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The Dual System in China: Origins, Evolution, and Innovation — An Analysis Based on Historical Institutionalism

Qi Wang[1],Shiliang Zheng[2],Yuyang Jiang[3],Huipeng Zhang[4]

[1,2,3,4]Shanghai Polytechnic University,China

Abstract: The dual system is a typical vocational education model in Germany, and its origin, evolution, and innovation in China are of great significance for deepening vocational education reform and promoting the construction of a skilled society. Historical institutionalism has a strong explanatory power on this process, exploring its sinicization process from the triple logic of structure, path, and motivation: achieving institutional generation in national transformation and cultural change, forming institutional continuity under cost game and positive feedback, and promoting institutional reform in power interaction and collaborative game. The research proposes an optimization path: strengthening political and cultural embedding and social co governance, breaking path dependence, constructing diverse input and dynamic feedback mechanisms, promoting actor collaboration, and advancing the localization and development of the dual system.

Keywords: Dual system; Historical institutionalism; Educational history; Country comparison; Institutional Logic

I. Introduction

The German dual system is one of the most influential vocational education models in the world. Since its introduction to China in the 1980s, it has gone through stages of introduction, evolution, and innovation. This article takes the historical institutionalism in the new institutionalism as the explanatory framework, systematically sorts out the development process of the dual system in China, and aims to reveal the localization experience and innovative logic of vocational education models in China.

In the initial stage of reform and opening up, China focused on economic development and urgently needed technical and skilled talents, but the "school-based" vocational education was disconnected from job demands. Under the trend of learning from the West, the dual system emphasizing school enterprise cooperation has become a reference. The government, academia, and universities have come into contact with its ideas through exchange, research, and investigation, but it is difficult to directly implement them due to differences in the systems between

China and Germany. At this stage, the theoretical introduction is completed, and a consensus is established that skilled talents need to be cultivated through the combination of education and industry.

In the evolutionary stage (from the 1990s to the early 21st century), China's economy developed rapidly, and industrial upgrading and employment pressure drove the implementation of vocational education reform. The national policy specifies school enterprise cooperation and the integration of work and technology. Through the construction of demonstration schools and pilot projects, the integration of the dual system is promoted. Local governments and universities are exploring forms such as order classes, and significant results have been achieved in developed regions. But the diffusion is uneven, the progress in the central and western regions is slow, and the participation of enterprises is low. Some regions and schools have made adoption decisions in advance, continuously verifying and adjusting through pilot projects, and promoting the transformation of the dual system from theory to local practice. At the same time, in the practical process, it has also prompted academia and policy makers to reflect on whether the dual system can truly adapt to China's national conditions. This kind of reflection implies a conscious deepening of theoretical awareness. In addition to introduction, we have also begun to attempt to examine advanced Western educational models with a problem oriented mindset.

In the reform stage (after the 21st century), China's economy shifted towards high-quality development, and vocational education rose to the national strategic level. The country has introduced multiple policies to promote the integration of industry and education, and local and industry associations have established industry colleges. Colleges have transformed their courses and integrated them into local culture. China is no longer just borrowing advanced vocational education models from the West, but through the interaction of top-level design, local exploration, and school innovation, forming a vocational education model that conforms to China's institutional logic and development needs. This not only demonstrates our ability to absorb and transform foreign experience, but also demonstrates our initiative and creativity in institutional construction, demonstrating the establishment of theoretical confidence.

Research has shown that the dual system in China is a process of origin evolution innovation, revealing the coupling problem between the education system and the industrial system, and highlighting the unique experience of localizing vocational education.

