

Research Article

PPPs Policy Entity Network Change and Policy Learning in Mainland China

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Since 1995, Public-Private Partnerships (PPPs) mode has been applied in mainland China accompanied by the issuance of a series of PPPs policies. Taking 201 policy documents promulgated from 1995 till 2019 as a research sample, this paper explores PPPs policy entity network change and policy learning behind it in China. Research results show the following: (1) China's PPPs policy entity network has mainly gone through three stages: partial-focus network with bad stability, loose-multiactor network with general stability, and balanced-multiactor network with good stability; (2) the key players are NPC in the first stage, MOF and NDRC in the second stage, and MOF and 8 other government entities in the third stage; (3) policy learning behind PPPs policy entity network change is government learning in the first stage and lesson-drawing in the second and third stages.

1. Introduction

Public-Private Partnerships (PPPs) refer to a broader contractual relationship between public and private sectors to provide public service and/or assets [1–5], through borrowing skills and technologies from private sectors in order to improve the efficiency and performance of the projects, to reduce the costs and time in delivering services and assets, to have innovations in providing public services, to share risks with private sectors, and so forth [4,6]. Since the Silk Road Economic Belt and the 21st century Maritime Silk Road, abbreviated to the Belt and Road Initiative (R&B), was introduced as national development strategy focusing on connectivity and collaboration between Eurasian countries by Chinese government in 2013 and emphasized again in China's 13th Give-Year Plan, PPPs approach has been utilized in various fields of infrastructure and public service in China, which indicates that PPPs are treated not only as an important financing means for providing infrastructure and public services but also as the main mode for cooperating with countries along R&B. Although there is no specific fundamental law on PPPs in China, in order to guide the implementation of PPPs mode, China's governments have promulgated a series of related policies,

regulations, and regulatory documents to support the legislative framework of PPPs and then to attract private sectors to get involved in PPPs projects. However, the implementation of PPPs projects has been undesirable, while PPPs policies have been issued intensively since 2014, which is called “hot policies but cold implementation” in China [7]. On the one hand, the average implementation rate of PPPs projects was around 38.2% till the end of 2017 and increased to 68.5% with clearing 3557 projects out of total 9668 projects till July 2020 [8]. On the other hand, the participation rate of private entities in PPPs projects is relatively low, which results from squeezing out by state-owned enterprises [9]. The change of PPPs policies is dominated by policy entities network evolution, especially under China context, and how and why they change can be seen from the view of policy learning. Therefore, from the view of policy change and policy learning, this research tries to understand why there are “hot policies but cold implementation”? The research questions are as follows: Under China's context, how does PPPs policy entity network evolve in China? What type of policy learning happens behind PPPs policy change in China?

Policy networks can be considered as policy subsystems, where actors interact with each other over policy goals in

specific knowledge and political spaces [10]. The core of the policy network theory is to identify key actors in the network, what brings them together, how they interact, and what effect their interaction has on policies [11,12]. Policy network theory, on the one hand, examines the interactions and their influence in policy making process, mainly focusing on network structures, the effectiveness of networks, and the impact of network characteristics on policy making. Although there are not a lot of literature, on the other hand, still some link learning with network [13–16]. There are multiple conceptions of policy learning including political learning [17], government learning [18], policy-oriented learning [19], lesson-drawing [20], and social learning [21]. Bennett and Howlett [22] reconcile three types of policy learning with policy change in terms of government learning about organizations, lesson-drawing about programs, and social learning about policies [22]. Based on huge literature, Howlett and Ramesh [23] summarize two types of policy learning: one is internal learning and the other is external learning from the view of the relationship between policy-makers and environment. Internal learning is internal lesson-drawing of past experience [20,23] and external learning is external social learning of reasons that some policy initiatives have succeeded while others have failed [21,23]. According to Hall [21] and Koopenjan and Klijn [14], there are three types of learning including cognitive/technical learning: instrumental learning about the nature of the problem, social/political learning which is network actors' leaning about how to operate for coordination and negotiation, and institutional learning which is shared arrangement, procedures, rules, norms, values for interaction, coordination, and negotiation. It is necessary to differentiate between internal/lesson-drawing and external/social learning, in terms of learning entities, condition, incentives, and goals [22–24], in order to see what type of policy learning is behind policy change.

Policy change is a common but not well-understood phenomenon [22] in terms of the creation of new and innovative policies or merely incremental refinements of earlier policies [25,26]. Based on conflict-oriented theory, policy change can be driven by governments' passive response to social forces and social conflicts [27], but the nature of policy change remains unclear [28]. However, policy change can be viewed as a process of policy learning from the view of knowledge utilization [17]. The technical or strategic interactions between network actors involve actors' learning from experiences [22]. The institutional arrangements where the interactions or learning happens affect how they pursue their interest, the extent of learning, and their success in attaining their goals and preferences [29,30]. The passive response action of government entities can change to actively learn and lead to policy change [31]. This paper tries to see how policy entity network change contributes to the occurrence of policy learning and then policy change, and what type of policy learning is behind policy change. There are some researches about the policy change of the development of PPPs mode in China, but only a few studies to see the policy learning behind policy change especially from the

view of policy entity network change under China context. The change of policy entity network indicates the change of collaboration among actors and the follow-up policy change, which represents the trend of policy learning behind policy change as well. This paper provides the evolution of PPPs policy entity network change and policy learning in China, which may be useful for both researchers and policy-makers to get a deeper understanding of the development of PPPs mode and better decision-making.

