

Original Paper

Research on the Organizational Mechanisms of Local SOEs and Grassroots Organizations in the Process of Targeted Poverty Alleviation

Chuan Lin¹ & Xinyi Xia¹

¹ College of Finance and Economics, Sichuan International Studies University, Chongqing 400031, China

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Abstract

The report of the 20th National Congress of the Communist Party of China proposed that rural revitalization be comprehensively advanced, the achievements of poverty alleviation be consolidated and expanded, and the endogenous development capacity of poverty-alleviated regions and populations be enhanced. Targeted poverty alleviation is a key strategy for completely resolving the issue of poverty, and local SOEs are an important force in its implementation. Therefore, this study, based on a cooperative game model, explores the relationship between local SOEs and grassroots organizations in the process of targeted poverty alleviation. The study found that the relationship between local SOEs and grassroots organizations is characterized by political logic, market logic, and the organizational embedding within these two logics. Through the cooperation between local SOEs and grassroots organizations, the efficiency- and equity-oriented approaches of targeted poverty alleviation can be effectively advanced. Based on the analysis using a cooperative game model, it is concluded that local SOEs and grassroots organizations should adopt a cooperative approach to jointly promote the implementation of targeted poverty alleviation. The cooperation between the two parties is premised on the transferability of the utility of targeted poverty alleviation, ensuring that both parties in the cooperative game process are treated fairly and justly and receive a reasonably allocated share of the benefits.

Keywords

Targeted Poverty Alleviation, Local SOEs, Grassroots Organizations, Cooperative Game

1. Introduction

At the 2024 Central Rural Work Conference, General Secretary Xi Jinping emphasized that in 2025, the work on the work related to agriculture, rural areas and farmers should be effectively carried out. He stressed the need to adhere to urban-rural integrated development, further deepen rural reform, improve the support system for strengthening agriculture, benefiting farmers, and enriching them, and comprehensively promote rural revitalization. Targeted poverty alleviation, as a scientifically effective

method for accurately identifying, assisting, and managing poverty alleviation targets, refers to an approach that, based on the environmental conditions of various impoverished regions and the circumstances of different impoverished farmers, aims to narrow the urban–rural income gap, thoroughly resolve poverty issues, and fully promote the implementation of the rural revitalization strategy (Huo et al., 2023; Zhou et al., 2023). Local SOEs, as a key element of targeted poverty alleviation, not only need to build strong relationships with local governments and engage directly with impoverished populations, but also operate through intermediary institutions between local governments and impoverished groups—namely, the grassroots organizations in impoverished areas (Zhang et al., 2024; Duan et al., 2022). Grassroots organizations, as the extension of state power in impoverished regions, encompass political organizations, economic organizations, and social service organizations—such as rural Party organizations, village committees, and farmers’ cooperatives (Zou et al., 2023). They are not only the terminal nodes of state power and the autonomous units of local society but also the primary entities responsible for carrying out concrete tasks in impoverished regions (Chen, 2012; Chen & Ye, 2020). They serve as an essential link in implementing Party and state policies and constitute a critical precondition for fully realizing the rural revitalization strategy (Yang, 2024). Grassroots organizations have played an important role in targeted poverty alleviation. On one hand, they serve as political leaders in the process—for example, grassroots Party organizations in impoverished areas promote the significance of targeted poverty alleviation, convey poverty alleviation policies, guide the ideological orientation of impoverished groups, and supervise poverty alleviation work. On the other hand, grassroots organizations can also play a role in resource aggregation during targeted poverty alleviation. For example, village committees and village economic cooperatives in impoverished areas help attract financial, human, and industrial resources, thereby serving as an important vehicle to organically connect impoverished groups with support groups (Abebaw & Haile, 2013; Jiang, 2022).