II. Origination stage (1980s to early 1990s)

In the early stage of reform and opening up, the Third Plenum of the Eleventh Central Committee of the Communist Party of China began to implement policies of domestic reform and opening up to the outside world. With the establishment of a market economy system and the advancement of industrialization, the demand for technical and skilled talents is rapidly increasing. The traditional vocational education model based on classroom teaching is no longer suitable for the actual needs of the job. The field of vocational education has also responded to the national call and actively carried out various national exchanges and cooperation. During this period, there was a widespread trend in Chinese academia and policy circles to learn from the West[Error! Unknown switch argument.]. A large number of scholars have studied the German dual system and found that it has become a focus of attention

for vocational education reformers due to its characteristics of combining work with study and emphasizing both school and enterprise[Error! Unknown switch argument.]. It is in this context that learning from the dual system of developed Western countries, especially Germany, has become a consensus in the education and industry sectors. The dual system has thus entered the perspective of national education discussions and become an important reference for improving the quality of vocational education. During this period, there were no specific policies at the national level regarding the dual system, but concepts such as school enterprise cooperation and work study integration began to appear in educational documents and academic discussions. With the guidance of the education department and the help of the German side, some schools are currently piloting the dual system. Although the practice during this period mostly remained in local experiments and the pilot effects were limited, its theoretical significance is significant.

III. Evolutionary stage (1990s to early 21st century)

In the 1990s, it was difficult to achieve good results by simply copying the dual system pilot, and the vocational education sector in China began to consider how to reform the dual system to adapt to the actual situation in our country. From 1989 to 1995, a dual system reform experiment was carried out in six cities including Suzhou, and the organizational and management methods of vocational education were adjusted to study and solve specific problems in the pilot[Error! Unknown switch argument.]. Although this reform has achieved some success, it has not led to the flourishing development of the dual system in our country. So, in 1991, the State Council issued the "Decision on Vigorously Developing Vocational and Technical Education", which for the first time proposed the term "integration of work and technology" in China's policy documents, opening up the exploration of the path of integrating work and technology with Chinese characteristics[Error! Unknown switch argument.]. In 1996, the integration of industry and education was officially included in the Vocational Education Law[Error! Unknown switch argument.]. The country is gradually institutionalizing school enterprise cooperation and the integration of work and study in top-level policies, promoting the process of vocational education reform. Subsequently, the Ministry of Education and the Ministry of Labor launched demonstration schools, pilot projects, and funding support measures to encourage local governments and universities to explore different models of school enterprise cooperation[Error! Unknown switch argument.]. Under the guidance of national policies, vocational colleges and enterprises in various regions have carried out various forms of cooperation and exploration, such as order classes and work study alternation, forming a relatively typical practice. Local governments reduce the cost of enterprise participation through financial support and policy tilt, universities adjust their courses and education systems to match job needs, and enterprises obtain talent reserves by providing job opportunities.

IV. Innovation stage (mid-21st century present)

After entering the 21st century, although the previous model of combining engineering and school enterprise cooperation has achieved certain results at the local level, there are still limitations in institutionalization, standardization, and systematization. At this point, the national level is starting to rethink the relationship between vocational education and industry, attempting to construct a dual system vocational education model with Chinese characteristics that retains the core elements of the German dual system while deeply integrating with China's

institutional culture and economic structure[Error! Unknown switch argument.].

At the top-level design level, the country has systematically restructured the vocational education system from a macro institutional structure perspective. In 2014, the Decision of the State Council on Accelerating the Development of Modern Vocational Education first proposed deepening the integration of industry and education and school enterprise cooperation, marking the formal institutionalization of the dual system's localization path in China[Error! Unknown switch argument.]; In 2017, the State Council issued the "Several Opinions on Deepening the Integration of Industry and Education", further clarifying the responsibility system of government promotion, enterprise entities, and school collaboration[Error! Unknown switch argument.]; The Implementation Plan for National Vocational Education Reform in 2019 (20 articles on vocational education) elevated the integration of industry and education to a national strategy, emphasizing the establishment of a vocational education system with deep participation of enterprises[Error! Unknown switch argument.]. At the same time, the policies jointly promoted by the Ministry of Education, the National Development and Reform Commission, the Ministry of Human Resources and Social Security, and other departments, such as vocational education undergraduate programs and the construction of national industry education integrated enterprises, constitute the institutional support for the dual system in China in the new era.