The remainder of the paper is organized as follows. In Section 2, the methods are described including research framework and data collection. In Section 3, PPPs policy entity network change in China is explored by social network analysis in the view of the change of policy entities and their structure, role, and function. In Section 4, policy learning is discussed by policy learning entity, policy learning goal, policy learning effect, and policy learning type. Conclusions are drawn in Section 5.

2. Methods

2.1. Research Framework. In order to achieve the research objectives, the research framework is shown as in Figure 1: Firstly, the policies, regulations, and legal documents (called “policies” for short in this paper) used in this research are collected from the Collection of PPPs Mode Policies and Legal Documents and the website of China Public Private Partnerships Center (CPPPC) which is built by the Ministry of Finance(MOF) for providing information on PPPs policies and projects. Secondly, the PPPs entity network evolution will be shown with UCENT mapping in three stages in terms of policy entities and their structure, role, and function. Finally, this research will analyse the policy learning behind the PPPs policy entity network change.

2.2. Data Collection. There are two data resources for this research. One is the Collection of PPPs Mode Policies and Legal Documents, which includes all PPPs related policies, regulations, and legal documents issued by China's governments from 1995 to 2014. The other one is the website of China Public Private Partnerships Center (CPPPC) under the Ministry of Finance, which received approval in December 2014. According to the Third Plenary Session of the 18th Communist Party of China (CPC) Central Committee, the Ministry of Finance is the first responsible sector for the implementation of allowing private sectors to participate in investing, constructing, and operating urban infrastructure through such means as franchise. In particular, CPPPC is responsible for PPPs policy research, consulting and training, capacity construction, financial support, Information and Communication Technology (ICT) statistics, international collaboration, etc. The data of policies after 2014 are collected from the website of CPPPC by authors. Finally, 201 central policies are used in this research for the analysis after identifying whether those documents are related to PPPs by contents.

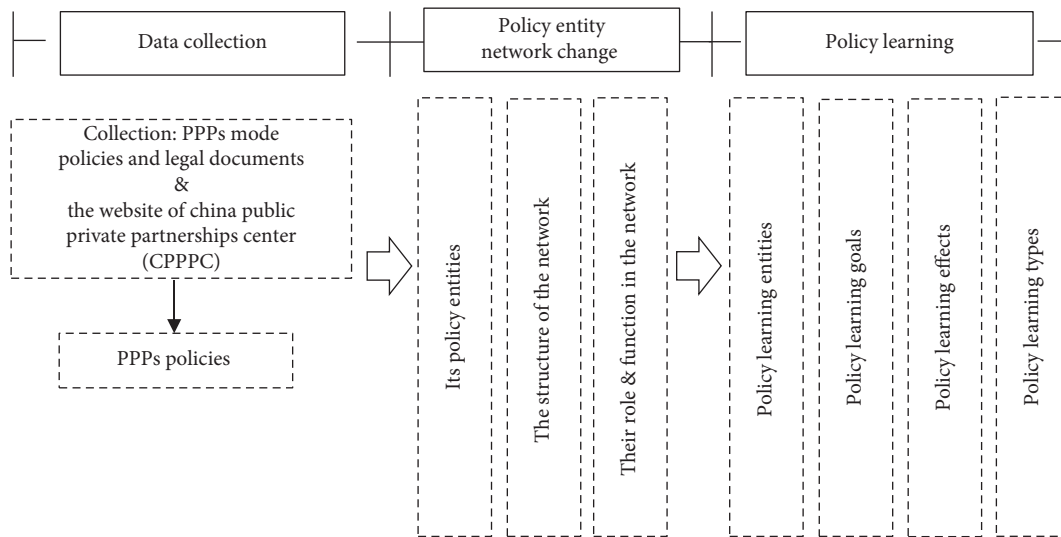


FIGURE 1: The research framework.

In order to better understand the policy change of PPPs mode in China, the comparison between changes of the numbers of PPPs policies and projects from 1995 to 2019 is shown in Figure 2. The data of PPPs projects are collected from Public-Private Infrastructure Advisory Facility (PPIAF) of World Bank. According to China Government Procurement Website, there are three waves of the development of PPPs mode in China (see website: http://www.ccg.gov.cn/specialtopic/pppz/msjx/201411/t20141105_4700618.htm). The first wave is from 1995 to 2003, where only 13 policies were issued and 459 PPPs projects were launched; the second wave is from 2004 to 2013 with 24 policies issued and 723 projects launched; the third wave is from 2014 to 2019 during which 164 policies were promulgated and 632 projects were launched. There are two low peaks because of Asian financial crisis in 1998 and financial crisis of 2007–2008. The third wave of policies is partially accompanied by China's 2013 R&B Initiative.

3. PPPs Policy Entity Network Change in China

In order to have a clear picture of PPPs mode development in China, it is necessary to have a look at the change of PPPs policy entity network, because policy entities play a very important role in the process of policy change and policy learning.