Thus, in the process of targeted poverty alleviation, local SOEs proactively engage with grassroots organizations in impoverished areas. Particularly during the practical advancement of targeted poverty alleviation efforts, the assistance of grassroots organizations enables a more precise assessment of the poverty characteristics in these regions and the determination of the appropriate targeted poverty alleviation strategies to be implemented. It is evident that, from a theoretical perspective, both local SOEs and grassroots organizations serve as the main executors of targeted poverty alleviation policies, sharing the same political and economic objectives. Therefore, establishing a cooperative mechanism between local SOEs and grassroots organizations can lead to a win-win outcome.

However, in the practical implementation of targeted poverty alleviation, both the actual work of grassroots organizations and the cooperation between grassroots organizations and local SOEs face issues such as inadequate promotion of targeted poverty alleviation, a governance system in need of optimization, and insufficient communication between local SOEs and grassroots organizations, thereby affecting the effectiveness of targeted poverty alleviation to some extent (Research Group of Poverty Alleviation and Development of Chinese Academy of Social Sciences, 2022). Therefore, in the process of targeted poverty alleviation, how local governments can establish an effective cooperative mechanism with grassroots organizations—thereby influencing the targeted poverty alleviation strategies of both parties—is the focus of this section of the study.

In studies on the relationship between enterprises involved in targeted poverty alleviation and local grassroots organizations, Zhang and Li (2016) pointed out that strengthening the construction of grassroots organizations in impoverished areas is a booster for improving the poverty alleviation system and an accelerator for enhancing the governance capacity and system optimization in impoverished regions (Chen, 2024), and that rural grassroots organizations need to fully leverage the primary role of enterprises in targeted poverty alleviation. Xiu (2018) constructed a grassroots organization-led model in the process of targeted poverty alleviation, indicating that a co-construction model between enterprises and grassroots organizations can mobilize more impoverished households from the village, town, or county to participate in targeted poverty alleviation. Moreover, grassroots organizations possess advantages in capabilities, resources, interests, and policies, which are key factors in achieving success in the industry-based poverty alleviation model. Jiang et al. (2018) pointed out that obtaining and investing more funds in the process of targeted poverty alleviation is an important issue that local grassroots organizations need to consider. Therefore, local grassroots organizations can, by collaborating with enterprises, prompt leading enterprises to invest more funds in the process of targeted poverty alleviation, thereby addressing the problem of insufficient poverty alleviation funds for grassroots organizations. Yao and Liu (2019) constructed a tripartite behavioral game model involving grassroots organizations, enterprises, and impoverished households in impoverished regions, arguing that the incentive behavior of grassroots organizations toward participating enterprises is an important factor affecting the effectiveness of targeted poverty alleviation. Grassroots organizations and enterprises should not only provide industrial support to impoverished households but also offer motivational assistance in poverty alleviation. Chen and Ye (2020) pointed out that in promoting targeted poverty alleviation, grassroots organizations in impoverished regions must both comply with the administrative directives of higher-level governments and consider the actual conditions of poverty in those areas. Consequently, grassroots organizations can rely on local enterprises to implement enterprise-led poverty alleviation strategies, such as the “leading enterprise + impoverished household,” “cooperative + impoverished household,” “large household + impoverished household,” and “e-commerce + impoverished household” models. Existing literature has focused on the behavior of grassroots organizations in targeted poverty alleviation, as well as on how to utilize enterprise resources in poverty alleviation efforts with grassroots organizations as the main actors; however, most of the existing research concentrates on targeted poverty alleviation led by grassroots organizations, neglecting the issue of how local SOEs handle their relationships with grassroots organizations in the process of targeted poverty alleviation. Therefore, this study will construct a cooperative game model between local SOEs and grassroots organizations in impoverished regions to explore the relationship and operational mechanisms between these entities in the process of targeted poverty alleviation.

The research contributions of this paper are as follows:

- (1) Compared to the existing literature, this paper starts from the perspective of local SOEs, further clarifying the relationship between local SOEs and grassroots organizations in targeted poverty alleviation.
- (2) In contrast to the theoretical analyses in the existing literature, this paper constructs a cooperative game model between local SOEs and grassroots organizations in impoverished regions, further exploring the impact mechanisms between them.

