive embeddedness	CE1	0.812
	CE2	0.809
	CE5	0.806
	CE6	0.795
	CE4	0.777
	CE3	0.767
	Initial eigenvalue	3.788
	Explained variance (%)	63.132
Organizational legitimacy	OL4	0.875
	OL2	0.814
	OL1	0.807
	OL3	0.802
	Initial eigenvalue	2.723
	Explained variance (%)	68.075
Governmental intervention	GI2	0.824
	GI4	0.809
	GI1	0.802
	GI3	0.797
	GI5	0.784
	Initial eigenvalue	3.227
Willingness of mutual recognition	Explained variance (%)	64.533
	W5	0.815
	W2	0.798
	W3	0.793
	W1	0.791
	W6	0.779
	W7	0.764
	W4	0.747

Initial eigenvalue	4.304
Explained variance (%)	61.486

(1) Exploratory factor analysis of trust structural embeddedness

The pilot study extracted one common factor with an eigenvalue greater than 1. All factor loadings for the items related to trust structural embeddedness were above 0.5, providing stable support for this dimension. The total variance explained by the scale is 69.150%, indicating a good explanatory power, capturing 69.150% of the variation in trust structural embeddedness.

(2) Exploratory factor analysis of trust relational embeddedness

A single common factor with an eigenvalue exceeding 1 was derived. Factor loadings for trust relational embeddedness items were all above 0.5, offering solid stability for this dimension. The scale explains 60.105% of the variation in trust relational embeddedness, reflecting good interpretive strength.

(3) Exploratory factor analysis of cognitive embeddedness

From the pilot study, one common factor emerged with an eigenvalue beyond 1. All factor loadings for the cognitive embeddedness items were higher than 0.5, granting stable backing to this dimension. The scale interprets 63.132% of the change in cognitive embeddedness, showcasing commendable explanatory capability.

(4) Exploratory factor analysis of organizational legitimacy

A single common factor with an eigenvalue surpassing 1 was obtained. Factor loadings for the organizational legitimacy items all exceeded 0.5, ensuring steadfast support for this facet. The scale accounts for 68.075% of the fluctuation in organizational legitimacy, denoting notable interpretive strength.

(5) Exploratory factor analysis of governmental intervention

The pilot study identified one common factor with an eigenvalue over 1. Factor loadings for governmental intervention items were all over 0.5, reinforcing this aspect solidly. The scale deciphers 64.533% of the variance in governmental intervention, illustrating significant explanatory power.

(6) Exploratory factor analysis of the willingness to recognize medical examination and test results:

One common factor with an eigenvalue beyond 1 was extracted. Factor loadings for items relating to the willingness to recognize medical examination and test results were all above 0.5, providing a robust foundation for this dimension. The scale interprets 61.486% of the shifts in this willingness, indicating a commendable explanatory capacity.

4.2.4 Correlation analysis

Correlation analysis allows us to discern the degree and direction of relationships between variables, providing an initial judgment for subsequent causal analysis.

For this pilot study, we employed SPSS 25 for bivariate correlation testing to examine the inter-dimension relationships. Given that the variables are continuous, and the sample size exceeds 30, the Pearson coefficient was used to determine their intercorrelations. A Pearson coefficient closer to +1 or -1 indicates a higher correlation, whereas a value approaching 0 suggests a weaker correlation. The results of the correlation tests showed significant correlations among trust structural embeddedness, trust relational embeddedness, cognitive embeddedness, organizational legitimacy, and willingness to mutually recognize medical examination results. Governmental intervention is significantly correlated with trust structural embeddedness, trust relational embeddedness, cognitive embeddedness, and the willingness for mutual medical examination recognition but not with organizational legitimacy. The observed correlations between independent, mediating, and dependent variables align well with our conceptual model, laying a foundation for deeper analysis in the upcoming survey. Based on the data analysis from this pilot study, we found that the designed scale items exhibit satisfactory reliability and validity, meeting our anticipated measurement standards. Details can be found in Annex G.

4.3 Main study Results

The subjects of this main study included definitive, expectant, and latent stakeholders. The scale can be found in Annex C, with data analysis as follows:

4.3.1 Descriptive statistical analysis of the sample

Using SPSS 25 for statistical analysis, we carried out a descriptive study on the sample basic information, as presented in Table 4.8.

Table 4.8 Demographic statistics of respondents (N=479)

Variables	Categories	Frequency	Percentage
Gender	Male	241	50.3
	Female	238	49.7
Education level	Doctorate	97	20.3
	Master's	187	39
	Bachelor's	110	23
	Associate's	84	17.5

Total number of employees at stakeholder	Individual Patients	47	9.8
	Less than 50	213	44.5
	51-100	107	22.3
	101-200	69	14.4
	201-500	0	0
	Over 501	43	9
Relationship with stakeholder	Collaborative	65	13.6
	Partnership	140	29.2
	Employee	66	13.8
	Client	75	15.7
	Other	133	27.8
Evaluated stakeholder	Comprehensive Tertiary Class A Hospital	48	10
	Comprehensive Secondary Class A Hospital	31	6.5
	Primary Healthcare Institutions	36	7.5
	Third-party Medical Examination Institution	31	6.5
	Health Administration Department	31	6.5
	Social Security Department	35	7.3
	Patients	45	9.4
	Financial Department	37	7.7
	Community Center	32	6.7
	Industry Association	31	6.5
	Pharmaceutical, Medical Equipment, and Device Suppliers	30	6.3
	Pharmaceutical Regulatory Department	31	6.5
	Technical Supervision Bureau	30	6.3
	General Public	31	6.5

Regarding gender distribution, males represented 50.3% with a total of 241 participants, while females comprised 49.7% with 238 participants. In terms of educational level, 97 participants (20.3%) held doctoral degrees, 187 (39.0%) had master's degrees, 110 (23.0%) were bachelor's degree holders, and 84 (17.5%) had associate degrees. This indicates that a

significant majority (82.3%) of our respondents had at least a bachelor's degree.

Among the evaluated stakeholders, there was a high diversity in the respondents' evaluations, for instance, 48 persons (10.0%) assessed Comprehensive tertiary class A hospitals, 31 persons (6.5%) evaluated comprehensive secondary Class A hospitals, and 36 persons (7.5%) reviewed primary healthcare institutions.

Regarding the total number of employees among stakeholders, the majority of respondents (44.5%, totaling 213 persons) worked with stakeholders having less than 50 employees. These stakeholders mainly included primary healthcare institutions, third-party medical examination institutions, industry associations, medical equipment suppliers, health administration departments, and financial departments. The reasons for their selection are elaborated in the pilot study analysis. Results show that 22.3% (107) of the respondents worked with stakeholders employing 51-100 persons, 14.4% (69) were in institutions with 101-200 employees, and a minority had over 501 employees (9.0%, totaling 43 persons).

In terms of the relationship between respondents and stakeholders, 13.6% (65 persons) were in cooperative relationships, 29.2% (140 persons) were partners, 13.8% (66 persons) were employees, and 15.7% (75 persons) were clients. This showcases the breadth and diversity of our research, encompassing a range of relationships from partners to employees and then to clients.

4.3.2 Descriptive statistical analysis of variables

This main study conducted a descriptive statistical analysis of the variables in the conceptual model. Using SPSS 25, the means, and standard deviations of each variable, along with the specific measurement of item means, standard deviations, skewness, and kurtosis, were calculated. The descriptive statistics for these variables are shown in Table 4.9. The mean values for the six variable measurement items ranged from 4.18 to 4.54, indicating variation in the respondents' answers. The standard deviation for these items ranges from 1.5 to 1.72, demonstrating a relatively modest variance and suggesting that the data is reasonably distributed.

Table 4.9 Descriptive statistics of variables

Variable	Item	Item mean	Item standard deviation	Item skewness	Item kurtosis	Variable mean	Variable standard deviation
Trust structural embeddedness (TSE)	TSE1	4.34	1.59	-0.181	-0.75	4.31	1.3
	TSE2	4.34	1.63	-0.196	-0.717		
	TSE3	4.3	1.68	-0.136	-0.844		
	TSE4	4.41	1.65	-0.167	-0.879		

	TSE5	4.25	1.57	-0.045	-0.766		
	TSE6	4.29	1.6	-0.041	-0.829		
	TSE7	4.35	1.6	-0.169	-0.767		
	TSE8	4.18	1.6	-0.091	-0.671		
Trust	TRE1	4.53	1.56	-0.151	-0.632	4.43	1.34
relational	TRE2	4.35	1.66	-0.125	-0.864		
embeddedness	TRE3	4.44	1.72	-0.017	-1.068		
(TRE)	TRE4	4.51	1.67	-0.087	-1.014		
	TRE5	4.42	1.65	-0.075	-0.893		
	TRE6	4.33	1.6	-0.044	-0.736		
Cognitive	CE1	4.46	1.62	-0.173	-0.734	4.47	1.33
embeddedness	CE2	4.5	1.68	-0.233	-0.955		
(CE)	CE3	4.5	1.64	-0.194	-0.875		
	CE4	4.39	1.61	-0.1	-0.692		
	CE5	4.54	1.55	-0.2	-0.56		
	CE6	4.39	1.55	-0.019	-0.749		
Organizational	OL1	4.24	1.64	-0.01	-0.865	4.31	1.4
legitimacy	OL2	4.37	1.64	-0.089	-0.776		
(OL)	OL3	4.32	1.67	-0.056	-0.883		
	OL4	4.32	1.65	-0.071	-0.741		
Governmental	GI1	4.43	1.5	-0.164	-0.513	4.42	1.27
intervention	GI2	4.44	1.65	-0.221	-0.855		
(GI)	GI3	4.4	1.53	-0.062	-0.545		
	GI4	4.3	1.57	-0.025	-0.777		
	GI5	4.52	1.57	-0.116	-0.756		
Willingness	W1	4.27	1.6	0.01	-0.764	4.38	1.34
for medical	W2	4.34	1.69	-0.137	-0.801		
test result	W3	4.4	1.62	-0.125	-0.694		
mutual	W4	4.38	1.65	-0.011	-0.95		
recognition	W5	4.4	1.65	-0.095	-0.857		
(W)	W6	4.48	1.63	-0.057	-0.882		
	W7	4.38	1.62	-0.21	-0.724		

Concurrently, we employed a structural equation modeling approach, which theoretically requires the data to exhibit characteristics of a normal distribution. The structural equation modeling method used in our analysis is notably sensitive to the distribution properties of the data, especially when dealing with data that deviates from a multivariate normal distribution or when the reference data exhibit high levels of kurtosis and skewness. In this formal survey, most of the measurement items from the subjects indicated that both skewness and kurtosis parameters fell within the range of +2 to -2, essentially meeting the requirements for normality in data distribution, as can be seen in Table 4.9.

4.3.3 Reliability Test

We employed SPSS 25 to test the reliability of the scales. A reliability test was conducted separately for each variable dimension, with results displayed in Table 4.10. The Cronbach's alpha values for each dimension were all above 0.8, and the overall Cronbach's alpha for the questionnaire was 0.943. These values significantly exceed the 0.7 benchmark for good

reliability, indicating that both the dimensions and the questionnaire as a whole have strong reliability, making them suitable for further data analysis.

Table 4.10 Reliability test results

Dimension	Number of measurement items	Cronbach's Alpha	
Trust structural embeddedness (TSE)	8	0.924	0.943
Trust relational embeddedness (TRE)	6	0.899	
Cognitive embeddedness (CE)	6	0.906	
Organizational legitimacy (OL)	4	0.875	
Governmental intervention (GI)	5	0.868	
Willingness for medical test result mutual recognition (W)	7	0.917	

4.3.4 Confirmatory factor analysis

This study employed Amos 24 for a confirmatory factor analysis of the questionnaire. The model diagram is presented in Annex H. Based on the data results, the convergent validity, discriminant validity, and model fit of each scale were sequentially analyzed and tested.

4.3.4.1 Convergent validity test

Convergent validity, also known as aggregate validity or convergence, refers to the extent to which multiple observed variables measuring the same trait or construct converge on that construct using different methods. Through the execution of the data model, factor loadings of items within the same variable were derived. Subsequently, its composite reliability (CR) and average variance extracted (AVE) were calculated. Typically, the CR value should be greater than 0.7, and the AVE value should exceed 0.5.

Results for the convergent validity test are shown in Table 4.11. The standardized factor loadings for the items belonging to the six dimensions range between 0.69 and 0.816, all exceeding 0.5. The composite reliability (CR) ranges from 0.867 to 0.925, all surpassing 0.7. The average variance extracted (AVE) for each variable lies between 0.571 and 0.636, all above 0.5. These findings indicate that each variable possesses commendable internal consistency reliability, composite reliability, and convergent validity.

Table 4.11 Composite reliability and convergent validity

Dimension	Item	Standardized factor loading	Composite reliability (CR)	Average variance extracted (AVE)
Trust structural embeddedness (TSE)	TSE1	0.754	0.925	0.605
	TSE2	0.789		
	TSE3	0.774		
	TSE4	0.78		
	TSE5	0.796		

	TSE6	0.789		
	TSE7	0.776		
	TSE8	0.764		
Trust relational embeddedness (TRE)	TRE1	0.763	0.9	0.599
	TRE2	0.797		
	TRE3	0.805		
	TRE4	0.777		
	TRE5	0.747		
	TRE6	0.754		
Cognitive embeddedness (CE)	CE1	0.798	0.906	0.616
	CE2	0.806		
	CE3	0.797		
	CE4	0.804		
	CE5	0.761		
	CE6	0.742		
Organizational legitimacy (OL)	OL1	0.797	0.875	0.636
	OL2	0.804		
	OL3	0.816		
	OL4	0.772		
Governmental intervention (GI)	GI1	0.69	0.867	0.571
	GI2	0.788		
	GI3	0.735		
	GI4	0.79		
	GI5	0.769		
Willingness for medical test result mutual recognition (W)	W1	0.773	0.917	0.613
	W2	0.804		
	W3	0.757		
	W4	0.795		
	W5	0.798		
	W6	0.761		
	W7	0.791		

4.3.4.2 Discriminant validity test

Discriminant validity assesses the degree to which different constructs, measured using different methods, can be distinguished. By computing the square root of the average variance extracted (AVE) for each variable and comparing it to the correlation coefficients between the variables, discriminant validity is tested. Generally, the square root of each variable's AVE should exceed its correlation coefficients with other variables.