3.1. PPPs Policy Entities. The policy entities are individuals or organizations who have impact on policy making, implementation, evaluation, and so forth. The PPPs policy entities in China include 57 institutions such as the Central Committee of the Communist Party of China (CCCPC), the State Council (SC), Ministry of Finance (MOF), and National Development and Reform Commission of the People's Republic of China (NDRC). According to the institutional setting designed by the Central and State Council, those 57 institutions can be divided into main and auxiliary institutions (see Table 1). Main institutions include Central

Committee of the Communist Party of China (number of singly issued policies: 1; number of jointly issued policies: 0), National Institutions (number of singly issued policies: 57; number of jointly issued policies: 0), and Central Component Department of the Government (number of singly issued policies: 78; number of jointly issued policies: 57). Auxiliary institutions include ad hoc agencies (number of singly issued policies: 1; number of jointly issued policies: 0), Directly Affiliated Institutions (number of singly issued policies: 0; number of jointly issued policies: 12), Deliberation and Coordination Agency (number of singly issued policies: 0; number of jointly issued policies: 2), National Office (number of singly issued policies: 1; number of jointly issued policies: 6), Institutions (number of singly issued policies: 5; number of jointly issued policies: 11), and Enterprises (number of singly issued policies: 1; number of jointly issued policies: 3).

Based on the number of issued policies, it is clear that main institutions issued most of PPPs policies, supplementary by auxiliary institutions. Among main institutions, the CCCPC is responsible for providing guidelines at national level; the National People's Congress of the People's Republic of China (NPCC) provides laws and regulations; the Supreme People's Court of the People's Republic of China (SPC) ensures the implementation of policies; the State Council of the People's Republic of China (SC) and General Office of the State Council of the People's Republic of China (GOSC) offer policies at macro level for other Central Component Department of the Government and auxiliary institutions to follow up. In a word, in China, PPPs policy entities match the structure of China governments, and National Institutions and the Central Component Department of the Government are the main entities for issuing policies with characteristics of mostly singly issuing policies supplementary with jointly issuing policies.

In order to explore the relationships among policy entities and their participation level in policy-making, it is necessary to see the change of the number of PPPs policies

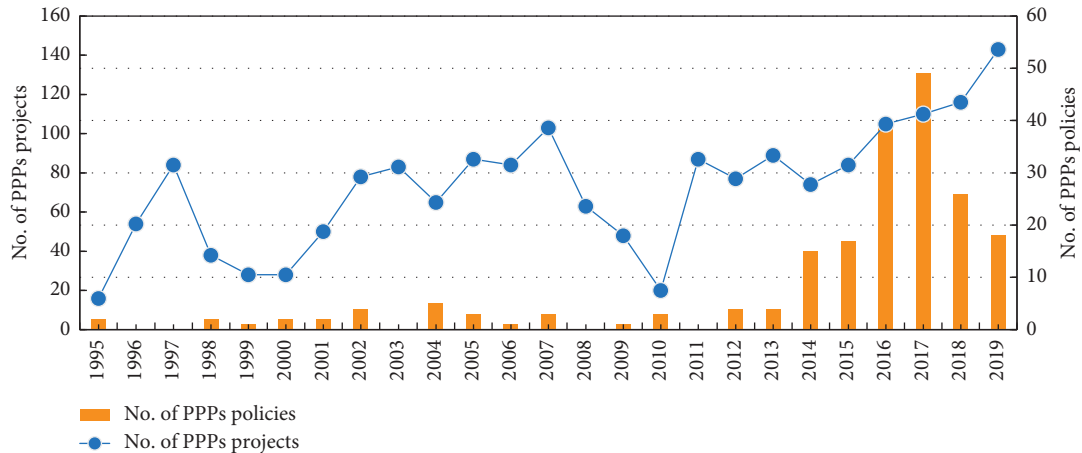


FIGURE 2: Number of PPPs policies and projects from 1995 to 2019.

issued by single entity or joint entities. Table 2 indicates that 71.64% of PPPs policies are issued by single entities and 28.36% by joint entities, and the percentages of the number of policies issued in the three stages of 1995–2003, 2004–2013, and 2014–2019 are 6.47%, 11.94%, and 81.59%, respectively. Although the collaboration among policy entities increases in the third stage of the development of PPPs mode in China, single issuing is still the main way to promulgate policies in the first and second stages. Besides, based on the number of issued policies, 9 out of 57 institutes take high level of participation in issuing policies: Ministry of Finance of the People’s Republic of China (MOF), SC, GOSC, Ministry of Housing and Urban-Rural Development of the People’s Republic of China (MOHURD), NDRC, the People’s Bank of China (PBOC), China Banking Regulatory Commission (CBRC), Ministry of Transport of the People’s Republic of China (MOT), and Ministry of Ecology and Environment of the People’s Republic of China (MOEE), which are State Council and its Central Component Department of the Government (see Table 3). 125 policies are singly issued by those top 9 PPPs policy entities, accounting for 62.19% of the total, and 54 policies are jointly issued by those entities accounting for 26.87% of the total. Moreover, there are big differences even among government departments. The number of policies singly and jointly issued by MOF only is 87, accounting for 43.28% of the total and indicating the core role of MOF in PPPs policy-making in China.

The PPPs policy entities in China are led by National Institutions and the Central Component Department of the Government supplemented by auxiliary institutions. Those entities mainly singly issued policies supplementary with jointly issuing, among which MOF takes the core role. After identifying the policy entities in each stage, it is useful to see the change of PPPs policy entity network in order to see their relationships.