(3) This paper delves into the path mechanisms and improvement strategies for the participation of local SOEs in targeted poverty alleviation, providing a theoretical basis for optimizing targeted poverty alleviation from the source.

2. Model Construction

2.1 Cooperative Mechanism between Local SOEs and Grassroots Organizations in Targeted Poverty Alleviation

Grassroots organizations, as a critical element in targeted poverty alleviation, not only serve as the primary agents guiding local SOEs to engage with impoverished groups, but also function as vehicles that highlight the organizational structure and functions of China's village-level organizations in the fight against poverty. Meanwhile, compared to local governments, on one hand, grassroots organizations, as implementers, are able to more effectively target impoverished groups to identify and discover pathways for targeted poverty alleviation; on the other hand, they can reduce policy costs in the implementation of targeted poverty alleviation, thereby enhancing its fairness and justice (Huang, 2018). From the perspective of the relationship between local SOEs and grassroots organizations in targeted poverty alleviation, the key to whether they cooperate lies in whether each party can secure higher benefits and effectively promote targeted poverty alleviation. Specifically, this primarily depends on whether there exists mutual trust, the presence or absence of opportunism, and whether binding agreements are in place between the two parties.

From the perspective of trust, trust refers to the mutual belief in the integrity held between the cooperating parties within a group (Suo & Cheng, 2022). In the process of targeted poverty alleviation, the trust between local SOEs and grassroots organizations is the mutual recognition and affirmation of each party's willingness and capability to invest in targeted poverty alleviation. Only through mutual trust can both parties jointly advance targeted poverty alleviation. For local SOEs and grassroots organizations, both parties are boundedly rational. Moreover, targeted poverty alleviation requires cost investments—for instance, local SOEs must invest capital, resources, and labor, while grassroots organizations need to invest human resources, effort, and policy-related resources (Jin & Xu, 2023). This means that targeted poverty alleviation entails risks for both parties, and even the mutual trust established between them may be subject to risk (Wang & Wang, 2017). Thus, a strong sense of trust between local SOEs and grassroots organizations can enhance the stability of their joint investment in targeted poverty alleviation, as well as their flexibility in addressing and resolving practical issues in targeted poverty alleviation. This is also another manifestation of the precision inherent in targeted poverty alleviation. This also means that, for local SOEs or grassroots organizations, the party seeking cooperation must proactively forgo some short-term benefits and broaden its vision to encompass long-term interests and benefits beyond mere economic gains, in order to drive highly efficient cooperation between the two parties. Of course, when local SOEs and grassroots organizations engage in cooperation, both parties need to share a common goal—namely, to effectively promote targeted poverty alleviation and address poverty eradication challenges—and to mutually fulfill their commitments, thereby ensuring an effective start to the cooperation.

From the perspective of opportunism, opportunism refers to the behavior of members of one party who, under conditions of information asymmetry, take actions to achieve their own goals at the expense of the interests of the other party's members. Such behavior can affect the cooperative interactions between the two parties (Ju & Fan, 1998). In the process of targeted poverty alleviation, since both

local SOEs and grassroots organizations take their own interests into account, are bounded rational actors, and both parties inherently face delays and partiality in acquiring poverty alleviation information. Therefore, local SOEs or grassroots organizations may, in order to protect their own interests, engage in opportunistic behavior that damages the interests of the other party (Luo & Meyer, 2017). For example, the large-scale implementation of an inclusive poverty alleviation open mechanism by local SOEs may induce and foster opportunistic behavior among grassroots organizations. This not only fails to stimulate the endogenous motivation of impoverished groups but also hinders the sustained advancement of targeted poverty alleviation (Yao & Wang, 2019). This means that in the process of cooperation between local SOEs and grassroots organizations, there must be a reasonable mechanism to constrain and punish defaulting parties. Strengthening the institutional framework is also essential to ensure that both local SOEs and grassroots organizations can make decisions aimed at maximizing overall benefits.