The results for the discriminant validity test are shown in Annex I. The square roots of the AVE for the six dimensions, listed diagonally, range from 0.778 to 0.783, all of which are greater than their respective correlation coefficients with other variables, ensuring effective distinction between the variables.

4.3.4.3 Structural validity test

Structural validity analysis aims to validate the relationship between measurement items and their expected dimensions, checking the alignment of data with theory. In this main study, seven

main fit indices were selected to test the structural validity:

Chi-square to Degree of Freedom Ratio (χ^2/df): The chi-square value is sensitive to sample size. To reduce its effect, the χ^2/df ratio is commonly used as a fit index. Typically, a χ^2/df ratio less than 2 indicates a good model fit, less than 3 indicates a reasonable fit, and more than 3 suggests a need for model improvement.

Root Mean Square Error of Approximation (RMSEA): A smaller RMSEA value indicates a better model fit. Typically, RMSEA values greater than 0.10 suggest poor fit, whereas values below 0.08 indicate a reasonable fit.

Goodness of Fit Index (GFI): GFI values range between 0 and 1. A value closer to 1 indicates better model fit. Conventionally, a GFI greater than 0.9 indicates a good fit.

Normed Fit Index (NFI). The NFI value ranges from 0 to 1, with values closer to 1 indicating a higher degree of fit between the model and the ideal model. Typically, an NFI value greater than 0.9 is considered a standard for good model fit, suggesting a high degree of congruence between the model and the observed data. Conversely, a lower NFI value indicates a less satisfactory model fit.

Comparative Fit Index (CFI): CFI is a relative fit index. Even with small samples, a CFI value closer to 1 signifies improved model fit. Typically, a CFI value above 0.9 indicates an excellent fit.

Tucker-Lewis (1973) Index (TLI or NNFI): TLI, used to compare the fit of two opposing models or a theoretical model to a saturated model, typically suggests a good fit when its value is above 0.9.

Incremental Fit Index (IFI): IFI values range between 0 and 1, with values closer to 1 indicating better model fit.

Parsimony Normed Fit Index (PNFI): PNFI, which considers the impact of degrees of freedom on model fit, is more suited to evaluate model parsimony. A PNFI value above 0.5 generally indicates an acceptable theoretical model.

The model employed in this study demonstrates good fitting across various fit indices. Specifically, the χ^2/df ratio of 1.751 is significantly below the criterion of 3, indicating a high degree of fit between the model and the data. Additionally, the Root Mean Square Error of Approximation (RMSEA) is 0.04, well below the upper limit of 0.08, implying minimal estimation error and high model precision. The Goodness of Fit Index (GFI), though slightly below the ideal threshold of 0.9 at 0.899, can still be considered as indicative of a near-excellent fit. The Normed Fit Index (NFI), Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), and Incremental Fit Index (IFI) all exceed the 0.9 standard, reflecting the model's superior fitting

across multiple dimensions. Finally, the Parsimonious Normed Fit Index (PNFI) value of 0.835, significantly above the benchmark of 0.5, indicates not only a good fit but also a strong explanatory power of the model. Although the GFI is marginally below the ideal standard, the other indices collectively indicate high model fit and effectiveness. Detailed data can be found in Annex J.

4.3.5 Common method bias test

This main study employed the Harman single-factor test to examine potential common method bias. Common method bias refers to the variance that arises from using the same data collection method, source, or evaluator, which could potentially overestimate or underestimate the relationships between variables. If a significant common method bias exists, the validity and reliability of the research outcomes might be influenced by this bias.

According to the criteria set by Podsakoff et al. (2003), if one factor explains more than 50% of the variance, then there might be a presence of common method bias. Results in Table 4.12 indicate that the variance explained by the first factor is 33.54%, which is below 50%, suggesting that the common method bias is not significant.

Table 4.12 Common method bias test results

Component	Initial Eigenvalues			Extracted Sum of Squares		
	Total	Variance Percentage	Cumulative %	Total	Variance Percentage	Cumulative %
1	12.075	33.543	33.543	12.075	33.543	33.543
2	3.213	8.926	42.468	3.213	8.926	42.468
3	2.702	7.505	49.973	2.702	7.505	49.973
4	2.372	6.589	56.562	2.372	6.589	56.562
5	2.176	6.046	62.608	2.176	6.046	62.608
6	1.864	5.177	67.785	1.864	5.177	67.785
7	.653	1.814	69.599			
8	.609	1.692	71.291			
9	.586	1.628	72.919			
10	.557	1.548	74.467			
11	.553	1.536	76.003			
12	.524	1.455	77.459			
13	.509	1.415	78.873			
14	.484	1.346	80.219			
15	.475	1.320	81.539			
16	.448	1.245	82.784			
17	.444	1.234	84.019			
18	.431	1.197	85.215			
19	.399	1.109	86.325			
20	.396	1.101	87.426			
21	.367	1.019	88.445			
22	.360	1.000	89.445			
23	.350	.972	90.417			
24	.339	.942	91.359			

25	.325	.902	92.261
26	.313	.869	93.130
27	.296	.822	93.952
28	.295	.820	94.772
29	.270	.751	95.524
30	.270	.750	96.274
31	.253	.702	96.976
32	.248	.688	97.664
33	.235	.652	98.316
34	.217	.604	98.920
35	.196	.543	99.463
36	.193	.537	100.000

Extraction Method: Principal Component Analysis.

4.3.6 Test of direct effects and the mediating effect of organizational legitimacy

This study employed the Amos 24 software to construct a one-factor mediating structural equation model to verify the direct effects between trust structural embeddedness, trust relational embeddedness, cognitive embeddedness, organizational legitimacy, and the mutual recognition willingness of medical examination results. Additionally, it examined the mediating effect of organizational legitimacy in the relationship between trust structural embeddedness, trust relational embeddedness, cognitive embeddedness, and the mutual recognition willingness of medical examination results. Specifically, trust structural embeddedness, trust relational embeddedness, and cognitive embeddedness were treated as independent variables; organizational legitimacy was considered as the mediating variable; and the mutual recognition willingness served as the dependent variable of the model. The model aims to elucidate how organizational legitimacy intervenes in these relationships and to what extent it impacts them. The relevant structural equation model diagram is presented in Figure 4.1.

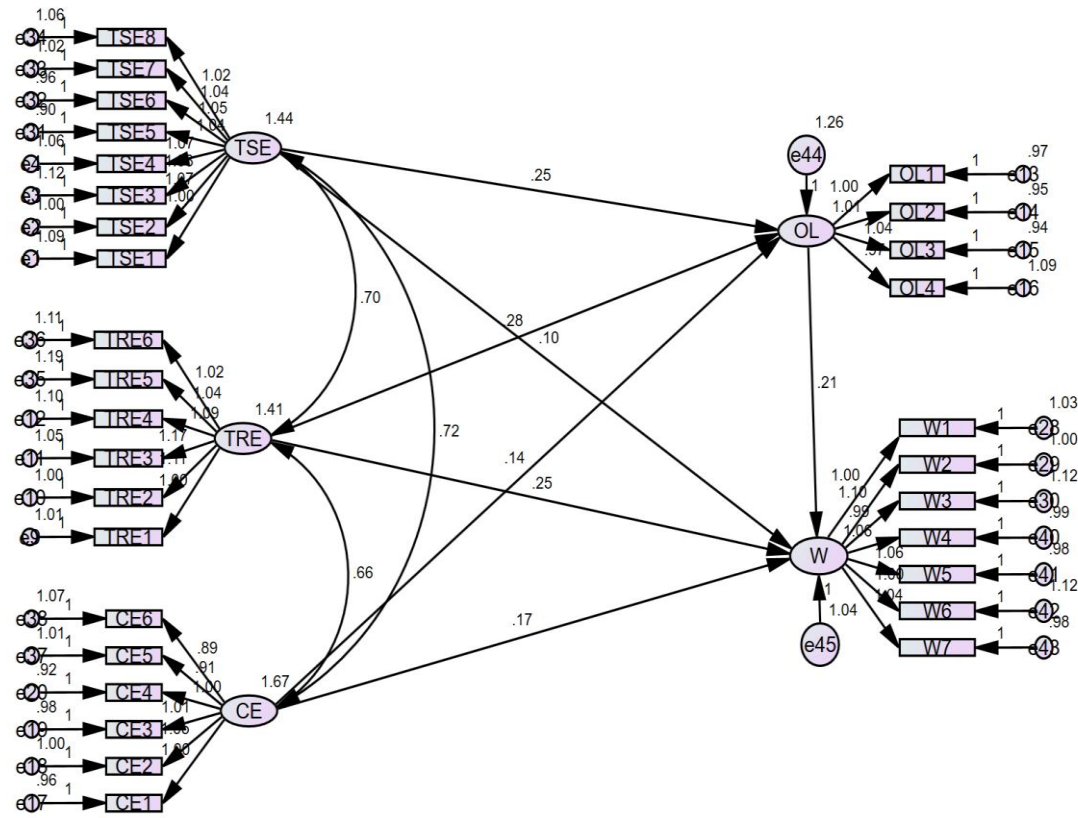


Figure 4.1 Structural equation model diagram

4.3.6.1 Model fit

In Table 4.13, the fit of the model is assessed using multiple statistical indicators. Firstly, the value of the chi-square to degrees of freedom ratio (χ^2/df) is 1.774, significantly below the generally accepted upper limit of 3, indicating good consistency between the model and the data. Next, the Root Mean Square Error of Approximation (RMSEA) is 0.04, which is well below the threshold of 0.08. This reflects the model's minimal error, thus emphasizing its precision. Additionally, the Goodness of Fit Index (GFI), the Normed Fit Index (NFI), the Incremental Fit Index (IFI), the Comparative Fit Index (CFI), and the Tucker-Lewis Index (TLI) all exceed the standard of 0.9, indicating that the model demonstrates a good level of fit across various dimensions. Finally, the Parsimonious Normed Fit Index (PNFI) value is 0.841, surpassing the benchmark of 0.5, suggesting that the model is not only well-fitted but also highly explanatory. Considering that all fit indices are superior to their respective judgment criteria, it indicates that the model is well-fitted.

Table 4.13 Results of model fit indices

	χ^2/df	RMSEA	GFI	NFI	CFI	TLI	IFI	PNFI
Criterion	<3	<0.08	>0.9	>0.9	>0.9	>0.9	>0.9	>0.5
Test results	1.774	0.04	0.911	0.922	0.964	0.961	0.964	0.841

4.3.6.2 Test of direct effects

Below, we investigate the direct effects of trust structural embeddedness, trust relational embeddedness, and cognitive embeddedness on organizational legitimacy and mutual recognition intention, as well as the direct effect of organizational legitimacy on mutual recognition intention. Detailed data can be found in Table 4.14.

Table 4.14 Direct effect test results

Variable		Variable	Estimate	S.E.	C.R.	<i>p</i>
Organizational legitimacy	<--	Trust structural embeddedness	0.227	0.063	3.931	***
Organizational legitimacy	<--	Trust relational embeddedness	0.259	0.063	4.492	***
Organizational legitimacy	<--	Cognitive embeddedness	0.141	0.056	2.559	0.010
Mutual recognition intention	<--	Organizational legitimacy	0.218	0.050	4.126	***
Mutual recognition intention	<--	Trust structural embeddedness	0.100	0.056	1.835	0.066
Mutual recognition intention	<--	Trust relational embeddedness	0.244	0.058	4.351	***
Mutual recognition intention	<--	Cognitive embeddedness	0.181	0.050	3.445	***

(1) Examination of the positive influence of trust structural embeddedness on organizational legitimacy

The standardized effect value for the relationship between trust structural embeddedness and organizational legitimacy is 0.227. With a *p*-value less than 0.001, this indicates a significant positive correlation, thus validating research hypothesis H4.

(2) Examination of the positive influence of trust relational embeddedness on organizational legitimacy

The standardized effect value between trust relational embeddedness and organizational legitimacy is 0.259. Given a *p*-value less than 0.001, a significant positive relationship exists, supporting research hypothesis H5.

(3) Examination of the positive influence of cognitive embeddedness on organizational legitimacy

The relationship between cognitive embeddedness and organizational legitimacy has a standardized effect value of 0.141 and a *p*-value of 0.01. This confirms a significant positive correlation, validating research hypothesis H6.

(4) Examination of the positive influence of organizational legitimacy on mutual recognition intention

The standardized effect value for the relationship between organizational legitimacy and mutual recognition intention is 0.218. With a p -value less than 0.001, there's a significant positive correlation, validating research hypothesis H7.

(5) Examination of the positive influence of trust structural embeddedness on mutual recognition intention

The relationship between trust structural embeddedness and mutual recognition intention has a standardized effect value of 0.100 and a p -value of 0.066. This does not establish a significant positive correlation, thus the hypothesis H1 of this study, which proposed that trust structural embeddedness has a positive effect on stakeholders' willingness to mutually recognize medical examination and test results, is not supported.

(6) Examination of the positive influence of trust relational embeddedness on mutual recognition intention

The standardized effect value between trust relational embeddedness and mutual recognition intention is 0.244. With a p -value less than 0.001, a significant positive correlation exists, validating research hypothesis H2.

(7) Examination of the positive influence of cognitive embeddedness on mutual recognition intention

For the correlation between cognitive embeddedness and mutual recognition intention, the standardized effect value is 0.181. With a p -value less than 0.001, a significant positive relationship is evident, supporting research hypothesis H3.

4.3.6.3 Test of the indirect effects of organizational legitimacy

This section examined the indirect effect hypothesis related to organizational legitimacy, aiming to obtain preliminary results for the mediation effect test. Detailed data can be found in Table 4.15.