3.2. Change of PPPs Policy Entity Network. Based on the three policy stages above, the evolution of PPPs policy entity network in China is shown in Figure 3 by using UCINET 6

software package. If there is at least one jointly issued policy between PPPs policy entities, the value is set to 1; otherwise, it is 0. The arrows between PPPs policy entities indicate that policy entities collaborate to issue at least one PPPs policy, but they do not show how many policies are jointly issued between policy entities. It is obvious that the trend of PPPs policy entity network becomes denser and more complicated from the first to the third stage. In the first stage, NPC (former NDRC) was the broker in the network connecting PBOC, MOT, China Ministry of Electric Power (CMEP), Environmental Protection Administration of China (SEPA), and Ministry of Construction of the People’s Republic of China (MOC), and only 7 PPPs policy entities are in the collaboration network. The NPC was the initiative and core government department to make PPPs policies. It is a partial-focus network. In the second stage, more PPPs policy entities issued PPPs policies, but only 5 PPPs policy entities (NDRC, PBOC, MOT, MOF, and CBRC) issued joint PPPs policies. MOF started to engage in PPPs policy-making. It is a loose-multiactor network. It shows differences in the third stage when 50 PPPs policy entities collaborate to issue joint PPPs policies and the network becomes more complicated, which implies that more and more government departments get involved in policy-making and enhance the implementation of PPPs mode in various fields in China. It is a balanced-multiactor network. It is obvious that the change of PPPs policy entities network shows that not only does the number of policy entities increase rapidly in the third stage, but also the network has become more complicated, which needs to see their roles and functions in the network for understanding the network change.

3.2.1. Structure of PPPs Policy Entity Network. The network structure of PPPs policy entities in China changes in those three stages, which shows the specific characteristics in the network size, ties, tie strength, cohesion, density, and average distance (see Table 4). Network size denotes the number of PPPs policy entities in the network in the stage; ties mean the number of interactions between policy entities that jointly issue policies in the stage; tie strength represents

TABLE 1: PPPs policy entities in China.

Main institutions	<p>Central Committee of the Communist Party of China (CCCPC) (number of singly issued policies: 1; number of jointly issued policies: 0)</p>	<p>The National People's Congress of the People's Republic of China (NPCC) The Supreme People's Court of the People's Republic of China (SPC) The State Council of the People's Republic of China (SC) General Office of the State Council of the People's Republic of China (GOSC) National Development and Reform Commission of the People's Republic of China (NDRC) (the former is National Planning Commission of the People's Republic of China (NPC)) Office of the National Development and Reform Commission of the People's Republic of China (ONDRC) Ministry of Finance of the People's Republic of China (MOF) Office of the Ministry of Finance of the People's Republic of China (OMOF) Ministry of Justice of the People's Republic of China (MOJ) Ministry of Ecology and Environment of the People's Republic of China (MOEE) (the former is State Environmental Protection Administration of China (SEPA)) Office of the Ministry of Ecology and Environment of the People's Republic of China (OMOEE) Ministry of Transport of the People's Republic of China (MOT) Office of the Ministry of Transport of the People's Republic of China (OMOT) Ministry of Agriculture and Rural Affairs of the People's Republic of China (MOA) Office of the Ministry of Agriculture and Rural Affairs of the People's Republic of China (OMOA) Ministry of Railways of the People's Republic of China (MOR) Ministry of Housing and Urban-Rural Development of the People's Republic of China (MOHURD) (the former is Ministry of Construction of the People's Republic of China (MOC)) Office of the Ministry of Housing and Urban-Rural Development of the People's Republic of China (OMOHURD) Ministry of Water Resources of the People's Republic of China (MOWR) Office of the Ministry of Water Resources of the People's Republic of China (OMOWR) Ministry of Natural Resources of the People's Republic of China (MONR) (the former is Ministry of Land and Resources of the People's Republic of China) (MLR) Office of the Ministry of Natural Resources of the People's Republic of China (OMONR) Ministry of Education of the People's Republic of China (MOE) National Health Commission of the People's Republic of China (NHC) Ministry of Science and Technology of the People's Republic of China (MOST) Office of the Ministry of Science and Technology of the People's Republic of China (OMOST) Ministry of Commerce of the People's Republic of China (MOCOM) (the former is Ministry of Foreign Economic Relations and Trade of the People's Republic of China (MFERT)) Ministry of Industry and Information Technology of the People's Republic of China (MIIT) Office of the Ministry of Industry and Information Technology of the People's Republic of China (OMOIIT) The People's Bank of China (PBOC) Ministry of Civil Affairs of the People's Republic of China (MCA) Ministry of Human Resources and Social Security of the People's Republic of China (MOHRSS) Ministry of Culture and Tourism of the People's Republic of China (MOCT) Ministry of Public Security of the People's Republic of China (MPS)</p>
	<p>National Institutions (number of singly issued policies: 57; number of jointly issued policies: 0)</p> <p>Central Component Department of the Government (number of singly issued policies: 78; number of jointly issued policies: 57)</p>	

TABLE 1: Continued.