From the perspective of binding agreements, a binding agreement refers to an accord reached by both parties through consensus-based negotiations, which obligates them to fulfill the responsibilities and obligations stipulated in the agreement. Ultimately, a binding agreement will involve adjustments to the interests of all cooperating parties (Xu, 1996). In the process of targeted poverty alleviation, under the overall implementation of the poverty eradication strategy, local SOEs and grassroots organizations have defined their respective roles and mutually constrained their actions by, for example, signing poverty alleviation cooperation agreements, thereby facilitating the legal promotion of targeted poverty alleviation (Li & Gao, 2017). For example, since 2016, initiatives such as “SOEs Entering Daliang Mountain” and “SOEs Kamba Action,” promoted by the Sichuan State-owned Assets Supervision and Administration Commission, have involved Sichuan provincial SOEs signing project cooperation agreements with local partners. This has strengthened the coordination of targeted poverty alleviation efforts, created a synergistic force in these efforts, and effectively facilitated the integration of SOEs into local poverty eradication work. Between 2016 and 2019, the “SOEs Entering Daliang Mountain” initiative, spanning sectors such as infrastructure construction, tourism and wellness, energy development, aviation, modern agriculture, and the digital economy, organized four batches of industrial cooperation agreements, signed 38 industrial cooperation projects, and invested over 200 billion yuan. Similarly, the “SOEs Kamba Action” initiative promoted the implementation of more than 30 investment projects with a total investment of 250 billion yuan, and helped attract three high-quality projects to enclave industrial parks in Cheng A, Cheng Gan, and other areas.

Based on trust, opportunism, and binding agreements within the cooperative relationship between local state-owned enterprises and grassroots organizations, their relationship embodies political logic—namely, the political organization in impoverished regions—as well as market logic—the economic organization in impoverished regions. Additionally, there exists organizational inter-embedding between local state-owned enterprises and grassroots organizations within these two logics. Through mutual cooperation, this effectively promotes both efficiency-oriented and equity-oriented targeted poverty alleviation. Therefore, drawing on the approach of Xie et al. (2022), this study constructs a cooperative mechanism model of the relationship between local SOEs and grassroots organizations in the process of targeted poverty alleviation.

2.2 Game-Theoretic Assumptions of Local SOEs and Grassroots Organizations in Targeted Poverty Alleviation

In the game-theoretic analysis model, the games can be divided into cooperative games and non-cooperative games based on whether the participating members have reached a binding agreement. Cooperative games refer to situations where the members form cooperative alliances based on the reached agreements, emphasizing fairness, equity, and effectiveness in the game process. In contrast, non-cooperative games indicate that there is greater competition among the members, placing more emphasis on the individual factors of the game players rather than cooperative elements. On this basis, this paper proposes the following hypotheses:

Hypothesis 1: Simplify the actors involved in targeted poverty alleviation in impoverished regions by assuming that the only entities directly participating are local SOE M and grassroots organization R. In this framework, the local SOE provides various targeted poverty alleviation services to the grassroots organization, while the grassroots organization serves as the sole partner for the local SOE in its direct engagement in local targeted poverty alleviation. The benefits accruing to both parties depend on each other's behavioral strategies.

Hypothesis 2: Due to factors such as trust, opportunism, and binding agreements, the game strategies between local SOEs and grassroots organizations will vary, leading them to choose either a cooperative (C) or a non-cooperative (N) behavioral strategy.