Table 4.15 Results of the indirect effects test of organizational legitimacy

Effects	Variable	Bootstrapping		BC 95%CI		p
		Est.	Std. Error	Lower Bound	Upper Bound	
Indirect Effects	Trust structural embeddedness	0.050	0.018	0.021	0.090	0.000
	Trust relational embeddedness	0.057	0.018	0.027	0.101	0.000
	Cognitive embeddedness	0.031	0.015	0.008	0.068	0.006

Direct Effects	Trust structural embeddedness	0.100	0.055	-0.003	0.212	0.056
	Trust relational embeddedness	0.244	0.053	0.138	0.347	0.000
	Cognitive embeddedness	0.181	0.052	0.077	0.285	0.001
Total Effects	Trust structural embeddedness	0.150	0.054	0.050	0.263	0.005
	Trust relational embeddedness	0.300	0.051	0.198	0.399	0.000
	Cognitive embeddedness	0.212	0.052	0.106	0.313	0.000

(1) Test of the indirect effect of organizational legitimacy between trust structural embeddedness and mutual recognition willingness

Based on Table 4.15 and using the confidence interval method (with a bootstrap sample size of 5000) for mediation test, the results showed that the total effect of trust structural embeddedness on mutual recognition willingness ($\beta=0.15$ $p=0.005$) was significantly positive. The indirect effect ($\beta=0.050$, $p=0.000$) was also significant, while the direct effect ($\beta=0.100$, $p=0.056$) was not. This indicates that organizational legitimacy fully mediates the relationship between trust structural embeddedness and mutual recognition willingness. Consequently, the research hypothesis H8 received preliminary validation.

(2) Testing the indirect effect of organizational legitimacy between trust relational embeddedness and mutual recognition willingness

From Table 4.15 and using the confidence interval method (bootstrap sample size of 5000), the analysis showed that the total effect of trust relational embeddedness on mutual recognition willingness ($\beta=0.300$, $p=0.000$) was significantly positive. Both the indirect effect ($\beta=0.057$, $p=0.000$) and the direct effect ($\beta=0.244$, $p=0.000$) were significantly positive, suggesting that organizational legitimacy has a partial mediating effect between trust relational embeddedness and mutual recognition willingness. Therefore, the research hypothesis H9 was preliminarily validated.

(3) Testing the indirect effect of organizational legitimacy between cognitive embeddedness and mutual recognition willingness

Referring to Table 4.15 and utilizing the confidence interval method (bootstrap sample size of 5000), the results revealed that the total effect of cognitive embeddedness on mutual recognition willingness ($\beta=0.212$, $p=0.000$) was significantly positive. Both the indirect effect ($\beta=0.031$, $p=0.006$) and the direct effect ($\beta=0.181$, $p=0.001$) were significant, indicating that organizational legitimacy partially mediates the relationship between cognitive embeddedness and mutual recognition willingness. Thus, the research hypothesis H10 received preliminary

validation.

4.3.7 Test of the moderating effects of governmental intervention

Governmental intervention, as a distinct external factor, frequently occupies a significant place in organizational research. In the following, we consider governmental intervention as a potential moderator, examining how it impacts the relationships between variables.

4.3.7.1 Test of the moderating effect of governmental intervention on the relationship between trust structural embeddedness and mutual recognition willingness

Within the theoretical framework of this study, trust structural embeddedness is perceived as a variable intrinsically connected with mutual recognition willingness. This section explores how governmental intervention shapes the interaction between these two variables.

(1) Test of the moderating effect

Referring to Hayes' (2015) bootstrap method and using the PROCESS plugin in SPSS, we examined the moderating effect. This test is based on Model1 with a sample size of 5000 and a confidence level of 95%. We treated trust structural embeddedness as the independent variable X , mutual recognition willingness as the dependent variable Y , and considered governmental intervention as a potential moderating variable W . To ensure the robustness of the model, we also introduced four ordinal demographic variables (namely, gender, educational level, stakeholder type, and total number of employees) as control variables.

According to the results in Table 4.16, the interaction effect between governmental intervention and trust structural embeddedness on mutual recognition willingness was significant ($\beta=0.044$, $p=0.001$), proving that governmental intervention has a notable positive moderating role in the relationship between trust structural embeddedness and mutual recognition willingness. Therefore, the research hypothesis H11 has been supported.

Table 4.16 Results of the moderating effect of governmental intervention on the relationship between trust structural embeddedness and mutual recognition willingness

Dependent Variable	Mutual Recognition Willingness		
Independent Variables	β	t	p
Gender	-0.942	-14.336	0.000
Educational Level	-0.780	-23.467	0.000
Stakeholder Type	0.018	0.641	0.522
Total Number of Stakeholder Employees	0.010	0.696	0.487
Trust Structural Embeddedness	0.064	3.516	0.001
Governmental Intervention	0.079	4.204	0.000
Governmental Intervention $\times$ Trust Structural Embeddedness	0.044	3.322	0.001
R^2	0.880		
F	491.931***		

The results of further simple slope test reveal that at lower levels of governmental intervention (i.e., $M-SD$), the impact of trust structural embeddedness on mutual recognition willingness is not significant, as its corresponding confidence interval includes a value of zero. However, at higher levels of governmental intervention (i.e., $M+SD$), the effect of trust structural embeddedness on mutual recognition willingness becomes significant, with the confidence interval no longer including a value of zero. Details can be found in Annex K.

In summary, this implies that only in situations with a higher degree of governmental intervention does an increase in trust structural embeddedness potentially lead to a significant increase in mutual recognition willingness. Refer to Figure 4.2 for more details.

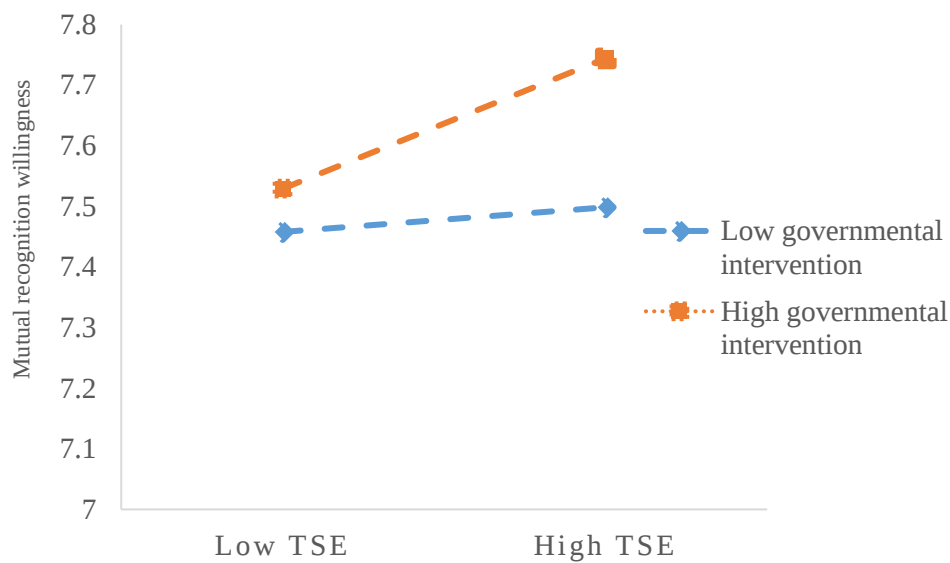


Figure 4.2 Simple slope graph testing the moderating effect of governmental intervention between trust structural embeddedness and mutual recognition willingness

(2) Test of the moderated mediation effect

This study further analyzed the potential moderated mediation effects of governmental intervention and organizational legitimacy in the process where trust structural embeddedness influences mutual recognition willingness, considering organizational legitimacy as the mediating variable. Additionally, to ensure the robustness of the results, the model also accounted for four ordinal demographic factors: gender, cultural level, stakeholder category, and total number of employees of stakeholders. Model 5 of the PROCESS plugin in SPSS was selected to test this moderated mediation effect, with a sample size set to 5000 and a confidence level of 95%.

The test results for the moderated mediation effect of governmental intervention and organizational legitimacy on trust structural embeddedness and mutual recognition willingness

are presented in Appendix L. The results indicate that under this study's model, the mediating effect of organizational legitimacy is significant ($\beta=0.014$, (BootLLCI=0.002, BootULCI=0.028)), thus finally validating the research hypothesis H8.

Further analysis of the direct effects under the influence of the moderating variable shows that at M-SD, i.e., low levels of governmental intervention, the confidence interval for the impact of trust structural embeddedness on mutual recognition willingness includes zero, indicating that the direct impact of trust structural embeddedness on mutual recognition willingness is not significant and the direct effect is non-significant. In this scenario, organizational legitimacy plays a full mediating role between trust structural embeddedness and mutual recognition willingness. Conversely, at M+SD, i.e., high levels of governmental intervention, the confidence interval for the impact of trust structural embeddedness on mutual recognition willingness does not include zero, indicating that the direct impact of trust structural embeddedness on mutual recognition willingness is significant and the direct effect is significant, with organizational legitimacy playing a partial mediating role between trust structural embeddedness and mutual recognition willingness.

4.3.7.2 Test of the moderating effect of governmental intervention on the relationship between trust relational embeddedness and mutual recognition willingness

Building on our investigation, the subsequent section delves into a detailed analysis of the moderating effect of governmental intervention on the relationship between trust relational embeddedness and mutual recognition willingness.

(1) Test of the moderating effect

Based on the Bootstrap method proposed by Hayes (2015) the moderating effect was tested using the PROCESS plugin in SPSS. Model 1 was chosen with a sample size of 5,000 and a confidence level of 95%. Trust relational embeddedness served as the independent variable X, mutual recognition willingness as the dependent variable Y, and governmental intervention as the moderating variable W. Four ordinal demographic variables namely gender, educational level, stakeholder type, and the total number of stakeholder employees were introduced as control variables.

According to the results in Table 4.17, the interaction effect between governmental intervention and trust relational embeddedness on mutual recognition willingness was significant ($\beta=0.075$, $p=0.000$). This demonstrates that, in the relationship between trust relational embeddedness and mutual recognition willingness, governmental intervention plays a notably positive moderating role. Consequently, the research hypothesis H12 has been

validated.

Table 4.17 Results of the moderating effect of governmental intervention on the relationship between trust relational embeddedness and mutual recognition willingness

Dependent Variable Independent Variables	Mutual Recognition Willingness		
	β	t	p
Gender	-0.954	-15.036	0.000
Educational Level	-0.757	-23.493	0.000
Stakeholder Type	0.026	0.974	0.331
Total Number of Stakeholder Employees	0.013	0.911	0.363
Trust Relational Embeddedness	0.079	4.519	0.000
Governmental Intervention	0.071	3.882	0.000
Governmental Intervention $\times$ Trust Relational Embeddedness	0.075	5.935	0.000
R^2	0.887		
F	529.153***		

The simple slope test results indicate that, at lower levels of governmental intervention (i.e., M-SD), the influence of trust relational embeddedness on mutual recognition willingness is not significant as its corresponding confidence interval includes a value of zero. However, at higher levels of governmental intervention (i.e., M+SD), the impact of trust relational embeddedness on mutual recognition willingness becomes significant, with the confidence interval no longer including zero. Details can be found in Annex M.

In summary, this suggests that only in scenarios with a high degree of governmental intervention does an increase in trust relational embeddedness possibly lead to a significant rise in mutual recognition willingness. See Figure 4.3.

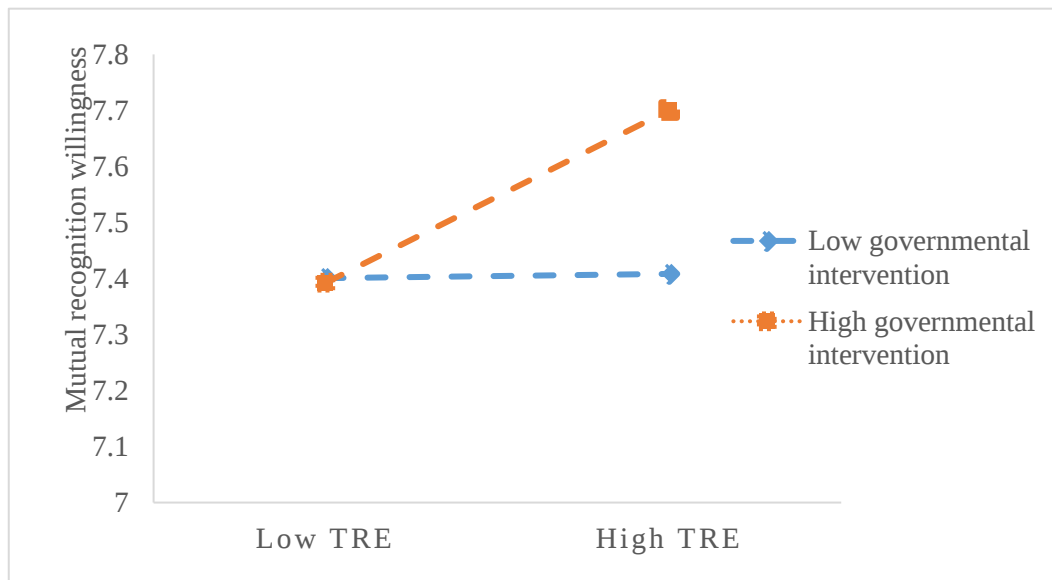


Figure 4.3 Simple slope graph testing the moderating effect of governmental intervention between trust relational embeddedness and mutual recognition willingness

(2) Test of the moderated mediation effect

This study further investigated the potential moderated mediation effects of governmental

intervention in the process where trust relational embeddedness affects mutual recognition willingness, considering organizational legitimacy as the mediating variable. Additionally, to ensuring the robustness of the results, the model also incorporated four ordinal demographic factors: gender, cultural level, stakeholder category, and total number of employees of stakeholders. Model 5 of the PROCESS plugin in SPSS was chosen to examine this moderated mediation effect, with the sample size set to 5000 and a confidence level of 95%.

The results of the test for the moderated mediation effect of governmental intervention and organizational legitimacy between trust relational embeddedness and mutual recognition willingness are detailed in Appendix N. Under the conditions of this study's model, the mediating effect of organizational legitimacy was not significant ($\beta=0.010$, (BootLLCI=-0.001, BootULCI=0.023)). However, the hypothesis H9 of this study, which proposed that organizational legitimacy mediates between trust relational embeddedness and stakeholders' willingness to mutually recognize medical examination and test results, was not supported.

4.3.7.3 Test of the moderating effect of governmental intervention on the relationship between cognitive embeddedness and mutual recognition willingness

The subsequent section we will delve into a detailed analysis of the moderating effect of governmental intervention on the relationship between cognitive embeddedness and mutual recognition willingness.