	Ad hoc agencies (number of singly issued policies: 1; number of jointly issued policies: 0)	State-Owned Assets Supervision and Administration Commission of the State Council (SASAC)
		State Administration for Industry and Commerce (SAIC)
		State Forestry Administration (SFA)
	Directly affiliated institutions (number of singly issued policies: 0; number of jointly issued policies: 12)	General Administration of Sport of China (GASC)
		State Intellectual Property Office (SIPO)
		State Administration of Taxation (SAT)
		National Tourism Administration (NTA)
		China Food and Drug Administration (CFDA)
		State General Administration of the People's Republic of China for Quality Supervision and Inspection and Quarantine (AQSIQ)
Auxiliary institutions	Deliberation and Coordination Agency (number of singly issued policies: 0; number of jointly issued policies: 2)	The National Working Commission on Aging (NWCA)
	National Office (number of singly issued policies: 1; number of jointly issued policies: 6)	National Energy Administration (NEA) (the former is China Ministry of Electric Power (CMEP))
		Civil Aviation Administration of China (CAAC)
		National Railway Administration of the People's Republic of China (NRAC)
		State Oceanic Administration (SOA)
		State Administration of Science, Technology and Industry for National Defence (SASTI)
		Chinese Academy of Engineering (CAE)
	Institutions (number of singly issued policies: 5; number of jointly issued policies: 11)	China Securities Regulatory Commission (CSRC)
		State Office of Comprehensive Agricultural Development (SOCAD)
		China Banking Regulatory Commission (CBRC)
		China Insurance Regulatory Commission (CIRC)
		China Railway (CR)
	Enterprises (number of singly issued policies: 1; number of jointly issued policies: 3)	China Development Bank (CDB)

TABLE 2: Number of singly and jointly issued PPPs policy entities in China.

	1995–2003	2004–2013	2014–2019	Number of issued policies
Number of singly issued PPPs policy entities	6	10	19	144
Number of jointly issued PPPs policy entities	7	5	50	57
Number of issued policies	13	24	164	201

TABLE 3: Top 9 policy entities.

	Number of singly issued PPPs policies	Number of jointly issued PPPs policies	Subtotal
MOF	46	41	87
GOSC	29	0	29
SC	26	0	26
MOHURD	11	11	22
NDRC	4	17	21
PBOC	2	15	17
CBRC	3	9	12
MOT	2	8	10
MOEE	2	8	10
Total	125	54	179

the frequency of interactions between policy entities in the stage, that is, the number of jointly issued policies between them; cohesion indicates the degree to which policy entities are connected directly to each other in the stage; density represents the proportion of direct ties in a network relative to the total number possible in the stage; average distance

denotes the average shortest path between two nodes, which means that shorter paths are desirable when speed of communication or exchange is desired.

The number of PPPs policies increases from 13 to 24 to 164 from the first to the second to the third stage, indicating that policies have been intensively issued since 2014. The tie

TABLE 4: PPPs policy entity network structure.

	1995–2003	2004–2013	2014–2019
No. of policies	13	24	164
Network size	10	11	54
Ties	8	8	404
Tie strength	8	16	607
Cohesion	0.307	0.164	0.521
Density	0.178	0.146	0.282
Average distance	1.810	1.200	1.901