Hypothesis 3: $ERN_C > ER_{CC} > ER_{NN} > ER_{CN}$. In this expression, the behavior listed first corresponds to that of the grassroots organization R, and the behavior listed later corresponds to that of the local SOE M. For example, ERN_C represents the payoff function when the local SOE cooperates (C) while the grassroots organization does not cooperate (N). In the process of targeted poverty alleviation, there are two game outcomes between local SOEs and grassroots organizations: inconsistent cooperation behavior and consistent cooperation behavior. Inconsistent cooperation behavior refers to the situation where one party cooperates while the other does not. In this case, the non-cooperating party may obtain benefits from the cooperating party due to its non-cooperation; however, the overall benefits accrued by the non-cooperating party may be lower than those achieved through mutual cooperation. In contrast, consistent cooperation behavior means that both parties take the same action, which could involve either both cooperating or both not cooperating. Therefore, in the process of targeted poverty alleviation, $ERN_C > ER_{CC}$ is defined as breach behavior, meaning that one party—either the local SOE or the grassroots organization—secures extra individual benefits through non-cooperative actions. Meanwhile, $ER_{NN} > ER_{CN}$ is defined as risk bearing, meaning that one party incurs losses as a result of its trustful cooperative behavior being exploited by the other party.

Let EPV represent the present value of returns for local SOEs and grassroots organizations. When $EPV(R)_C > EPV(R)_N$, the local SOE will adopt a cooperative behavior; otherwise, it will adopt a non-cooperative behavior.

However, due to factors such as mutual trust and opportunism, local SOEs and grassroots organizations may default for the sake of individual interests. This implies that enhancing the level of mutual trust and increasing the cost of default are effective methods for reducing the probability of default by both parties.

Therefore, by comparing the payoffs of ER_{CC} , EM_{CC} , and ER_{NN} , EM_{NN} for local SOEs and grassroots organizations during the cooperation process, the feasibility of the cooperative game can be verified.

Hypothesis 4: Define the costs of targeted poverty alleviation. Local SOEs determine the unit investment in targeted poverty alleviation, which consists of $h+m_M$, where h ($h>0$) represents the unit investment cost, and m_M is the marginal profit from targeted poverty alleviation. In addition, grassroots organizations, taking their own interests into account, will add their own marginal profit (m_R) on top of the local SOE's investment. Therefore, through the combined efforts of local SOEs and grassroots organizations, the final unit investment price for targeted poverty alleviation is $P=h+m_M+m_R$.

Hypothesis 5: Define the demand function for targeted poverty alleviation. In addition to affecting the unit cost of targeted poverty alleviation, the reputation effect of local SOEs in promoting targeted poverty alleviation also has a significant impact on its effectiveness. Let T_M represent the influence of the reputation effect of local SOEs on targeted poverty alleviation, and T_R represent the role of grassroots organizations in promoting targeted poverty alleviation in impoverished regions. Therefore, the demand function in the process of targeted poverty alleviation is defined as follows.

$$Q=T_M(x-yP)T_R=T_M[x-yh-y(m_M+m_R)]T_R \quad (1)$$

In Equation (1), x and y are parameters, with $x > 0$ and $y > 0$. It can be seen that the reputation effect of local SOEs in participating in targeted poverty alleviation and the driving role of grassroots organizations in promoting targeted poverty alleviation are important components, and there exists a complementary relationship between the two. In addition, from Equation (1), the demand function for the relationship between local SOEs and grassroots organizations in the process of targeted poverty alleviation remains a linear function of the unit cost of targeted poverty alleviation, while the returns are related to changes in the function's parameters.

2.3 Feasibility Analysis of the Game-Theoretic Model between Local SOEs and Grassroots Organizations in Targeted Poverty Alleviation

According to game theory, both local SOEs and grassroots organizations make their own decisions based on the decisions of the other party. For example, in non-cooperative games, both parties understand each other's characteristics and information, resulting in scenarios of complete information static games and complete information dynamic games. In complete information static games, both local SOEs and grassroots organizations make decisions individually, thereby reaching a Nash equilibrium. In complete information dynamic games, one scenario is that the strategy of grassroots organizations follows that of local SOEs, which results in a Stackelberg game; another scenario is that the strategy of local SOEs follows that of grassroots organizations, also leading to a Stackelberg game. Accordingly, the corresponding types are defined as follows: C represents cooperative behavior, N represents non-cooperative behavior, NC represents the Nash equilibrium in a non-cooperative game when decisions are made independently and simultaneously, LM represents the non-cooperative behavior of local SOEs, and LR represents the non-cooperative behavior of grassroots organizations.