(1) Test of the moderating effect

Following the Bootstrap method proposed by Hayes (2015), the moderating effect was tested using the PROCESS plugin in SPSS. Model 1 was chosen with a sample size of 5,000 and a confidence level of 95%. Cognitive embeddedness served as the independent variable X, mutual recognition willingness as the dependent variable Y, and governmental intervention as the moderating variable W. Four ordinal demographic variables, gender, educational level, stakeholder type, and total number of stakeholder employees were introduced as control variables.

According to the results in Table 4.18, the interaction effect between governmental intervention and cognitive embeddedness on mutual recognition willingness was significant ($\beta=0.075$, $p=0.000$). This demonstrates that, in the relationship between cognitive embeddedness and mutual recognition willingness, governmental intervention plays a notably positive moderating role. Consequently, the research hypothesis H13 proposed has been validated.

Table 4.18 Results of the moderating effect of governmental intervention on the relationship between cognitive embeddedness and mutual recognition willingness

Dependent Variable Independent Variables	Mutual Recognition Willingness		
	β	t	p
Gender	-0.892	-13.795	0.000
Educational Level	-0.793	-24.729	0.000
Stakeholder Type	0.022	0.801	0.424
Total Number of Stakeholder Employees	0.007	0.486	0.628
Cognitive Embeddedness	0.069	3.867	0.000
Governmental Intervention	0.066	3.470	0.001
Governmental Intervention $\times$ Cognitive Embeddedness	0.075	5.774	0.000
R^2	0.885		
F	517.831***		

The results of the simple slope test indicate that at M-SD, which corresponds to low levels of governmental intervention, the confidence interval for the impact of cognitive embeddedness on mutual recognition willingness encompasses zero. This implies that the direct influence of cognitive embeddedness on mutual recognition willingness is not significant. However, at M+SD, representing high levels of governmental intervention, the confidence interval for the effect of cognitive embeddedness on mutual recognition willingness does not include zero, signifying a significant direct impact of cognitive embeddedness on mutual recognition willingness. Details can be found in Annex O.

In summary, this suggests that only in situations of high governmental intervention does an increase in cognitive embeddedness lead to an enhancement in mutual recognition willingness. Refer to Figure 4.4.

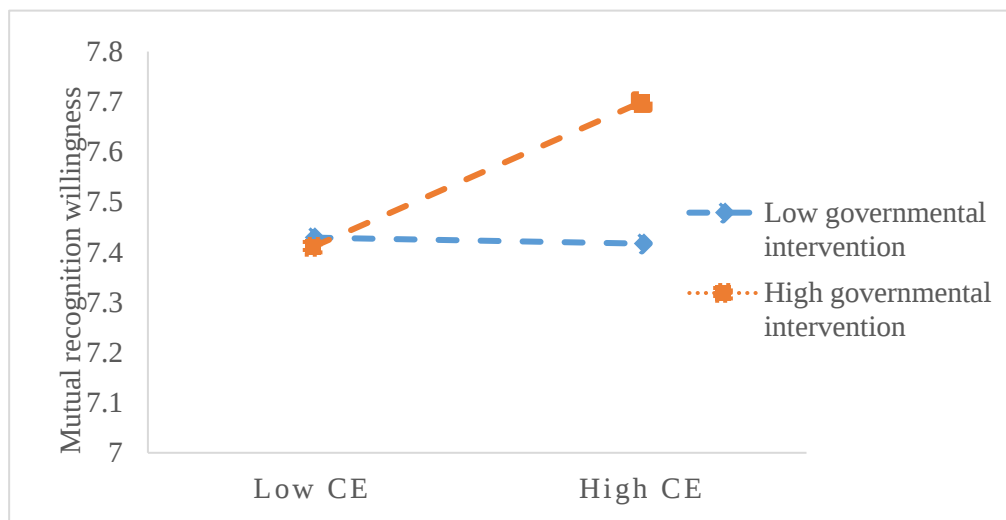


Figure 4.4 Simple slope graph testing the moderating effect of governmental intervention between cognitive embeddedness and mutual recognition willingness

(2) Test of the moderated mediation effect

This study further analyzed the potential moderated mediation effects of governmental

intervention in the process where cognitive embeddedness influences mutual recognition willingness, considering organizational legitimacy as the mediating variable. Additionally, to ensure the robustness of the results, the model also included four ordinal demographic factors: gender, cultural level, stakeholder category, and the total number of employees of stakeholders. Model 5 of the PROCESS plugin in SPSS was chosen to examine this moderated mediation effect, with the sample size set to 5000 and a confidence level of 95%.

The results of the test for the moderated mediation effect of governmental intervention and organizational legitimacy between cognitive embeddedness and mutual recognition willingness are provided in Appendix P. The findings indicate that, under this study's model, the mediating effect of organizational legitimacy is significant ($\beta=0.012$, (BootLLCI=0.002, BootULCI=0.025)), thereby validating the research hypothesis H10.

Further analysis of the direct effects under the influence of the moderating variable revealed that at M-SD, i.e., low levels of governmental intervention, the confidence interval for the impact of cognitive embeddedness on mutual recognition willingness includes zero, suggesting that the direct impact of cognitive embeddedness on mutual recognition willingness is not significant. In this case, organizational legitimacy plays a full mediating role between cognitive embeddedness and mutual recognition willingness. However, at M+SD, i.e., high levels of governmental intervention, the confidence interval for the impact of cognitive embeddedness on mutual recognition willingness does not include zero, indicating that the direct impact of cognitive embeddedness on mutual recognition willingness is significant, with organizational legitimacy playing a partial mediating role.

4.4 Discussion

This study empirically investigates multiple key factors in the process of mutual recognition of medical examination and test results. The research hypotheses primarily focus on the impact of trust structural embeddedness, trust relational embeddedness, cognitive embeddedness, organizational legitimacy, and governmental intervention on the willingness to mutually recognize results.

The findings indicate that trust relational embeddedness (H2), cognitive embeddedness (H3), organizational legitimacy (H7), the influence of these factors on organizational legitimacy (H4, H5, H6, H10), and the positive moderating role of governmental intervention (H11, H12, H13) significantly and positively affect the willingness to mutually recognize results. These discoveries underscore the importance of establishing and maintaining trust relationships,

sharing cognitive frameworks, ensuring organizational legitimacy, and appropriate governmental intervention in the process of mutual recognition of medical test results.

However, H1 (the impact of trust structural embeddedness on mutual recognition willingness) and H9 (the mediating role of organizational legitimacy between trust relational embeddedness and mutual recognition willingness) were not supported by the data. Possible interpretations of these results are as follows:

Mechanism of trust structural embeddedness: The lack of support for H1 might suggest that in the context of medical examinations and tests, the mechanisms for forming and maintaining structural trust could be more complex, or less directly related to mutual recognition willingness compared to other forms of trust (such as trust relational embeddedness). This indicates a need for future research to more finely explore how different types of trust embedding affect the behavior and decisions of stakeholders.

Mediating role of organizational legitimacy: The lack of support for H9 implies that the mediating role of organizational legitimacy between trust relational embeddedness and mutual recognition willingness may not be as significant as anticipated. This could be due to the inherent strength of trust relational embeddedness itself, which might diminish the role of organizational legitimacy, or other unconsidered factors may play a more critical role in this process.

Additionally, the positive moderating effect of governmental intervention between trust structural embeddedness and mutual recognition willingness (H11) was supported, suggesting that appropriate policy-level interventions can enhance the influence of structural trust, thereby facilitating mutual recognition.

The unsupported hypotheses reveal the complexities and challenges in mutual recognition of medical examination and test results, especially in understanding how trust structural embeddedness and organizational legitimacy jointly influence decision-making processes in different cultural and organizational environments.

4.4.1 Main findings from the focus group discussions

This research utilized focus group discussions to delve into the complex dynamics of mutual recognition in medical examination and test results. The findings from these discussions largely supported the main outcomes of the empirical study and provided in-depth insights into some hypotheses that were not supported. These discussions not only validated the results of the empirical research but also uncovered the underlying complexities and multi-dimensional

factors.

H1: Trust structural embeddedness has a positive effect on stakeholders' willingness to mutually recognize medical examination and test results.

The focus group discussions highlighted that although trust structural embeddedness is important, the discrepancies in technical levels and quality control standards between healthcare institutions, as well as the ambiguity in legal responsibility, pose significant barriers in the process of mutual recognition of medical examination and test results. The influence of trust structural embeddedness might be weakened by these obstacles as it will be further explained in point 4.4.3.

Theoretical challenge: This viewpoint challenges traditional theories, particularly in explaining the relationship between trust structural embeddedness and the willingness for mutual recognition, suggesting that future research needs to delve deeper into the impact of these external factors.

H2: Trust relational embeddedness has a positive effect on stakeholders' willingness to mutually recognize medical examination and test results.

The focus group discussions provided empirical support and deeper insights into the positive impact of trust relational embeddedness on the willingness for mutual recognition of medical examination and test results. Participants widely agreed that good mutual trust between healthcare institutions, especially between patients and doctors, as well as institutions at the same level or in adjacent areas, is crucial for enhancing the likelihood of mutual recognition.

Theoretical connection:

Echoing Granovetter's (2018) Embeddedness Theory: This theory emphasizes the density and quality of social relationships as vital for trust building. Among healthcare institutions, the formation of trust relational embeddedness through shared values, routine interactions, and mutual understanding not only strengthens trust but also provides a necessary social foundation for mutual recognition.

Insights from Uzzi (1997) on embeddedness: In embedded social relationships, information flows more freely and partners understand and coordinate more effectively. In healthcare, institutions based on trust are more likely to share and accept each other's examination and test results, improving overall medical efficiency and patient satisfaction.

The viewpoints from the focus group not only support the positive impact of trust relational embeddedness on enhancing the willingness for mutual recognition but also further strengthen the theoretical foundation of social network theory in the application of healthcare. This suggests that building and maintaining trust relationships between healthcare institutions is a

key strategy for promoting mutual recognition of medical examination and test results.

H3: Cognitive embeddedness has a positive effect on stakeholders' willingness to mutually recognize medical examination and test results.

The focus group discussions significantly supported the positive impact of cognitive embeddedness on enhancing the willingness for mutual recognition of medical examination and test results. Participants widely agreed that cognitive embeddedness factors, such as shared professional knowledge and experience, play a key role in facilitating mutual recognition of results between healthcare institutions.

Key elements of cognitive embeddedness:

(1) Sharing of medical resources: The discussions underscored the importance of sharing medical resources, especially in building a unified information platform for more efficient sharing and understanding of examination and test results.

(2) The importance of common understanding: Participants noted that shared medical practices and a common understanding of examination results among healthcare institutions are crucial for improving healthcare professionals' cognition and acceptance of mutual recognition.

Theoretical connections:

Nahapiet and Ghoshal's (1998) Social Capital Theory: This theory posits that shared knowledge and resources are vital social capitals in fostering inter-organizational cooperation and trust. In the context of this study, cognitive embeddedness, through shared professional knowledge and experience, strengthens understanding and trust between healthcare institutions, enhancing cooperation and efficiency.

Orlikowski and Baroudi's (1991) Information Systems Theory: This theory emphasizes the significant role of information technology in promoting knowledge sharing and organizational learning. The development of information platforms is crucial for facilitating cognitive embeddedness and enhancing the understanding and acceptance of examination and test results between healthcare institutions.

H4-H6: The impact on organizational legitimacy

The focus group discussions provided empirical support for understanding the positive impact of trust structural embeddedness, trust relational embeddedness, and cognitive embeddedness on organizational legitimacy. Participants unanimously agreed that these three dimensions of embeddedness not only help in building legitimacy between healthcare institutions but also enhance their mutual acceptance. These viewpoints resonate significantly with existing theories and also provide new empirical support for them.

Theoretical connections and empirical support:

Suchman's (1995) Organizational Legitimacy Theory: According to this theory, legitimacy stems from adherence to rules and norms and mutual trust and consensus between organizations. In the healthcare field, the formation of consensus through trust structural embeddedness, trust relational embeddedness, and cognitive embeddedness strengthens the perception of legitimacy. This is because they provide shared values, a foundation of trust, and a common cognitive framework.

DiMaggio and Powell's (1983) Institutional Isomorphism Theory: This theory suggests that organizations emulate successful practices in their environment to enhance their own legitimacy. In healthcare institutions, the presence of trust structural embeddedness and cognitive embeddedness fosters the sharing of best practices, thereby contributing to the standardization of medical procedures and the enhancement of the entire healthcare system's legitimacy.

H7: Organizational legitimacy positively impacts stakeholders' willingness to mutually recognize medical examination and test results.

The focus group discussions supported hypothesis H7. Participants generally agreed that various aspects of organizational legitimacy, such as legal recognition and standardized procedures for examination results, are crucial for increasing the willingness for mutual recognition.

Key factors of organizational legitimacy:

(1) Legal recognition and standardized procedures: The discussion highlighted the importance of legal recognition and standardized procedures, noting that these factors provide consistency and reliability guarantees for examination and test results between healthcare institutions.

(2) Reducing misunderstandings and misdiagnoses: This framework aids in reducing misunderstandings and misdiagnoses, while establishing a sense of trust and recognition among healthcare institutions.

Theoretical framework and connection:

Suchman's (1995) Organizational Legitimacy Theory: According to this theory, organizational legitimacy is the degree to which organizational actions are perceived as reasonable, appropriate, and meaningful within their operational environment. In the process of mutual recognition among healthcare institutions, adherence to legal and standardized procedures is key to achieving legitimacy.

Meyer and Rowan's (1977) viewpoint: Emphasizes the importance of healthcare institutions following national policies and industry standards, considering it crucial for obtaining legitimacy and trust. In healthcare, such adherence contributes to enhancing the

quality of medical services and ensuring patient safety.

The focus group discussions underscored the central role of organizational legitimacy in mutual recognition of medical examination and test results. These findings are not only consistent with existing institutional theories but also provide new empirical support for the application of these theories in the healthcare sector.

H8: Organizational legitimacy mediates between trust structural embeddedness and stakeholders' willingness to mutually recognize medical examination and test results.

The focus group discussions provided practical support for hypothesis H8. Participants emphasized the crucial bridge role of legal frameworks and industry norms in establishing trust structural embeddedness and promoting mutual recognition.