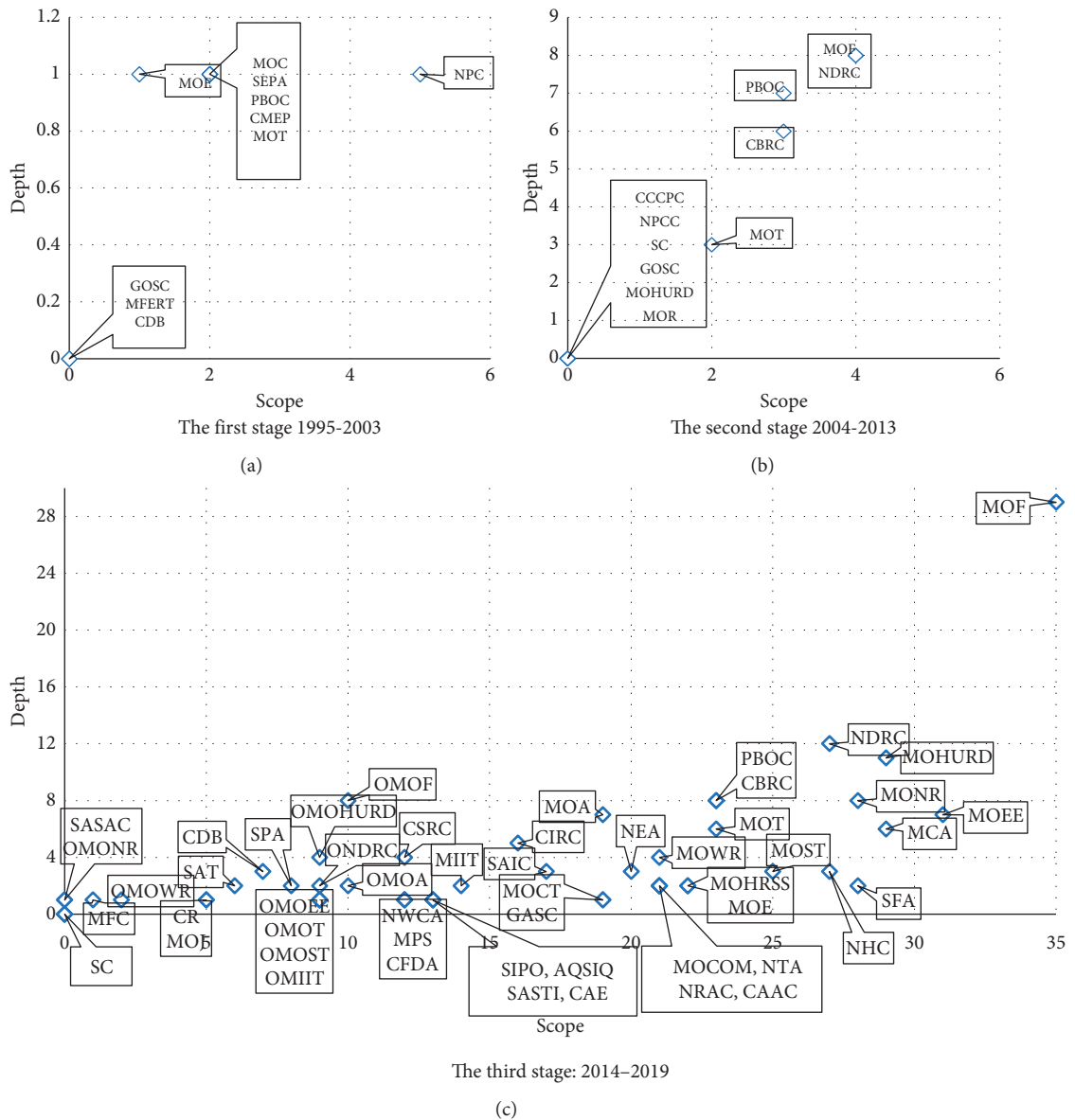


FIGURE 4: The depth and scope of PPPs policy entity network. (a) The first stage: 1995–2003. (b) The second stage: 2004–2013. (c) The third stage: 2014–2019.

NDRC) locates at the top right corner with higher scope and depth and is the core policy-maker in this stage. Generally, the first stage is a low-scope and low-depth network, and it is NPC-cored stage. In the second stage, MOF and NDRC both locate at the top right corner, and

PBOC, CBRC, and MOT started to collaborate with others to make policies but with weaker tie strength. The second stage is a low-scope and medium-depth network, and it is MOF- and NDRC-cored stage. In the third stage, MOF is the absolute core actor in making PPPs policies, but

NDRC has important but less collaborative relationship with others compared with MOF. Other actors such as MOHURD, Ministry of Natural Resources of the People's Republic of China (MONR), MOEE, Ministry of Civil Affairs of the People's Republic of China (MCA), PBOC, CBRC, and MOT have more and more collaborations with others. In total, 54 PPPs policy entities singly and jointly issue 164 policies, which means that this stage is a high-scope and high-depth network and MOF and 8 other cored stages.

Based on the above results, 9 policy entities, MOF, NDRC (the new NPC), MOT, MOEE, MOHURD (the new MOC), MONR, PBOC, MCA, and CBRC, are selected as core policy entities in PPPs policy entity network. In order to see the influence of each policy entity, the change of the network is shown in Table 5 when omitting each core policy entity. In the first and second stages, not all the 9 PPPs policy entities made policies; therefore, there are only five and six policy entities tested. The results show the following: In the first stage, NPC has more important role than the other ones with very great decrease in all structure attributes of ties, tie strength, cohesion, density, and average distance. But, in the second stage, MOF and NDRC have the same and most important influence in PPPs policy-making, and PBOC, CBRC, and MOT have relatively important role as well; in the third stage, all the 9 policy entities have similar impact when omitting each of them, which indicates that the network is relatively strong and balanced. It also shows the change from bad stability to general stability to good stability of collaboration network, because more policy entities take relatively balanced role and function in the collaboration network.

4. PPPs Policy Learning behind Network Change in China

Policy change is always accompanied by policy learning. Based on the theory of public policy, policy learning is evolved from "puzzling" which is the basic idea of Political Science and is the change from reacting to the stimulation of environment or former policy effect and new information [32]. Regardless of being internal or external stimulation, policy learning is always represented in the forms of issuing or implementing policies in order to improve policy paradigm [33]. After reviewing different identifications of policy learning including Sabartier, Rose, and Hall, Bennett and Howlett proposed three types of policy learning and policy change, in terms of government learning, lesson-drawing, and social learning [22]. Government learning describes that governments enhance the effectiveness of their actions through organizational learning which is the organizational adaptation and behaviour change based on knowledge accumulation and value-change within their institutions and members [34–36]. Lesson-drawing describes the process by which programs and policies are emulated by others and then diffused through policy-makers' learning from both the positive and negative experiences of others to better deal with their own problems [20,37]. Social learning describes the process by which policy-makers try to understand why certain policies and programs succeed while others fail [21].

For policy learning entities, it is governors/officials in the type of government learning, policy networks in lesson-drawing, and policy communities in social learning; when government entities take the key role, government learning will change the organization structure to facilitate the change; if policy networks are main actors, lesson-drawing learning is possible to happen; otherwise, when social entities lead the action, social learning will be on the way. For policy incentives, internal policy networks utilize policy instruments to solve social problems, needs, or conflicts; external social learning takes the influence from the ideas of policy communities to change the paradigm or ideas [22,38,39]. Policy learning is also another view to explain policy change.