At the meso level, various regions have successively explored the construction of new cooperation mechanisms such as industrial colleges, which have become intermediary organizations connecting enterprises and schools. Unlike industry associations in Germany, industrial colleges in China are often led by local governments, deeply participated by enterprises, and implemented by universities, forming a pattern of four party linkage between government, school, industry, and enterprises[Error! Unknown switch argument.]. The practices represented by Huawei ICT College in Guangdong and Haier Industry College in Shandong reflect the distinct orientation of vocational education in serving industrial upgrading and promoting regional economic development. By jointly establishing curriculum standards, sharing practical training bases, and jointly developing talent development plans, institutional innovation at this level has greatly alleviated institutional barriers for enterprises to participate in vocational education[Error! Unknown switch argument.].

At the micro level, the localization innovation of curriculum system and teaching mode has become an important way to promote the implementation of the dual system. Unlike Germany's curriculum structure that focuses on enterprise apprenticeships and emphasizes vocational qualification standards, Chinese vocational colleges place greater emphasis on the integration of job skills, comprehensive literacy, and innovative abilities[Error! Unknown switch argument.]. The curriculum reform has begun to emphasize work process oriented teaching design, task driven learning methods, and an integrated teaching model of theory and practice[Error! Unknown switch argument.]. At the same time, the dual teacher construction of vocational education teachers has received policy support, and the Ministry of Education has issued multiple documents requiring teachers to have practical experience in enterprises, in order to achieve synchronous updates of teaching content and industry practice. The student evaluation system has also shifted from subject knowledge orientation to vocational ability orientation, forming a diversified evaluation system centered on job performance, skill assessment, and enterprise evaluation.

V. Stage analysis from the perspective of historical institutionalism

5.1 Structural Logic: Institutional Generation in National Transformation and Cultural Change

Historical institutionalism holds that the changes and evolution of institutions are mainly constrained by changes in environmental structures, which are rooted in deeper levels of political systems, economic structures, and cultural concepts. For the dual system in China, it is difficult to explain why this vocational education model originating from Germany can be introduced into China and achieve institutional growth under different structural logics, only from the policy or practical perspective.

1.Differences in political structure

The political structure of Germany's dual system is rooted in its long established social market economy system. Under this system, a relatively stable social partnership has been formed between the state, enterprises, and trade unions. The government does not directly intervene in the content and implementation of training, but achieves decentralized governance through legal frameworks, industry associations, and local autonomous organizations. The German Vocational Education Law establishes the division of responsibilities among the government, industry organizations, and enterprises, reflecting a typical collaborative governance model. In contrast, China's political system has obvious national centrality characteristics. Since the reform and opening up, although the state's control over the education system has gradually dispersed, it still plays a leading role in macro design and resource allocation. The introduction and promotion of the dual system in China are mainly achieved through a government led top-down approach. The Implementation Plan for National Vocational Education Reform and the Vocational Education Law both emphasize government coordination, school enterprise cooperation, and social participation, but their core still lies in the system logic led by the state.

2. Differences in economic structure

The economic foundation of Germany's dual system lies in its mature market economy structure. German enterprises have a strong degree of industry organization, and they generally recognize the importance of vocational training in improving competitiveness and ensuring technological accumulation. Vocational training has therefore become a long-term investment behavior for enterprises to participate in market competition. The participation of German enterprises is not forced by the government, but driven by industry norms and economic rationality, which makes enterprises play a true institutional role in the vocational education system. In contrast, China's vocational education system was formed during the transition from a planned economy to a market economy. Although enterprises have become economic entities after market-oriented reforms, the marketization of vocational education is still insufficient. Most enterprises have a strong short-term profit seeking tendency and lack the motivation to invest in vocational education in the long term. Therefore, in the process of introducing the dual system, the government must incentivize enterprises to participate through financial subsidies, tax incentives, policy rewards, and other means.