Role of legal framework and industry norms:

(1) Bridging function: The discussions pointed out that legal frameworks and industry norms are key links connecting trust structural embeddedness with the willingness for mutual recognition.

(2) Theoretical consistency: This viewpoint of the focus group aligns with empirical research findings and deepens the understanding of the related theories.

Theoretical framework and connection:

DiMaggio and Powell's (1983) Institutional Isomorphism Theory: This theory suggests that organizations tend to imitate successful practices and norms in their environment. In healthcare, trust structural embeddedness is established through adherence to common legal and industry norms, enhancing the perception of trust and legitimacy among institutions.

Suchman's (1995) Organizational Legitimacy Theory: This theory highlights the influence of legitimacy on organizational behavior and decision-making. In the context of trust structural embeddedness, enhanced organizational legitimacy helps to strengthen the consensus and acceptance of examination and test results among institutions, promoting the implementation of mutual recognition.

H9: Organizational legitimacy mediates between trust relational embeddedness and stakeholders' willingness to mutually recognize medical examination and test results.

Focus group discussions revealed interesting perspectives regarding hypothesis H9: Although trust relational embeddedness positively impacts the willingness for mutual recognition of results, the mediating role of organizational legitimacy was not fully supported. This finding offers significant reflection and challenge to existing theories and will be explained in more detail in point 4.4.3 below.

Trust relationships and legitimacy standards:

(1) Inter-hospital cooperation and recognition standards: Participants in the discussions emphasized the criticality of cooperation and recognition standards between hospitals in the process of mutual recognition, indicating that despite the existence of trust relationships, concerns about legitimacy standards remain significant among healthcare institutions.

(2) Theoretical deviation: This finding deviates from Meyer and Rowan's (1977) Institutional Theory, which stresses that organizations strive to conform to external environmental expectations and norms to gain legitimacy. In the context of this study, despite the presence of trust relationships, the uncertainty of legitimacy and the ambiguity of standards may limit the transformation of this trust into a willingness for mutual recognition.

Theoretical challenges:

Granovetter's (2018) Embeddedness Theory: Although this theory posits that economic actions are embedded within social relationships, in the context of mutual recognition of medical examination and test results, reliance solely on trust relational embeddedness appears insufficient to overcome the lack of legitimacy and the uncertainty of standardization.

H10: Organizational legitimacy mediates between cognitive embeddedness and stakeholders' willingness to mutually recognize medical examination and test results.

The focus group discussions supported hypothesis H10. This finding emphasizes the importance of shared professional knowledge and technical understanding in the mutual recognition process between healthcare institutions, and how these cognitive factors are enhanced within legal and normative frameworks.

The importance of cognitive embeddedness:

(1) The role of cognitive embeddedness: Highlights the importance of shared knowledge and technical understanding in facilitating mutual recognition between healthcare institutions.

(2) Legal and normative frameworks: Discusses how these cognitive factors are enhanced within the framework of organizational legitimacy, thereby improving the feasibility and willingness for mutual recognition.

Theoretical framework and connection:

Nahapiet and Ghoshal's (1998) Social Capital Theory: This theory considers cognitive embeddedness a key factor in social interaction and collaboration, facilitating knowledge sharing through a shared language and cognitive framework. In the process of mutual recognition of medical examination and test results, cognitive embeddedness promotes knowledge sharing between healthcare institutions, enhancing the perception of legitimacy.

Meyer and Rowan's (1977) Institutional Theory: This theory emphasizes that organizations follow external environmental expectations and norms to gain legitimacy. In the context of this

study, cognitive embeddedness strengthens the willingness and ability of healthcare institutions to mutually recognize results by adhering to the standards of organizational legitimacy.

H11-H13: The moderating role of governmental intervention

The focus group discussions unequivocally supported hypotheses H11 to H13. It was emphasized in the discussions that government policy support and regulatory frameworks are key factors in promoting cooperation and trust between healthcare institutions. These interventions are crucial in strengthening the connection between embedded relationships and the willingness for mutual recognition of results.

The role of governmental intervention:

(1) Formation of rules, norms, and expectations: In line with DiMaggio and Powell (1983), governmental intervention significantly impacts organizational behavior by forming rules, norms, and expectations. In the process of mutual recognition of medical examination and test results, governmental intervention provides clear guidance and standards.

(2) Facilitating trust and cooperation: Governmental intervention aids in enhancing trust between healthcare institutions, thereby fostering cooperation and efficiency.

The moderating role of governmental intervention:

Institutional power manifestation: Scott's (1995) Institutional Theory emphasizes the significant impact of institutional forces, including government policies and norms, on organizational behavior and decision-making. As a moderating factor, governmental intervention strengthens the role of trust and cognitive embeddedness in the mutual recognition process among healthcare institutions.

Enhancement of embeddedness relationships and willingness for mutual recognition: In the context of this study, governmental intervention acts as a moderating mechanism, amplifying the influence of embeddedness relationships on the willingness for mutual recognition of results.

4.4.2 In-depth exploration of unsupported hypotheses

In the empirical study, hypotheses H1 and H9 were not supported. The following discussion, based on the focus group's insights, seeks theoretical explanations for these unresolved issues and reveals the complexities and challenges that might exist in practical implementation.

H1: Trust structural embeddedness has a positive effect on stakeholders' willingness to mutually recognize medical examination and test results.

(1) Differences in technical standards and homogenization issues

The focus group discussions highlighted the importance of differences in technical

standards and issues of homogenization in the field of healthcare services, particularly in the process of mutual recognition of medical examination and test results. The discussions repeatedly emphasized the reliance of the medical industry on technical and operational precision and the key role of standardized procedures in ensuring the accuracy and reliability of examinations and tests. In China, significant disparities in personnel quality, equipment conditions, testing methods, and levels among healthcare institutions, especially between institutions at different levels, are particularly evident (Pan et al., 2023). Such disparities could lead to a lack of trust in the quality of tests and equipment, impacting the willingness of healthcare institutions to mutually recognize examination and test results.

This discussion challenges Granovetter's (2018) Embeddedness Theory, which suggests that trust is usually based on social relations and transaction history. However, in the medical field, due to high demands for technical accuracy and operational standardization, trust structural embeddedness might be surpassed by specific technical capabilities and standards. Additionally, DiMaggio and Powell's (1983) Institutional Isomorphism Theory further emphasizes that high-level technical standards and quality control become key factors in building trust and cooperation, rather than just trust structural embeddedness within organizations.

Furthermore, Meyer and Rowan's (1977) theory discusses the balance between legitimacy and efficiency pursued by organizations. In the context of medical examinations and tests, trust-building may require reliance on reliable technical and professional standards, rather than just structural relationships between organizations. This means that even with structural embeddedness and historical trust, healthcare institutions still need to value and adhere to professional technical standards and operational norms to ensure service quality and efficiency.

(2) Need for talent cultivation and professional enhancement

The focus group discussions revealed the importance of professional medical personnel and their impact on trust structural embeddedness in healthcare services. The level of professional training of medical personnel directly relates to the ability of healthcare institutions to enhance technical standards and quality control. This aligns with Bourdieu's (1984) Social Capital Theory, which posits that specialized personnel are vital social capital for healthcare institutions, and their professional capabilities and knowledge levels are key factors in building trust. A lack of talent and insufficient professional training might lead to a lack of trust between healthcare institutions, limiting the implementation of mutual recognition.

This finding challenges the theory of trust structural embeddedness. According to Granovetter (2018), trust is typically established based on social relationships and transaction

history. However, in the medical field, the lack of professional personnel might weaken the trust established based on social relations, leading healthcare institutions to be reserved about the examination and test results of other institutions. This suggests that, in healthcare, professional level and talent cultivation are as crucial as social relationships for trust building.

Moreover, these insights also resonate with Pfeffer and Salancik's (2003) resource dependence theory, which argues that organizational behavior is influenced by its dependence on key resources. In healthcare, specialized personnel are a critical resource, and their scarcity may hinder the establishment of trust and collaboration between healthcare institutions (Ma, 2023).

(3) Resource allocation and management challenges

Focus group members raised concerns about resource allocation and management challenges, revealing the practical limitations healthcare institutions face in enhancing technical standards and quality control. According to resource dependence theory, healthcare institutions' dependence on key resources dictates their behavior and capabilities (Pfeffer & Salancik, 2003). In China, government investment is relatively limited, and most hospitals rely on their own funds to purchase examination and testing equipment (Han et al., 2022). This limitation of resources may impact the ability of healthcare institutions to enhance technical standards and quality control, subsequently affecting the establishment of trust and the willingness for mutual recognition between institutions.

Furthermore, the limitations of resources extend beyond finances to include quality control and preventive maintenance of medical equipment. Adequate resources and meticulous management are crucial for ensuring the high quality and reliability of medical services. Discussions in the focus group indicated that insufficient resource allocation or poor management might lead to doubts about each other's technical capabilities and service quality among healthcare institutions (Han et al., 2022), thus weakening the impact of trust structural embeddedness on the willingness for mutual recognition.

This finding challenges traditional theories of trust structural embeddedness. In the medical field, trust establishment relies not only on social relationships and historical transactions but also on resource allocation and management capabilities. Therefore, to strengthen trust and mutual recognition between healthcare institutions, attention must be paid to the adequacy and effective management of resources (Pfeffer & Salancik, 2003).

(4) Imbalance in information system development

The focus group discussions revealed how imbalanced levels of information system development can impact the establishment of trust and data sharing between healthcare

institutions, subsequently affecting the willingness for mutual recognition. According to Orlikowski and Baroudi's (1991) Information Systems Success Model, the effective use of information technology is key in improving communication efficiency, data sharing, and inter-organizational collaboration. When information systems between healthcare institutions are not fully networked, the issue of information asymmetry may be exacerbated, leading to skepticism about the test results of some institutions (Pan et al., 2023).

Additionally, Mayer, Davis, and Schoorman's (1995) trust model emphasizes ability, benevolence, and integrity as the key factors in trust-building. In the medical field, imbalances in information system development may cause certain institutions to be questioned in terms of capabilities, thus affecting the trust of other institutions in them. This challenges traditional theories of trust structural embeddedness, indicating that in healthcare, technical capabilities and the level of information system development are crucial for trust formation.

These discussions from the focus group theoretically explain why trust structural embeddedness was not supported in empirical research, revealing the complexities and challenges brought by imbalances in information system development in healthcare.

H9: Organizational legitimacy mediates between trust relational embeddedness and stakeholders' willingness to mutually recognize medical examination and test results (not supported).

(1) Ambiguity in policies and norms

The focus group discussions underscored the impact of ambiguity in policies and norms on the establishment and maintenance of organizational legitimacy in the process of mutual recognition of medical examination and test results. According to the Institutional Theory, organizational behavior is subject to the institutional environment, where clear and specific policy norms are crucial for organizational legitimacy (DiMaggio & Powell, 1983; Meyer & Rowan, 1977). However, in practical operations, there has been a lack of uniformity in the standards for mutual recognition of examination and test results across different regions in China, reflecting institutional-level challenges (Xiao et al., 2019).

Firstly, due to regional disparities in economic and social development, differences in medical service capabilities affect the establishment of uniform standards for mutual recognition. For instance, in the Beijing-Tianjin-Hebei-Shandong region of China, although mutual recognition within key cities has been achieved, and some progress has been made in inter-provincial recognition, disparities still exist in examination equipment, the level of laboratory physicians, and primary physicians' judgments on medical conditions (Xiao et al., 2019).

Secondly, hospitals often develop individualized mutual recognition plans based on their actual conditions and levels of development. While this approach considers the specific situation of each hospital, it leads to a lack of uniformity in recognition standards between hospitals, exacerbating the ambiguity of policies and norms (Ma, 2023).

According to Oliver (1991), organizational responses to institutional pressures can vary, ranging from full acceptance to selective adoption, or even resistance. In situations of ambiguous policies and norms, healthcare institutions might adopt different strategies, leading to variations in implementation standards and behavior patterns, further affecting mutual recognition and trust between institutions.

(2) Uncertainty in responsibility and risk

In the process of mutual recognition of medical examination and test results, the uncertainty of responsibility and risk is a significant issue. According to Meyer and Rowan's (1977) Institutional Theory, organizations, in their pursuit of legitimacy, attempt to conform to norms and expectations in their external environment. However, due to the lack of clear legal provisions, the boundaries of rights and responsibilities for healthcare institutions are difficult to delineate, and doctors often have an unclear understanding of their responsibilities. This uncertainty may lead doctors to fear legal liabilities when using test results from other institutions, thereby affecting their willingness to accept those results (He & Qiu, 2022).

The latest Physician law of the People's Republic of China passed on August 20, 2021, in its Article 56, Section 2, stipulates penalties for issuing medical documents without personal examination, which further increases the uncertainty and risk for physicians in the work of mutual recognition (The Standing Committee of the Chinese People's Congress, 2021). Consequently, doctors might prefer to repeat tests to reduce the risk of misdiagnosis. While this risk-averse behavior can decrease individual liability, it also lowers the acceptance of examination and test results from other institutions (He & Qiu, 2022).

The Decision-Making Theory notes that individuals and organizations tend to exhibit risk-averse behavior when faced with uncertainty (Simon, 2013). In the medical field, the unclear definition of legal responsibilities may lead doctors to feel insecure and uncertain when implementing mutual recognition of examination and test results, thereby affecting the mediating role of organizational legitimacy between trust relational embeddedness and the willingness for mutual recognition.

4.5 Summary

In this chapter, we conducted an in-depth empirical analysis of the roles of trust structural embeddedness, trust relational embeddedness, cognitive embeddedness, organizational legitimacy, and governmental intervention in the mutual recognition of medical examination and test results exploring the relationships depicted in our theoretical model. Through a thorough analysis of quantitative data and a comprehensive consideration of focus group discussions, this chapter reveals the impact of various factors in the medical field on the willingness for mutual recognition of medical examination and test results, also highlighting the complex interplay between theory and practice.

Firstly, we found that trust relational embeddedness and cognitive embeddedness have a significant positive impact on enhancing the willingness for mutual recognition, while the impact of trust structural embeddedness was not empirically supported. This finding challenges traditional embeddedness theories, suggesting a need to place greater emphasis on the quality of relationships between healthcare institutions and shared professional knowledge in the medical field.