2.3.1 Non-Cooperative Game Payoffs in Targeted Poverty Alleviation

Scenario 1: Complete-Information Static Game.

Under the conditions of a complete-information static game, the unit investment price for targeted poverty alleviation is defined as follows.

$$P^N = h + m_M^N + m_R^N \quad (2)$$

In Equation (2), under the conditions of a complete-information static game, the unit investment price for targeted poverty alleviation is defined as the unit cost invested by the local SOE plus the additional

value contributed by both the local SOE and grassroots organizations. On this basis, the demand function for targeted poverty alleviation, driven by local SOEs and grassroots organizations, is obtained as follows.

$$Q^N = T_M (x - yP^N) T_R \tag{3}$$

In Equation (3), Q^N represents the demand quantity for targeted poverty alleviation under the conditions of a complete-information static game. Therefore, under these conditions, the payoff for the local SOE is as follows.

$$E_M^N = Q^N m_M^N = T_M (x - yP^N) T_R m_M^N \tag{4}$$

And the payoff for grassroots organizations is as follows.

$$E_R^N = Q^N m_R^N = T_M (x - yP^N) T_R m_R^N \tag{5}$$

Therefore, to achieve Pareto optimality, both local SOEs and grassroots organizations will pursue the maximization of overall benefits in the process of targeted poverty alleviation. Based on this, by combining Equation (4) and Equation (5), differentiating with respect to m and setting $E_R^N = 0$, we obtain the following.

$$\begin{aligned} \frac{d(E_R^N)}{d(m)} &= \frac{d\{T_M [x - y(h + m_M^N + m_R^N)] T_R m_R^N\}}{d(m)} \\ &= (x - yh) T_M T_R m_R^N - y T_M T_R m_R^{N^2} - y T_M T_R m_R^N m_M^N \\ &= (x - yh) T_M T_R - 2y T_M T_R m_R^N - y T_M T_R m_M^N \end{aligned} \tag{6}$$

From Pareto optimality, we know that the optimum can only be achieved when the marginal rate of technical substitution is equal, $m_R^N = m_M^N$, from which we obtain the following.

$$m_R^N = m_M^N = \frac{x - yh}{3y} \tag{7}$$

Therefore, under the complete-information static game scenario, the unit value of the reputation effect of local SOEs in participating in targeted poverty alleviation is identical to that of the grassroots organizations' role in promoting targeted poverty alleviation. Consequently, the payoffs for both parties can be expressed as follows.

$$E_M^N = E_R^N = T_M T_R \frac{(x - yh)^2}{9y} \tag{8}$$

Furthermore, it can be derived that under the complete-information static game, the total payoff from targeted poverty alleviation by local SOEs and grassroots organizations is as follows.

$$E_T^N = 2T_M T_R \frac{(x - yh)^2}{9y} \tag{9}$$

It can be seen that, in the process of targeted poverty alleviation, the overall benefits depend on the reputation effect of local SOEs and the driving role of grassroots organizations. These two factors positively contribute to the effectiveness of targeted poverty alleviation as well as to the unit investment of local SOEs. However, since the investment of local SOEs is influenced by the driving role of grassroots organizations, in the case of non-cooperation, this investment will have a negative impact on the overall benefits of targeted poverty alleviation.

Scenario 2: Complete-Information Dynamic Game.

Under the conditions of a complete-information dynamic game, two leadership outcomes may occur: one led by local SOEs and the other led by grassroots organizations.