3. Differences in cultural concepts

The German dual system is deeply rooted in the culture of craftsmanship and the concept of social respect for skills. German society generally recognizes the equivalence between vocational education and general education, believing that skilled labor also has social dignity. The vocational education system has thus formed a solid social foundation, vocational qualification certificates have social authority, and vocational identities have stability and mobility. This cultural identity ensures the social legitimacy and sustainability of the dual system. In China, there has long been a cultural tradition of emphasizing academia over skills. The social value orientation is more inclined towards the worship of academic qualifications, and vocational education is often seen as a secondary educational choice. Although the policy has repeatedly emphasized the concepts of integrating vocational and general education and serving the country with skills, the fundamental transformation of social identity still requires time. The lack of trust in vocational education among students, parents, and some schools directly affects the acceptance and stability of the system. Through the efforts of engineering alternation, vocational qualification system construction, and "dual teacher" teacher training, the country is attempting to rebuild the status of vocational education at the social level.

5.2 Path Logic: Cost Game and Institutional Continuation under Positive Feedback

Historical institutionalism holds that once a system is established, it will exhibit strong persistence and inertia due to path dependence. The continuation of the system not only stems from the constraints of past choices, but also from the self strengthening mechanism formed within the system, which continuously solidifies its rationality through increasing returns and positive feedback. For the dual system, both Germany's native model and China's introduction model are heavily influenced by path dependence in their continuous evolution.

1. Path dependence of the German dual system

One is the historical accumulation of institutional setting costs. The vocational education system in Germany is jointly governed by guilds, enterprises, and local chambers of commerce, forming an institutionalized social contract. This system involves a vast organizational network, legal norms, and evaluation mechanisms. Once established, its operating costs and exit costs are even higher. Any reform of the system requires multi-party consultation, so the system tends to be more stable and sustainable.

The second is the accumulation and increasing returns of institutional benefits. Enterprises not only acquire skilled labor during the training process, but also enhance their trust relationship with apprentices and long-term employment advantages. This internal labor market has brought significant economic and social benefits, thus forming a positive feedback effect of sustained investment. With the passage of time, a stable community of institutional interests has been formed among enterprises, industries, and countries, and each party has benefited from it, thereby strengthening the stability of the institutional path.

The third is the institutionalization and consolidation of social identity. The dual system in Germany is not only an education system, but also a cultural identity and social trust. Apprenticeship is regarded as an important pathway for professional dignity and social mobility. The institutionalization of social identity further reduces the driving force for institutional reform, resulting in a typical strong path dependence characteristic of the German

dual system.

2. Path dependence of the dual system in China

One is the politicization of institutional setting costs. When China introduces a dual system, it needs to structurally embed it into the existing education system, administrative system, and fiscal mechanism. Due to the long-term government led education system, the curriculum system, faculty structure, and evaluation standards of vocational colleges have administrative dependence. Any institutional innovation must be achieved through policy authorization and fiscal appropriations. This institutional path means that once a government led model is formed, shifting towards enterprise led or social negotiation will face extremely high institutional adjustment costs.

The second is the institutional constraint of exit costs. In the Chinese vocational education system, the institutional arrangements for enterprise participation are often implemented through project-based or pilot systems. Once a company enters the system, it will be constrained by policies, finances, and other factors. This makes the exit cost higher, but at the same time, it also leads to the dependence of institutional operation on policy sustainability. Once policy support weakens, corporate participation may decrease, thereby weakening the self strengthening of the system.

The third is the positive feedback and path locking of policy incentives. The government has formed a typical incentive response reinforcement cycle in the process of institutional promotion. Local governments respond to central policies by promoting cooperation between schools and enterprises through financial subsidies, policy evaluations, and other means. Schools and enterprises actively participate to obtain policy dividends, thereby further demonstrating the effectiveness of policies. This policy positive feedback mechanism enhances institutional vitality in the short term, but also forms administrative path dependence - the driving force for institutional operation comes from policies rather than endogenous mechanisms.

5.3 Dynamic Logic: Institutional Reform in Power Interaction and Collaboration among entities

Historical institutionalism holds that the fundamental driving force behind institutional change does not come from external shocks themselves, but from the reconfiguration of power relations among institutional actors. Once a system is established, it is difficult to undergo change, but the trigger for change often stems from micro level games. When different entities interact or conflict in resource allocation, interest demands, and power structures, the system may undergo adjustments, substitutions, transformations, or ruptures.