Secondly, organizational legitimacy plays a significant role on multiple levels. It not only directly positively influences the willingness for mutual recognition but also mediates between trust structural embeddedness, cognitive embeddedness, and the willingness for mutual recognition. These findings reinforce the importance of organizational legitimacy in building trust and collaboration between healthcare institutions. However, the mediating role of organizational legitimacy between trust relational embeddedness and the willingness for mutual recognition was not empirically supported, revealing the complex role of norms and laws in the medical field.

Thirdly, the focus group discussions provided a deeper understanding of the empirical results, revealing key challenges in practical implementation, such as differences in technical standards, the need for talent cultivation and professionalization, challenges in resource allocation, and imbalances in information system development. These discussions enrich our understanding of the dynamics of mutual recognition of medical examination and test results, highlighting critical aspects that need attention in practice.

In summary, this chapter not only enhances our understanding of the factors influencing mutual recognition of medical examination and test results but also provides important perspectives for understanding the complexities of mutual recognition in the medical field. The results of the hypothesis testing are summarized in Table 4.19.

Table 4.19 Summary of research hypothesis test results

Hypotheses	Content	Verification Results
1	Trust structural embeddedness has a positive effect on stakeholders' willingness to mutually recognize medical examination and test results.	Not Supported
2	Trust relational embeddedness has a positive effect on stakeholders' willingness to mutually recognize medical examination and test results.	Supported
3	Cognitive embeddedness has a positive effect on stakeholders' willingness to mutually recognize medical examination and test results.	Supported
4	Trust structural embeddedness has a positive effect on organizational legitimacy.	Supported
5	Trust relational embeddedness has a positive effect on organizational legitimacy.	Supported
6	Cognitive embeddedness has a positive effect on organizational legitimacy.	Supported
7	Organizational legitimacy positively impacts stakeholders' willingness to mutually recognize medical examination and test results.	Supported
8	Organizational legitimacy mediates between trust structural embeddedness and stakeholders' willingness to mutually recognize medical examination and test results.	Supported
9	Organizational legitimacy mediates between trust relational embeddedness and stakeholders' willingness to mutually recognize medical examination and test results.	Not Supported
10	Organizational legitimacy mediates between cognitive embeddedness and stakeholders' willingness to mutually recognize medical examination and test results.	Supported
11	Governmental intervention positively moderates the impact of trust structural embeddedness on stakeholders' willingness to mutually recognize medical examination and test results.	Supported
12	Governmental intervention positively moderates the impact of trust relational embeddedness on stakeholders' willingness to mutually recognize medical examination and test results.	Supported
13	Governmental intervention positively moderates the impact of cognitive embeddedness on stakeholders' willingness to mutually recognize medical examination and test results.	Supported

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Chapter 5: Conclusions

Through comprehensive analysis and discussion, this study has progressively unveiled the complexity and multidimensional influencing factors in the mutual recognition of medical examination and test results. The empirical analysis and focus group discussions in Chapter 4 have offered profound insights into the effects of concepts such as trust structural embeddedness, trust relational embeddedness, cognitive embeddedness, organizational legitimacy, and governmental intervention on the willingness for mutual recognition of results. These findings not only enhance the existing theoretical framework but also provide practical guidance for medical practice. In Chapter 5, we will summarize the main conclusions of this study, based on the analyses presented in earlier chapters, and discuss their potential impact on future research directions and the formulation of healthcare policies.

5.1 Main findings of the study

The following section will elaborate on the key findings of this research, revealing important insights in the domain of mutual recognition of medical examination and test results.

5.1.1 Research background

This research extensively explores the complex dynamics of mutual recognition of medical examination and test results in China. Despite the Chinese government's continuous efforts since 2006 to advance the mutual recognition of medical examination and test results, the outcomes have been suboptimal due to the unmet demands of stakeholders, particularly in reducing "repetitive/excessive testing." This situation highlights the limitations of the current management models and theoretical systems in guiding practical operations.

5.1.2 Identification and categorization of stakeholders

Through expert consultation, this study selected 14 primary categories of stakeholders from 20 potential categories identified in the literature, classifying them as definitive, expectant, and latent types. This categorization provides a clear framework for a deeper understanding of the roles and impacts of various parties during the implementation of the policy.

5.1.3 The impact of embeddedness factors

This study focuses on an embeddedness perspective, identifying key levels of embeddedness that affect the mutual recognition of results: trust structural embeddedness, trust relational embeddedness, and cognitive embeddedness.

Empirical findings indicate:

Trust relational embeddedness and cognitive embeddedness significantly influence stakeholders' willingness to implement mutual recognition of results. The research supports the positive role of trust relational embeddedness in enhancing the willingness for mutual recognition. Strong mutual trust, particularly between doctors and patients and among different medical institutions, has a significant impact on facilitating the mutual recognition of examination and test results. The empirical study underscores the critical role of shared professional knowledge and experience (cognitive embeddedness) in promoting mutual recognition. Common medical practices and understanding of test results are essential for improving healthcare professionals' cognition and acceptance of mutual recognition.

However, the impact of trust structural embeddedness was not supported. While considered important, the study finds its role in enhancing the willingness for mutual recognition of medical examination and test results to be limited. This is mainly due to differences in technical levels and quality control standards between medical institutions, as well as the ambiguity in legal responsibility delineation.

5.1.4 The role of organizational legitimacy and governmental intervention

Organizational legitimacy played a mediating role between embeddedness factors and the willingness for mutual recognition, but its mediating role between trust relational embeddedness and mutual recognition willingness was not confirmed.

Governmental intervention had a positive moderating effect between trust structural embeddedness, trust relational embeddedness, cognitive embeddedness, and the willingness for mutual recognition. Government policy support and regulatory frameworks have been proven to be key factors in fostering cooperation and trust between medical institutions.

5.1.5 In-depth insights from focus group discussions

The focus group discussions provided in-depth insights into the specific issues and challenges in the practical implementation of mutual recognition of medical examination and test results. These discussions were instrumental in understanding the perspectives and attitudes of

stakeholders, explaining the hypotheses in the empirical study, especially the complexity and challenges behind those hypotheses that were not supported.

5.2 Contributions to management theory and practice

This research makes significant explorations both theoretically and practically, not only extending management theory but also providing concrete guidance and strategies for medical practice. These explorations help to improve collaboration between medical institutions, enhancing the efficiency and effectiveness of mutual recognition of medical examination and test results.

5.2.1 Contributions to extending theory

This study offers significant extensions and challenges in the field of management theory. By deeply analyzing embeddedness factors in the context of mutual recognition of medical examination and test results, it provides a new perspective for understanding organizational cooperation.

Trust structural embeddedness and trust relational embeddedness: While existing theory emphasizes the key role of trust in inter-organizational cooperation, this study goes further by revealing that trust structural embeddedness has limited influence on the willingness for mutual recognition, whereas trust relational embeddedness significantly fosters it. This finding provides a new angle for understanding the multidimensionality of trust between organizations.

Cognitive embeddedness: The study finds that shared professional knowledge and experience play a key role in the mutual recognition process among medical institutions, offering new empirical support for the importance of cognitive embeddedness in organizational cooperation.

Organizational legitimacy: This research challenges the common notion that organizational legitimacy acts as a mediator in all types of embeddedness relationships, particularly as its mediating role in trust relational embeddedness was not supported. This finding provides a new context and interpretation for existing theories on organizational legitimacy.

The moderating role of governmental intervention: By emphasizing the moderating role of governmental intervention between embeddedness relationships and the willingness for mutual recognition, this study lays new theoretical groundwork for understanding the impact of government policies in the cooperation among medical institutions.

5.2.2 Practical implications

The findings of this study hold profound significance for practical management practices, especially in the realms of policy-making and management within the healthcare sector.

Policy-Making: The results of this research offer crucial insights for policymakers, particularly in how to enhance the efficiency and effectiveness of mutual recognition of medical examination and test results by strengthening trust relationships and cognitive embeddedness, ensuring organizational legitimacy, and utilizing governmental intervention.

Healthcare institution management: For healthcare institutions, this study underscores the importance of building strong trust relational embeddedness and cognitive embeddedness, which can aid in improving the efficiency of collaboration between institutions and the quality of mutual recognition. It also highlights the significance of adhering to organizational legitimacy and responding to government policies.

Long-term impact: These findings may have a long-term positive effect on the quality of healthcare services, patient satisfaction, and medical efficiency, particularly in promoting effective cooperation between medical institutions and enhancing service quality.

5.3 Strategies and recommendations

To promote the effective implementation and sustainable development of mutual recognition of medical examination and test results, this section proposes a set of comprehensive strategies and recommendations aimed at addressing current challenges and optimizing related processes.

5.3.1 Enhancing relational trust embeddedness

Establishing a national communication platform: Forming a government-led platform to facilitate information exchange and cooperation among medical institutions.

Organizing regular exchange meetings and seminars: Hosting events nationwide to encourage medical institutions to share experiences and discuss new technologies (Li et al., 2022).

Encouraging inter-regional cooperation among healthcare institutions: Implementing cooperative projects like joint hospital programs to promote knowledge and resource sharing.

Developing a shared information platform for resources: Creating a platform for sharing medical examination and test results, ensuring data sharing and standardization while maintaining data security and privacy (Cheng et al., 2023).

5.3.2 Strengthening cognitive embeddedness

Changing the cognition and mindset of hospital administrators is crucial to guiding them to reassess the value and significance of mutual recognition of medical results from the perspective of healthcare cost control. Evidence-based medicine has always been the mainstream ideology in global medical practices, emphasizing that medical decisions are based on objective medical evidence. As a result of this ideology, hospital administrators commonly perceive medical results as essential evidence for evidence-based medical decisions. Therefore, it is imperative to make hospital administrators aware that promoting the mutual recognition of medical examination results aims to better utilize them within the framework of evidence-based medicine, thereby enhancing the efficiency and quality of healthcare services.

Establishing a unified training system: Setting up a national training system to standardize medical examination and test procedures and criteria (Ma, 2023).

Online training and assessment: Utilizing online resources to offer flexible training and assessment options.

Creating an industry knowledge sharing platform: Developing an online platform to facilitate the exchange of knowledge and sharing of best practices.

5.3.3 Reinforcing organizational legitimacy

Formulating and strengthening regulatory standards: Establishing uniform national standards for medical examinations and tests to ensure industry standardization.

Enhancing certification and regulation: Setting up dedicated agencies responsible for the certification and regulation of medical testing services.

Improving decision-making transparency: Increasing public participation and awareness by publicizing policy-making processes and establishing feedback mechanisms (Ma, 2023).

5.3.4 Optimizing trust structural embeddedness

Improving organizational structure: Optimize the internal structure of healthcare institutions to promote information sharing and process standardization.

Establishing cross-institutional collaboration mechanisms: Implement standardized collaborative frameworks to facilitate effective cooperation among healthcare institutions. Encourage the establishment of standardized cooperation between medical institutions through signed agreements, create uniform templates for cooperation agreements covering key elements of collaboration, and promote their nationwide use (Li et al., 2023).

5.3.5 Strengthening the link between trust relational embeddedness and organizational legitimacy

Establishing regional healthcare consortia: Promote cooperation and resource sharing between hospitals of different levels and specialty institutions (Ma, 2023).

Setting up regional quality control centers: Monitor and assess the quality of examination and testing conducted by member institutions (Li & Qian, 2023).

Conducting ongoing specialized research: Deepen the exploration of the relationship between trust and legitimacy, and offer policy recommendations to provide theoretical support for policymaking.

5.3.6 Enhancing the role of governmental intervention

Detailed policy guidance: Develop and continually update operational guides and flowcharts, clarifying each step of the mutual recognition process for medical examination and test results, including application procedures, review standards, and data sharing agreements. Regularly hold policy interpretation meetings to help medical institutions understand and implement mutual recognition policies.

Strengthening supervision and assessment mechanisms: Establish supervisory bodies to regularly assess the effectiveness of mutual recognition of examination and test results implemented by healthcare institutions (Li et al., 2023).

Technical and management support: The government should provide technical support to help healthcare institutions build and improve electronic medical record systems, promoting data sharing and information interoperability (Li et al., 2022).

Encouraging innovation and reform practices: Implement innovation reward programs and reform demonstration projects to showcase successful cases and experiences in mutual recognition processes.

Performance evaluation and incentive mechanisms: Include mutual recognition of examination and test results as an indicator in the performance evaluation of healthcare institutions, assessing the performance of medical staff in this area. Provide rewards and recognition for healthcare institutions and medical personnel who excel in mutual recognition efforts.

Public promotion and education: Publicize mutual recognition policies through media and public channels to increase public awareness and acceptance. Provide patients with educational materials about the mutual recognition process and its benefits, enhancing their trust in and

support for the mutual recognition system (Li et al., 2023).

5.4 Future research directions

While this study has made certain advancements in the field of mutual recognition of medical examination and test results, there remain several limitations and unresolved issues, paving the way for new directions in future research.

5.4.1 Research limitations and unresolved issues

Applicability limitations due to cultural and institutional context: Since this study primarily focuses on the Chinese healthcare environment, its conclusions may vary in applicability across different countries and cultural contexts.

Limitations of the data set and sample: The reliance of the study on a specific data set and sample for quantitative analysis may limit the broad applicability of its conclusions.

Depth of stakeholder analysis: Although three types of stakeholders, definitive, expectant, and latent were identified, a more in-depth multi-group empirical analysis of these groups was not conducted.

Extension of qualitative analysis: While focus group discussions provided detailed insights, there is room for improvement in the depth and breadth of qualitative analysis.

5.4.2 New areas for future research

Considering the limitations of the current study, future research could explore the following new areas:

Cross-cultural and international comparative studies: Conducting research in different countries and cultural contexts to explore various models and challenges of mutual recognition of medical examination and test results, as well as the impact of cultural differences on the effectiveness of related policies.

The Role of technological innovation in mutual recognition: Investigating how new technologies (such as artificial intelligence, big data analysis) influence the mutual recognition and sharing of medical examination and test results, and how technological innovations can enhance the efficiency and accuracy of mutual recognition (Cheng et al., 2023).