The PPPs policy entity network shows specific characteristics in the three stages, changing from NPC-cored partial-focus network with bad stability in the first stage (1995–2003) to MOF- and NDRC-cored loose-multiactor network with general stability in the second stage (2004–2013) and to MOF and 8 other cored balanced-multiactor network with good stability in the third stage (2014–2019). Based on the analysis of the evolution of PPPs policy entity network in China, it is necessary to discuss policy learning behind it, in order to explore the reaction between policy entity network change and policy learning in China.

4.1. Policy Learning Entities. Learning entities are the core of policy learning, which determine the direction, scope, etc. of policies in different fields. Under China context, PPPs policy learning entities change to meet economic environment and public needs in different stages. In all the three stages, government entities are the dominant actor in PPPs policy learning. In the first stage, NPC firstly led the policy learning from international experience to both attract FDI into China's BOT projects and activate domestic economy. Because of the lack of PPPs experience, governors started to learn how to use PPPs mode to boost economy, and policies in this stage are mostly general guidelines concerning preferential policies for FDI, which leads to local governments' financial burden, credit risks, etc. Moreover, Asian financial crisis exacerbated the governments' debts. How to develop and localize PPPs mode was the main task for governments. In the second stage, taking those bad impacts of government debts and burden and financial crisis of 2007–2008 into consideration, government entities led by MOF and NDRC encouraged state-owned enterprises into PPPs projects while private enterprises were squeezed out. In addition, the public needs of infrastructure and services pushed policy-makers to learn from past successful experience of other countries. Government entities firstly put VFM from British experience and franchises from France experience in PPPs related policies. In the third stage, government entities issued a series of policies to attract more private entities to be involved in PPPs projects by pilot projects, motivation system, etc. The national strategy of One Belt and Road Initiative enhanced both domestic and international PPPs projects. MOF and 8 other policy entities

TABLE 5: Change of the network when omitting each core policy entity.

	Ties	Tie strength	Cohesion	Density	Average distance
Stage 1			1995–2003		
NPC	–62.50%	–62.50%	–72.90%	–53.10%	–44.80%
MOT	–25.00%	–25.00%	–9.45%	–6.24%	–0.55%
MOC	–25.00%	–25.00%	–9.40%	–6.20%	–0.60%
MOEE	–25.00%	–25.00%	–9.45%	–6.24%	–0.55%
PBOC	–25.00%	–25.00%	–27.69%	–6.35%	–22.65%
Stage 2			2004–2013		
NDRC	–50.00%	–50.00%	–32.30%	–38.90%	11.10%
MOF	–50.00%	–50.00%	–32.30%	–38.90%	11.10%
PBOC	–37.50%	–25.00%	–25.61%	–23.97%	–2.75%
CBRC	–37.50%	–37.50%	–25.61%	–23.97%	–2.75%
MOT	–25.00%	–18.75%	–18.90%	–8.38%	–16.67%
MOHURD	0.00%	0.00%	22.00%	22.20%	0.00%
Stage 3			2014–2019		
MOF	–8.66%	–17.01%	–2.30%	–5.14%	2.16%
NDRC	–6.68%	–8.70%	–1.34%	–3.08%	0.74%
MOEE	–7.67%	–7.37%	–1.73%	–4.11%	1.10%
MOHURD	–7.18%	–10.02%	–1.54%	–3.61%	1.05%
MCA	–7.18%	–7.74%	–1.54%	–3.61%	1.00%
MONR	–6.93%	–8.07%	–1.54%	–3.33%	0.95%
MOT	–5.69%	–6.05%	–1.15%	–2.05%	0.79%
PBOC	–5.69%	–7.56%	–0.96%	–2.05%	0.21%
CBRC	–5.69%	–7.94%	–0.77%	–2.05%	0.16%

collaborated to smooth the implementation of PPPs mode in China. The stable collaborative relationship among actors enhanced policy learning and then the development of PPPs mode in China. Under China's context, combining the nature of PPPs projects in long cycle with huge amount of capital, high complication, and diversity, PPPs mode implication has been led and dominated by governments with less participation from social sectors. This can also be seen from the phenomenon of “hot policy but cold implementation” and “state-owned enterprises in and private sectors out in PPPs market” in China.

4.2. Policy Learning Goals. PPPs policies change from national guidelines to policy means of specific government departments for solving economic and social problems, which is also the outcome of policy learning. At the beginning, how to use PPPs to realize economic development goals or meet public needs required governments to learn the whole policy process concerning PPPs mode in China. Then, policy entities started to take advantage of PPPs mode by franchise to provide public assets and public service. In the first stage, governments, especially NPC, were urged to learn from foreign partners or international experience to know more about how PPPs works. In the second stage, PPPs policies are used by MOF and NDRC as policy instruments mainly in the form of franchise to localize PPPs projects in many fields and then to ease government heavy financial burden to some extent, especially in the financial crisis during the period of 2007–2008. In the third stage, the Chinese government gradually used policy instruments to standardize the operation of PPPs mode for long-term development. The change of policy learning goals also

indicates the change of key policy entities, which react with each other in the process of policy change as well.