1. The Power Mechanism and Innovation of the German Dual System

The institutional driving force of Germany's dual system is based on social partnerships, with its core features being decentralization of power, balance of subjects, and collaborative governance through negotiation. The main actors of Germany's dual system include enterprises, industry associations, trade unions, schools, and government. Enterprises are the core implementing entities responsible for apprenticeship training and practical activities. Trade unions and industry associations participate in the development of training standards and examination evaluations. The government plays a coordinating and legal protection role. Neither party can independently

control the direction of the system, thus forming a negotiated balance of institutional stability. When the socio-economic environment or technological structure changes, the German dual system does not rely on external policy coercion, but achieves gradual institutional reform through social negotiation. The driving force behind the reform of Germany's dual system comes from the rebalancing of interests. When enterprises face changes in their skill structure due to industrial transformation, trade unions will put forward new training demands. When the youth employment rate decreases, the government will coordinate with all sectors of society to redistribute training resources. This multi-directional game maintains dynamic stability of the system and achieves innovation in stability.

2. The driving mechanism and innovation of the dual system in China

After China introduced the dual system, the operating environment of the system was significantly different from that of Germany. Due to differences in political system, market structure, and educational governance methods, China's driving mechanism is more reflected as a policy oriented process of power re embedding. In China, the central government is the leader in institutional design and promotion. The government embeds the dual system into the national strategic level by introducing top-level policies, thus forming a vertical governance structure with the government as the core. The central government formulates macro policies and fiscal directions, local governments are responsible for pilot implementation and resource integration, and schools and enterprises are at the executive level. The advantage of this structure lies in the fast speed of policy promotion and high efficiency of institutional diffusion, but the disadvantage is that innovation comes from upper level design rather than social demand. Chinese enterprises' participation in the dual system is often driven by policy incentives and social responsibility, rather than pure market demand. Schools bear the responsibility of implementing policies and often play the role of executors in curriculum reform, teacher training, and corporate cooperation. The cooperative relationship between the two has not yet formed a stable community of interests, but rather a project-based and policy oriented short-term cooperation. With the deepening of the dual system pilot, China is constantly restructuring its power relations. On the one hand, the government is gradually guiding enterprises to play a more active role in institutional innovation; On the other hand, schools and industry associations have also begun to intervene in standard setting and talent evaluation.

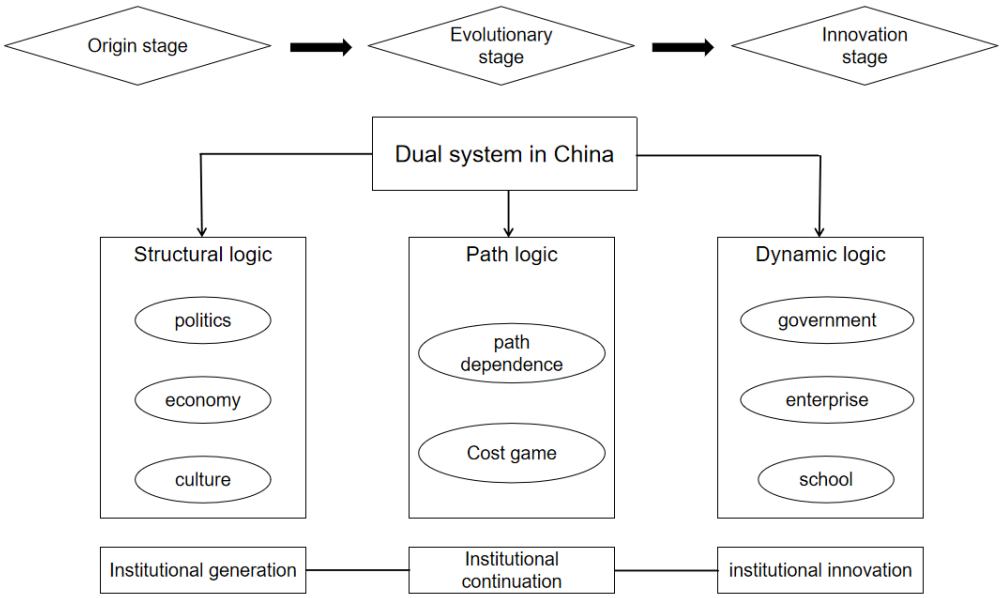

Figure 5.1: An analytical framework for interpreting the dual system in China from the perspective of historical institutionalism