Integrated multidisciplinary research: Combining perspectives from management, medicine, information technology, and law to comprehensively analyze the complexity and

diversity of mutual recognition of medical examination and test results.

5.4.3 New methods for future research

To overcome the limitations of existing research and deepen the understanding of the field, future studies could adopt the following new methodologies:

Longitudinal studies and experimental design: Conduct longitudinal studies and experimental designs to observe the impact of policy changes on the behavior of healthcare institutions and patients, as well as to assess the actual effectiveness of different strategies.

Multi-group empirical analysis: Carry out detailed empirical analyses for different types of stakeholders to explore the differences and characteristics between various groups.

5.5 Summary

This study has thoroughly explored the dynamics of mutual recognition of medical examination and test results in China, covering multiple aspects from theoretical exploration to practical application. In this chapter, we first summarized the main findings, highlighting the crucial roles of trust relational embeddedness, cognitive embeddedness, organizational legitimacy, and governmental intervention in the mutual recognition of medical examination and test results. These findings not only reveal how various factors influence the willingness and implementation of mutual recognition but also highlight the complex interplay between these elements.

Furthermore, the contributions of this study to management theory and practice are discussed in detail. We noted that by extending and challenging existing theories, this research provides new insights and perspectives for the field of healthcare management. Particularly in the realms of trust structural embeddedness and organizational legitimacy, this study offers important insights and implications for medical management practice.

In proposing recommendations and strategies, we presented a series of tactics and suggestions based on the study's findings, aimed at optimizing the processes and practices of mutual recognition of medical examination and test results. These recommendations cover various aspects from policy formulation to operational practices in healthcare institutions, emphasizing the importance of comprehensive strategies in enhancing the efficiency and effectiveness of mutual recognition.

Finally, the study also offered suggestions for future research, aimed at addressing issues not fully covered in the current research and identifying new directions. These suggestions

include cross-cultural comparative studies, exploration of technological innovations, and the integration of multidisciplinary perspectives, providing a rich source of inspiration and direction for subsequent research.

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Annex A: Policies of Mutual Recognition of Medical Examination Results in China

Issuing institutions	Year	Policies
Eight ministries and commissions, including the Economic Restructuring Office of the State Council, the State Development Planning Commission, and the State Economic and Trade Commission	2000	<i>Guiding Opinions on the Reform of the Urban Medical and Health System</i>
The Chinese Ministry of Health	2006	<i>Notice of the General Office of the Ministry of Health on Issues concerning the Mutual Recognition of Medical Examinations and Medical Imaging Tests among Medical Institutions</i>
The Chinese Ministry of Health	2009	<i>Administrative Measures for Medical Quality Control Centers (Trial)</i>
General Office of the State Council of China	2010	<i>Main Work Arrangement for the Five Key Reforms of the Medical and Health System in 2010</i>
General Office of the Chinese Ministry of Health	2010	<i>Notice on Strengthening the Construction of Medical Quality Control Center and Promoting the Mutual Recognition of Examination and Test results among Medical Institutions at the Same Level</i>
The State Council of China	2012	<i>Twelfth Five-Year Plan for Health Development</i>
General Office of the State Council of China	2013	<i>Several Opinions on Promoting the Development of the Health Service Industry</i>
General Office of the State Council of China	2016	<i>Guiding Opinions on Promoting the Healthy Development of the Pharmaceutical Industry</i>
The State Council of China	2017	<i>Guiding Opinions on Promoting the Construction and Development of Medical Consortium</i>
National Health Commission of China, National Healthcare Security Administration, Traditional Chinese Medicine Administration of China, and the Health Bureau of the Logistics Support Department of the Central Military Commission	2022	<i>Administrative Measures for the Mutual Recognition of Examination and Test Results in Medical Institutions</i>

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Annex B: Expert Consultation Form for Stakeholders in Medical Examination and Testing Result Mutual Recognition

Dear Esteemed Colleague,

We are honored to extend to you an invitation to participate as an expert in our academic project, "Stakeholder behavioural intention model from an embedded perspective: empirical evidence of mutual recognition of medical test results". Amid your demanding schedule, we sincerely hope you can allocate some time to complete the enclosed survey. We highly value your insights and kindly request the survey's completion and return within a fortnight. The primary objective of this survey is to identify key stakeholders in the mutual recognition of medical examination and test results, offering invaluable recommendations to enhance the efficacy of this recognition process.

The survey comprises two sections. The initial section requests general information about your professional experience, while the subsequent section seeks your expert advice on "Indicators of Stakeholder Engagement in Mutual Recognition of Medical Examination and Test Results." We kindly ask you to provide your response or indicate your agreement where appropriate.

In the midst of your many commitments, we humbly request your guidance and insights. Your assistance is profoundly appreciated, and we extend our heartfelt gratitude for your contribution. Should you have any queries or require further clarification, please do not hesitate to get in touch with us.

We deeply thank you for your invaluable support of our research and wish you continued success in all your endeavors.

Section I: Basic information

1. Your current place of employment_____
2. Your age_____
3. Your Gender: ☐Male ☐ Female
4. Your highest level of education:
☐Doctoral Degree ☐Master's Degree ☐Bachelor's Degree
☐Associate Degree ☐Other
5. Your professional title:

☐Senior ☐Deputy Senior ☐Intermediate ☐Junior

6. Your position:

☐Directorate level ☐Divisional level ☐Section level ☐Other

7. Please state your primary professional field(s) and the number of years of experience in each. If you are active in more than one field, please specify the duration separately for the two main fields:

(1) Field _____ Years of Experience _____

(2) Field _____ Years of Experience _____

8. Your familiarity with stakeholders involved in the mutual recognition of medical examination and test results (Please select one):

☐Very familiar ☐More familiar ☐Generally familiar

☐Not very familiar ☐Not familiar

9. The primary basis for your judgement about stakeholders (Please select one):

☐Theoretical basis ☐Practical experience

☐Reference to domestic and international materials ☐Subjective judgement

10. Your E-mail: _____

Section II: Instructions for completing the survey

Building on Freeman's (2010) stakeholder theory, this study defines stakeholders as entities or individuals who can directly or indirectly exert influence over the execution and outcomes of mutual recognition in medical examination results, and who are concurrently affected by the consequent policy ramifications.

The primary goal of this survey is to pinpoint and comprehend those entities or individuals wielding substantial influence over the mutual recognition of medical examination results. By employing Mitchell's scoring method, we categorize these stakeholders based on their respective power, legitimacy, and urgency. This is done to discern those stakeholders that have a notable impact on the research topic, thereby determining the key target groups for our investigation.

Initially, please select from the provided list whether the individuals or organizations qualify as stakeholders in the mutual recognition of medical examination results. If they do, please mark with a "√". If there are additional potential stakeholders, kindly note them in the space provided.

Subsequently, for those stakeholders identified with a "√", please separately assess them based on the dimensions of legitimacy, power, and urgency. This assessment uses a 7-point scale, where 1 represents the weakest and 7 stands for the strongest.

Stakeholder Candidates	Is a stakeholder	score		
		Legitimacy	Power	Urgency
Financial Department				
Health Administration				
Department				
Social Security Department				
Pharmaceutical Regulatory				
Department				
Administration for Industry				
and Commerce				
Technical Supervision				
Bureau				
Comprehensive Tertiary				
Class A Hospital				
Comprehensive Secondary				
Class A Hospital				
Primary Healthcare				
Institutions				
Community Center				
Patients				
Non-Governmental				
Organization				
Consumer Protection				
Association				
General Public				
Red Cross				
Social Medical Assistance				
Institutions				
Industry (Hospital,				
Physician) Associations				
Pharmaceutical, Medical				
Equipment, and Device				
Suppliers				
Third-party Medical				
Examination Institution				
Medical Education				
Institutions				
Please enter any additional stakeholders in the space provided that you believe need to be included.				
Do you think the above categorization is appropriate? If not, please suggest improvements:				

Thank you for supporting this research!

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Annex C: Questionnaire of the effects of willingness to mutualize medical examinations and test results

Dear Madam/Sir,

We cordially invite you to participate in this essential survey, designed to investigate the impact of stakeholder engagement on the mutual acknowledgment of medical examination and test results, considered from an embeddedness standpoint. Your insights and experiences, regarding stakeholders you are familiar with, are invaluable to this study.

Please rest assured that there are no 'correct' or 'incorrect' responses. We encourage you to draw upon your practical knowledge and genuine feelings to guide your responses. The aim here is to capture the reality of your experiences.

The information gathered will solely be used for academic research purposes, and we commit to maintaining the strictest confidentiality of your responses. Upon completion of this survey, should you express an interest, we would be delighted to share the overall findings and resultant academic report with you.

Your participation is not just appreciated, but indeed integral to the success of this study. Thank you for your time and invaluable contribution.

Part 1: Basic information

The following questions gather some primary information about you and the stakeholder in medical examination and testing that you are assessing. Kindly provide appropriate information in the provided spaces. For the multiple-choice questions, please mark a tick "✓" next to the corresponding options.

1. Your Gender: ☐Male ☐Female

2. Your highest level of education:

☐Doctoral Degree ☐Master's Degree ☐Bachelor's Degree

☐Associate Degree ☐Other

3. The medical examination and testing stakeholder you are familiar with and are assessing is:

☐Comprehensive Tertiary Class A Hospital

☐Comprehensive Secondary Class A Hospital

☐Primary Healthcare Institutions ☐Third-Party Medical Examination Institution

- ☐Health Administration Department ☐Social Security Department
☐Patients ☐Finance Department ☐Community Center ☐Industry Association
☐Pharmaceutical, Medical Equipment, and Device Suppliers
☐Pharmaceutical Regulatory Department
☐Technical Supervision Bureau ☐General Public

4. Your relationship with this stakeholder is:

- ☐Collaborator ☐Partner ☐Employee ☐Customer ☐Other

5. The total workforce of the assessed stakeholder:

- ☐Fewer than 50 ☐51-100 ☐101-200 ☐201-500 ☐More than 500

Part 2: For the following statements, please reflect upon your perceptions or viewpoints and evaluate the previously identified stakeholder accordingly. Indicate your level of agreement with each statement by checking the appropriate box. The scale ranges from "1" to "7", signifying "strongly disagree" to "strongly agree".

Dimension	Item	Score						
Trust structural embeddedness	My organization occupies a central role within the medical examination and testing network.	1	2	3	4	5	6	7
	My organization possesses a high degree of interconnectedness with other institutions within the medical examination and testing network.	1	2	3	4	5	6	7
	My organization engages in frequent interactions with other entities within the medical examination and testing network.	1	2	3	4	5	6	7
	The interactions of my organization within the medical examination and testing network are continuous and ongoing.	1	2	3	4	5	6	7
	I perceive the medical examination and testing network in which my organization operates as effective and efficient.	1	2	3	4	5	6	7
	I place my trust in the standards and regulations governing the medical examination and testing system.	1	2	3	4	5	6	7
	I perceive the operational procedures and processes within the medical examination and testing network as fair and equitable.	1	2	3	4	5	6	7
	I am confident in obtaining accurate examination and testing results through other entities within the network.	1	2	3	4	5	6	7
Trust relational embeddedness	I am confident that my relationship with the physicians or institutions that provide medical examination and testing services is anchored in mutual trust.	1	2	3	4	5	6	7
	I have faith that my relationship with the medical service providers ensures the precision of the results acquired.	1	2	3	4	5	6	7

cognitive embeddedness	I trust in the integrity of physicians and other healthcare professionals when interpreting examination and testing outcomes.	1	2	3	4	5	6	7
	I am reliant on the professional competence of physicians and other healthcare professionals.	1	2	3	4	5	6	7
	I perceive my relationship with the healthcare professionals or institutions providing medical examination and testing services as equitable and transparent.	1	2	3	4	5	6	7
	I am convinced that healthcare professionals conduct examinations and tests with my best interests at heart.	1	2	3	4	5	6	7
	I consider the implementation of mutual recognition of medical examination and testing results across China to be a necessity.	1	2	3	4	5	6	7
	I am of the belief that mutual recognition of medical examination and testing results can augment the efficiency of healthcare services.	1	2	3	4	5	6	7
	I propose that mutual recognition of medical examination and testing results can mitigate the financial burden on patients.	1	2	3	4	5	6	7
	I argue that mutual recognition of medical examination and testing results is advantageous to patient health.	1	2	3	4	5	6	7
	I perceive the mutual recognition of medical examination and testing results to have a positive repercussion on my institution and community.	1	2	3	4	5	6	7
	I have a profound understanding of the potential issues and challenges associated with the mutual recognition of medical examination and testing results.	1	2	3	4	5	6	7
Organizational legitimacy	I believe that the inspection and testing procedures conducted by medical institutions are in compliance with the laws, regulations, and ethical standards set by local health departments and medical regulatory authorities.	1	2	3	4	5	6	7
	I propose that the inspection and testing procedures conducted by medical institutions align with the industry norms and expectations.	1	2	3	4	5	6	7
	I trust that the inspection and testing procedures conducted by medical institutions adhere to professional standards and demonstrate legal compliance.	1	2	3	4	5	6	7
	My organization complies with the instructions provided by medical institutions in what concerns inspection and testing procedures.	1	2	3	4	5	6	7

Governmental intervention	I perceive the government as playing a pivotal role in promoting the mutual recognition of medical examination and testing results.	1	2	3	4	5	6	7
	I am of the belief that the government's policies and measures are conducive to advancing the mutual recognition of medical examination and testing results.	1	2	3	4	5	6	7
	I regard the role of the government as crucial in the process of fostering mutual recognition of medical examination and testing results.	1	2	3	4	5	6	7
	I consider the government's support for the mutual recognition of medical examination and testing results as ample.	1	2	3	4	5	6	7
	I am convinced that the government's drive towards mutual recognition of medical examination and testing results will bolster the development of my institution.	1	2	3	4	5	6	7
	I perceive governmental intervention as influencing my institution's decision to implement mutual recognition of medical examination and testing results.	1	2	3	4	5	6	7
Willingness to mutual recognition of medical test results	I, along with my organization, am willing to partake in the realization of mutual recognition of medical examination and testing results.	1	2	3	4	5	6	7
	I regard the mutual recognition of medical examination and testing results as beneficial to both myself and my institution.	1	2	3	4	5	6	7
	I believe that mutual recognition of medical examination and testing results can enhance the efficiency and quality of healthcare services.	1	2	3	4	5	6	7
	My organization is inclined to share our medical examination and testing results to foster mutual recognition.	1	2	3	4	5	6	7
	My organization is willing to accept the medical examination and testing results from other institutions to promote mutual recognition.	1	2	3	4	5	6	7
	My organization is ready to allocate resources (such as manpower, funding, etc.) to facilitate the mutual recognition of medical examination and testing results.	1	2	3	4	5	6	7
	I believe that the realization of mutual recognition of medical examination and testing results is advantageous for the long-term development of my institution.	1	2	3	4	5	6	7

Thank you for supporting this research!