4.3. Policy Learning Effects. Policy learning effects are the outcomes of policy learning as well, which are usually manifested in policy change. What effect policy learning has determines the following policies made by governments. The PPPs policy learning effects in three stages show great differences in China. In the first stage, without any former experience, Chinese governments tried their best to learn successful experience from international partners and learned the policy process as well to start the first step in PPPs mode development. Chinese governments got cognitive acceptance of PPPs mode. In the second stage, after more actors participated into the network, the loose collaborative partnership has learned to use PPPs mode to fulfil public needs in public utilities by franchise. The role and function change of PPPs mode indicates that policy learning pushes PPPs policy change at the same time. In the third stage, normalization of the regulation and operation of PPPs mode in China have become more important in order to control macroeconomy and ease financial burden by PPPs policies. This change indicates that PPPs policy learning in China has better effect gradually though it takes relatively longer time.

4.4. Policy Learning Types. After discussing policy learning entities, policy learning goals, and policy learning effects, in China, policy learning types are government learning in the first stage and lesson-drawing learning in the second and third stages. Firstly, government learning

TABLE 6: PPPs policy network entity network change and policy learning in China from 1995 to 2019.

		1995–2003	2004–2013	2014–2019
Policy entity network change	Event	Lack of PPPs experience	Heavy government debt and burden	“Hot policy but cold implementation”
		Asian financial crisis	Financial crisis of 2007-2008	One Belt and Road Initiative
	Policy entities	NPC-cored	MOF- and NDRC-cored	MOF and 8 other cored
	Network attributes	Partial-focus network with bad stability (low-scope and low-depth network)	Loose-multiactor network with general stability (low-scope and medium-depth network)	Balanced-multiactor network with good stability (high-scope and high-depth network)
Policy learning	Learning entities	NPC-cored	MOF- and NDRC-cored	MOF and 8 other cored
	Learning goals	Policy process	Policy instruments	Policy instruments
	Learning effects	Cognitive acceptance of PPPs mode: to attract FDI by BOT projects	Function change of PPPs mode: to fulfil public needs in public utilities by franchise	Normalizing the regulation and operation of PPPs mode: to control macroeconomy and ease financial burden by standardizing the operation of PPPs projects
	Types	Government learning	Lesson-drawing learning	Lesson-drawing learning

happens when Chinese government has no experience at all and needs to have cognitive acceptance first and then learn how to use PPPs mode. Secondly, lesson-drawing from past experience is the main task for government entities to make new policies to solve such problems as local government debts and burden and to fulfill public needs of infrastructure and service as well. Therefore, the follow-up policies aim to encourage private entities into PPPs projects to provide public service and assets. Thirdly, lesson-drawing from international experience leads policy-makers to use international successful examples such as British VFM and financial operation procedure and French franchise mode procedure for reference in policy-making with some adaptation for the Chinese context. The localized PPPs policies lead to more standardized legal system for the implementation PPPs mode in China. Fourthly, PPPs polices are treated as financial policy instruments more than governance ones, because their focus starts from attracting FDI to decreasing local governments’ debts and financial burdens, which is evidenced by such key words as investment, capital, and social capital in the titles of PPPs policies in China. Moreover, there are no issued policies concerning public participation, the uneven relationship between governments and private sectors, conflicts among government sectors, the low efficiency of governments, etc. Fifthly, PPPs mode is treated as a way to solve issues instead of beliefs or paradigms shift. The government financial burden and public needs of public infrastructure and services are the main incentives and goals for governments to apply PPPs mode in China. Sixthly, compared with external social learning, the internal learning from lesson-drawing of international and past experience plays the main role in the policy learning under China’s context. It is common to see that governments lead other actors to learn how to localize PPPs mode and then enhance its effectiveness under China’s context by issuing a series of policies based on emulating successful

experience of international partners or learning from both positive and negative experiences of others.

According to Table 6, the policy entity network changes from partial-focus network with bad stability to loose-multiactor network with general stability to balanced-multiactor network with good stability, and the policy learning of PPPs in China is subject to government learning and lesson-drawing learning, which is dominated by government entities to solve financial issues in PPPs markets and release governments from debts through policy instruments. Policy learning facilitates PPPs policy to blend in with other policies in different fields. Then policy change accompanied by social and economic environmental change is likely to bring about new policy learning as well. The reaction between policy learning and policy change always exists.

5. Conclusions

In order to attract FDI, ease government financial burdens, and fulfil public needs, a series of PPPs policies have been issued to guide the implementation of PPPs mode in China. The changes of PPPs policy entity network and policy learning since 1995 in China are as follows: Firstly, since 1995, PPPs policy entity networks have been experiencing from partial-focus network to loose-multiactor network and then to balanced-multiactor network. PPPs polices are treated mainly as financial tools to ease local governments’ financial burdens and debts. Secondly, the key players in policy-making are NPC in the first stage, NDRC and MOF in the second stage, and MOF and 8 other policy entities in the third stage, respectively. The high scope and depth of MOF in PPPs policy entity networks indicate its importance in policy-making aiming at solving PPPs financial problems. Thirdly, policy learning behind the change of PPPs policy entity network is government learning in the first stage and lesson-drawing in the second and third stages.

Policy learning also requires participation from the bottom-up local governments, and top-down

implementation from ministries is limited without buy-in and feedback from these entities. This paper discusses the policy entity network and policy learning only at the national level, so, in the future research, local government's participation should be taken into account during the investigation of policy change and policy learning.

Data Availability

Some or all data used during the study are available from the corresponding author upon request.

Conflicts of Interest

The authors declare that there are no conflicts of interest regarding the publication of this paper.

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