VI. The institutional optimization path of the dual system in China

6.1 Optimization Path of Structural Logic: Institutional Adaptation under the Embedding of Political Culture

1. Problem analysis:

The success of Germany's dual system is due to its long-term stable social market economy, complete professional autonomy system, and profound craftsmanship cultural tradition. The state, industry associations, enterprises, and schools form a diverse governance pattern, with the government only responsible for legal framework and quality supervision, while enterprises and industry associations have extensive training leadership. In contrast, China's vocational education system was formed in the legacy of a strong state system and planned economy, with the state playing a dominant role for a long time, and the development of market mechanisms and social organizations relatively lagging behind. This political, economic, and cultural difference has led to structural adaptation of the German model in China.

2. Optimization path:

One is to continue to maintain the government's institutional design and policy guidance functions, but to achieve decentralization in policy implementation, and to clarify the collaborative rights and responsibilities of industry associations, enterprises, and local education administrative departments through legislation. The second is to encourage enterprises to have greater autonomy and benefit return mechanisms in the training system. Enterprises can obtain economic benefits from cultivating high skilled talents through financial subsidies, tax reductions, and incentives for technology transformation, thus forming a dual driving force of market incentives and social responsibility. The third is to reshape the social identity of vocational education. Through public

communication, vocational education cultural festivals, skills competitions, media promotion, and other means, we aim to strengthen social and cultural symbols such as skills serving the country and craftsmanship spirit, and transform vocational education from secondary education to value education.

6.2 Optimization path of path logic: institutional innovation mechanism to break path dependence

1. Problem analysis:

After the introduction of the dual system in China, there has been a phenomenon of institutional lock-in: on the one hand, local governments and schools have formed project-based response models in order to complete tasks, resulting in superficial institutional practices; On the other hand, the enthusiasm of enterprises to participate is limited by short-term economic considerations, making it difficult to form long-term cooperation mechanisms. This path dependence makes the practice of dualism more about transplanting forms rather than substantive integration.

2. Optimize the path:

One is to optimize the cost of institutional settings. Establish a system design for diversified investment and shared benefits, where the government, schools, enterprises, and society share costs and achievements together. The second is the flexibility of the exit mechanism. For cooperation projects that do not meet market demand or operate inefficiently, orderly exit should be allowed, while encouraging the adjustment of models through dynamic evaluation mechanisms. The third is to strengthen the feedback mechanism: build a two-way evaluation system, where enterprises provide feedback on students' vocational abilities and school teaching quality, and the government adjusts policies and resource allocation based on the feedback, thus forming a self reinforcing path of information loop, policy optimization, and practical improvement.

6.3 Optimization Path of Dynamic Logic: Power Balance under the Collaboration of Actors

1. Problem analysis:

In the practice of the dual system in China, the state remains the main provider of institutions and resource allocators, while enterprises and schools play more executive roles. Although this power structure is beneficial for the efficiency of institutional promotion, it also suppresses the endogenous motivation and institutional innovation of actors.

2. Optimization path:

One is the functional transformation of the role of the state. Transforming from a leading government to a guiding government, strengthening the framework and service-oriented nature of policies, and reducing administrative intervention. The government should take on more public service and supervisory functions, promote institutional fairness and information transparency. The second is the subjectification of corporate roles. By legally safeguarding the decision-making and curriculum co construction rights of enterprises in vocational education, they can become true institutional actors rather than passive participants. The third is the innovation of the school's role. Schools should transition from traditional knowledge transmission to skill co education, jointly develop talent training standards with enterprises, and normalize mechanisms such as dual mentorship and work study alternation. The fourth is the institutionalization of collaborative platforms. Establish a collaborative

governance platform among the country, industry, schools, and enterprises to ensure dynamic balance of information, resources, and interests among multiple parties.

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