Annex D: Variables and measurement items

Variable	Number	Measurement Item	Literature Basis
Trust structural embeddedness	TSE1	My organization occupies a central role within the medical examination and testing network.	Granovetter (2018) 、 Nahapiet and Ghoshal (1998)、 Tsai and Ghoshal (1998)、 Moran (2005)、 Jones and George (1998)
	TSE2	My organization possesses a high degree of interconnectedness with other institutions within the medical examination and testing network.	
	TSE3	My organization engages in frequent interactions with other entities within the medical examination and testing network.	
	TSE4	The interactions of my organization within the medical examination and testing network are continuous and ongoing.	
	TSE5	I perceive the medical examination and testing network in which my organization operates as effective and efficient.	
	TSE6	I place my trust in the standards and regulations governing the medical examination and testing system.	
	TSE7	I perceive the operational procedures and processes within the medical examination and testing network as fair and equitable.	
	TSE8	I am confident in obtaining accurate examination and testing results through other entities within the network.	
Trust relational embeddedness	TRE1	I am confident that my relationship with the physicians or institutions that provide medical examination and testing services is anchored in mutual trust.	Mayer et al., (1995)、 Uzzi (1997)、 McEvily et al. (2003)、 Hall et al. (2001)、 Henderson et al. (2020)、 Gilson (2003)、 Pearson and Raeke (2000)、 Moran (2005)
	TRE2	I have faith that my relationship with the medical service providers ensures the precision of the results acquired.	
	TRE3	I trust in the integrity of physicians and other healthcare professionals when interpreting examination and testing outcomes.	
	TRE4	I am reliant on the professional competence of physicians and other healthcare professionals.	
	TRE5	I perceive my relationship with the healthcare professionals or institutions providing medical examination and testing services as equitable and transparent.	
	TRE6	I am convinced that healthcare professionals conduct examinations and tests with my best interests at heart.	

cognitive embeddedness	CE1	I consider the implementation of mutual recognition of medical examination and testing results across China to be a necessity.	Granovetter (2018) 、 Nahapiet and Ghoshal (1998)、 Cohen and Bacdayan (1994)、 Tsoukas and Vladimirov (2001)、 Gabbay and Le May (2011)
	CE2	I am of the belief that mutual recognition of medical examination and testing results can augment the efficiency of healthcare services.	
	CE3	I propose that mutual recognition of medical examination and testing results can mitigate the financial burden on patients.	
	CE4	I argue that mutual recognition of medical examination and testing results is advantageous to patient health.	
	CE5	I perceive the mutual recognition of medical examination and testing results to have a positive repercussion on my institution and community.	
	CE6	I have a profound understanding of the potential issues and challenges associated with the mutual recognition of medical examination and testing results.	
Organizational legitimacy	OL1	I believe that the inspection and testing procedures conducted by medical institutions are in compliance with the laws, regulations, and ethical standards set by local health departments and medical regulatory authorities.	Suchman (1995)、 Deephouse (1996)、 Bitektine (2011)、 Elg et al. (2012)、 Scott et al. (2000)
	OL2	I believe that the inspection and testing procedures conducted by medical institutions align with the industry norms and expectations.	
	OL3	I trust that the inspection and testing procedures conducted by medical institutions adhere to professional standards and demonstrate legal compliance.	
	OL4	My organization complies with the instructions provided by medical institutions in what concerns inspection and testing procedures.	
Governmental intervention	GI1	I posit that government policies and initiatives play a pivotal role in fostering mutual recognition of results derived from medical inspections and examinations.	Jensen (2003) 、 Frye and Shleifer (1997)、 Wiig et al. (2014)、 Moscelli et al. (2018)、 Godager and Wiesen (2013)
	GI2	It is my contention that government regulations and policies significantly augment the legitimacy and credibility of healthcare institutions.	
	GI3	I am of the view that the government's endorsement of mutual recognition of medical examination results is comprehensive and robust.	

Willingness to mutual recognition of medical test results	GI4	I assert that the impetus provided by the government towards mutual recognition of medical inspection outcomes can materially enhance the growth trajectory of my institution.	Ajzen (1991)、 Oliver (1980)、 Ajzen and Fishbein (1972)、 Davis (1989)、 Venkatesh et al. (2003)、 Holden and Karsh (2010)
	GI5	I believe that the interventions orchestrated by the government substantially influence the decision-making process of my institution in implementing mutual recognition of medical inspection results.	
	W1	I, along with my organization, am willing to partake in the realization of mutual recognition of medical examination and testing results.	
	W2	I regard the mutual recognition of medical examination and testing results as beneficial to both myself and my institution.	
	W3	I believe that mutual recognition of medical examination and testing results can enhance the efficiency and quality of healthcare services.	
	W4	My organization is inclined to share our medical examination and testing results to foster mutual recognition.	
	W5	My organization is willing to accept the medical examination and testing results from other institutions to promote mutual recognition.	
	W6	My organization is ready to allocate resources (such as manpower, funding, etc.) to facilitate the mutual recognition of medical examination and testing results.	
	W7	I believe that the realization of mutual recognition of medical examination and testing results is advantageous for the long-term development of my institution.	

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Annex E: Parameters for Calculating Authority Coefficient

Dimension	Parameters
Familiarity (C_s)	Not Familiar = 0.2, Slightly Familiar = 0.4, Moderately Familiar = 0.6, Very Familiar = 0.8, Extremely Familiar = 1
Judgment Basis (C_a)	Subjective Judgment = 0.25, Referencing Domestic and International Material = 0.5, Theoretical Basis = 0.75, Practical Experience = 1
Authority Coefficient (C_r)	$C_r = (C_a + C_s) / 2$

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Annex F: Consistency of Expert Opinions

Round	Kendall's <i>W</i>	Chi-Square	Degrees of Freedom	Significance
Round 1	0.478	1209.496	79.000	0.000
Round 2	0.583	1473.932	79.000	0.000

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Annex G: Correlation Analysis Results of the Pilot Study

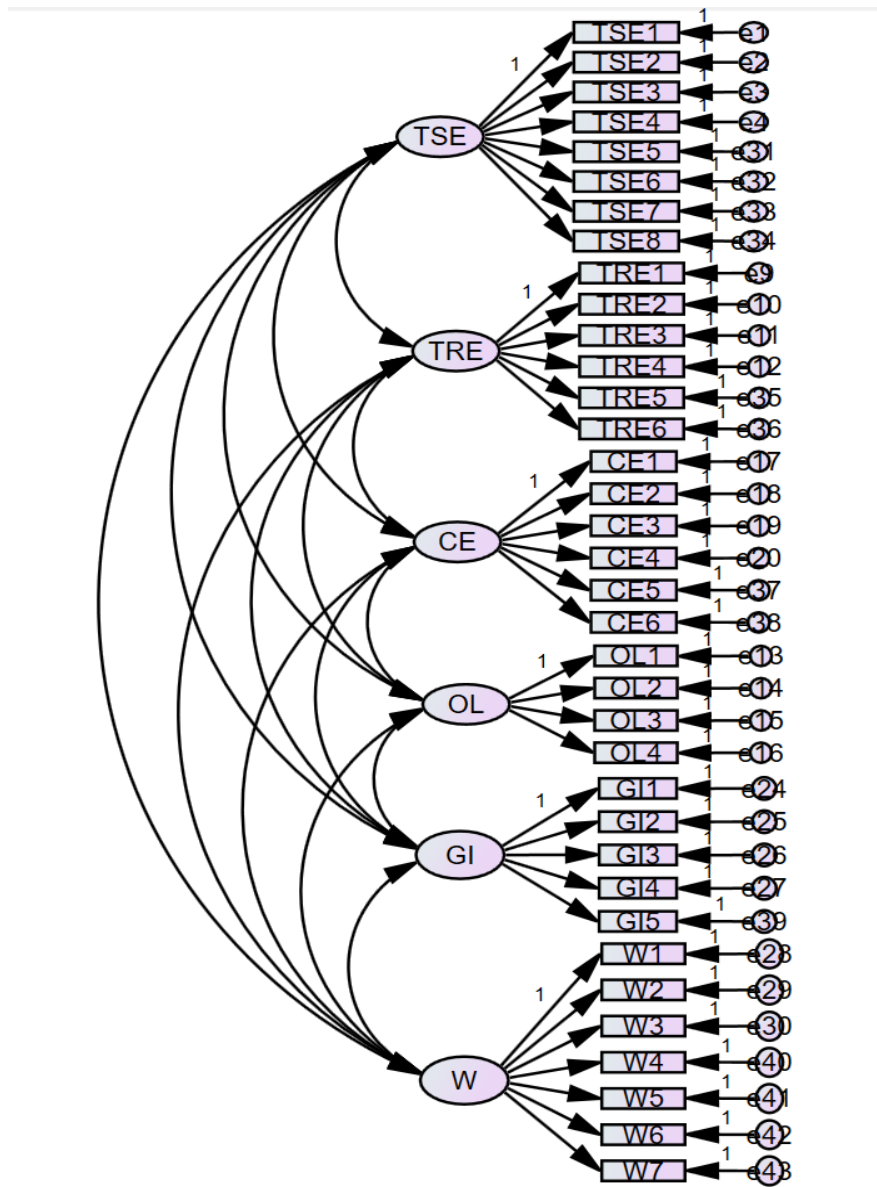
	Trust structural embeddedness	Trust relationa l embedde dness	Cogniti ve embedd edness	Organiz ational legitima cy	Govern mental interven tion	Willingness of mutual recognition
Trust structural embeddedness	1					
Trust relational embeddedness	.297**	1				
Cognitive embeddedness	.406**	.268**	1			
Organizational legitimacy	.291**	.216*	.238**	1		
Governmental intervention	.441**	.200*	.297**	0.167	1	
Willingness of mutual recognition	.430**	.277**	.365**	.334**	.254**	1

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

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Annex H: Confirmatory Factor Analysis of the willingness for medical test result mutual recognition Scale



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Annex I: Discriminant Validity across Variables

Variable	Trust structural embeddedness	Trust relational embeddedness	Cognitive embeddedness	Organizational legitimacy	Governmental intervention	Willingness for medical test result mutual recognition
Trust structural embeddedness	0.778					
Trust relational embeddedness	0.493*	0.774				
Cognitive embeddedness	0.464*	0.43*	0.785			
Organizational legitimacy	0.42*	0.431*	0.358*	0.797		
Governmental intervention	0.414*	0.443*	0.488*	0.438*	0.756	
Willingness for medical test result mutual recognition	0.396*	0.465*	0.41*	0.431*	0.428*	0.783

Note: The diagonal represents the square root of the AVE for each variable. Asterisks (*) denote Pearson correlation coefficients that are significant at the 95% confidence level.

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Annex J: Results of Model Fit Indices

	χ^2/df	RMSEA	GFI	NFI	CFI	TLI	IFI	PNFI
Criterion	<3	<0.08	>0.9	>0.9	>0.9	>0.9	>0.9	>0.5
Test results	1.751	0.04	0.899	0.909	0.959	0.955	0.959	0.835

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Annex K: Simple Slope Test for the Moderating Effect of Governmental Intervention between Trust Structural Embeddedness and Mutual Recognition Willingness

Level	Effect	Standard Deviation	LLCI	ULCI
M-SD	0.0086	0.0241	-0.0388	0.0561
M	0.0639	0.0182	0.0282	0.0997
M+SD	0.1192	0.0251	0.0698	0.1686

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Annex L: Moderated Mediation Effect of Governmental Intervention and Organizational Legitimacy on Trust Structural Embeddedness and Mutual Recognition Willingness

	Effect	Standard Deviation	BootLLCI	BootULCI
Indirect Effect	0.014	0.007	0.002	0.028
Direct Effect			LLCI	ULCI
M-SD	-0.003	0.025	-0.053	0.047
M	0.053	0.019	0.017	0.090
M+SD	0.109	0.027	0.057	0.162

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Annex M: Simple Slope Test for the Moderating Effect of Governmental Intervention between Trust Relational Embeddedness and Mutual Recognition Willingness

Level	Effect	Standard Deviation	LLCI	ULCI
M-SD	-0.0164	0.0237	-0.0629	0.0301
M	0.079	0.0175	0.0446	0.1133
M+SD	0.1744	0.0238	0.1276	0.2212

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Annex N: Moderated mediation effect of governmental intervention and organizational legitimacy on trust relational embeddedness and mutual recognition willingness

	Effect	Standard Deviation	BootLLCI	BootULCI
Indirect Effect	0.010	0.006	-0.001	0.023
Direct Effect			LLCI	ULCI
M-SD	-0.030	0.025	-0.079	0.019
M	0.071	0.018	0.036	0.106
M+SD	0.172	0.026	0.121	0.223

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Annex O: Simple Slope Test for the Moderating Effect of Governmental Intervention between Cognitive Embeddedness and Mutual Recognition Willingness

Level	Effect	Standard Deviation	LLCI	ULCI
M-SD	-0.0262	0.0235	-0.0724	0.0199
M	0.0693	0.0179	0.0341	0.1045
M+SD	0.1648	0.0252	0.1152	0.2143

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Annex P: Moderated Mediation Effect of Governmental Intervention and Organizational Legitimacy on Cognitive Embeddedness and Mutual Recognition Willingness

	Effect	Standard Deviation	BootLLCI	BootULCI
Indirect Effect	0.012	0.006	0.002	0.025
Direct Effect			LLCI	ULCI
M-SD	-0.043	0.025	-0.091	0.005
M	0.061	0.018	0.025	0.096
M+SD	0.164	0.026	0.112	0.216