In a Stackelberg game where local SOEs lead and grassroots organizations follow, the grassroots organizations will choose their strategic actions based on the behavior of the local SOEs. In this case, under the leadership of local SOEs, the unit investment price for targeted poverty alleviation is as follows.

$$P^{LM} = h + m_M^{LM} + m_R^{LM} \quad (10)$$

Similarly, we obtain that under the complete-information dynamic game, the demand function for targeted poverty alleviation driven by local SOEs and grassroots organizations is as follows.

$$Q^{LM} = T_M (x - yP^{LM}) T_R \quad (11)$$

Therefore, under the conditions of a complete-information dynamic game, the payoff model for targeted poverty alleviation by local SOEs is as follows.

$$E_M^{LM} = Q^{LM} m_M^{LM} = T_M (x - yP^{LM}) T_M m_M^{LM} \quad (12)$$

And the payoff model for targeted poverty alleviation by grassroots organizations is as follows.

$$E_R^{LM} = Q^{LM} m_R^{LM} = T_M (x - yP^{LM}) T_R m_R^{LM} \quad (13)$$

Similarly, under the conditions of a complete-information dynamic game, the common goal of local SOEs and grassroots organizations is to pursue the maximization of overall benefits in order to achieve Pareto optimality. Therefore, differentiating Equations (12) and (13) respectively yields the following.

$$m_M^{LM} = \frac{x - yh}{2y} \quad (14)$$

$$m_R^{LM} = \frac{x - yh}{4y} \quad (15)$$

Thus, in the Stackelberg game model led by local SOEs, the total payoffs for local SOEs and grassroots organizations, respectively, are as follows.

$$E_M^{LM} = T_M T_R \frac{(x - yh)^2}{4y} \quad (16)$$

$$E_R^{LM} = T_M T_R \frac{(x - yh)^2}{16y} \quad (17)$$

In the Stackelberg game model, the total payoff for targeted poverty alleviation for local SOEs and grassroots organizations is as follows.

$$E_T^{LM} = E_M^{LM} + E_R^{LM} = T_M T_R \frac{3(x-yh)^2}{16y} \quad (18)$$

From Equation (18), it can be seen that in the game model led by local SOEs, the payoff structure for targeted poverty alleviation shows that the payoffs for local SOEs are greater than those for grassroots organizations. However, the payoffs for both parties will also affect the attractiveness of targeted poverty alleviation for impoverished groups. Similarly, the total payoff for targeted poverty alleviation in the game model led by grassroots organizations can be obtained as follows.

$$E_T^{LR} = E_M^{LR} + E_R^{LR} = T_M T_R \frac{3(x-yh)^2}{16y} \quad (19)$$

Similarly, from Equation (19), it can be seen that in the game model led by grassroots organizations, the payoff structure for targeted poverty alleviation shows that the payoffs for grassroots organizations are greater than those for local SOEs, and similarly, the payoff outcomes for both parties will affect the attractiveness of targeted poverty alleviation for impoverished groups.

Scenario 3: Payoff Situation in Targeted Poverty Alleviation under Cooperative Games.

In the context of cooperative games, since targeted poverty alleviation is a key focus of the Party and the state, local SOEs and grassroots organizations will pursue the maximization of overall benefits. Therefore, the overall payoff situation for targeted poverty alleviation under cooperative games is as follows.

$$E_T^C = T_M T_R \frac{(x-yh)^2}{4y} \quad (20)$$

2.3.2 Comparison of the Payoff Situations in Targeted Poverty Alleviation between Cooperative and Non-Cooperative Games

From the comparison of the targeted poverty alleviation payoff outcomes calculated above, it can be seen that $E_T^{LM} = E_T^{LR} < E_T^M < E_T^C$. It can be seen that when local SOEs and grassroots organizations jointly promote targeted poverty alleviation, both parties can generate benefits. In the complete-information dynamic Stackelberg game model, whether local SOEs or grassroots organizations act as the leading party, the total payoff for targeted poverty alleviation is the lowest. However, under cooperative game conditions, the total payoff for targeted poverty alleviation is the highest. Therefore, it is more feasible for local SOEs and grassroots organizations to engage in cooperative games rather than non-cooperative games. This means that cooperative games enable local SOEs and grassroots organizations to secure greater targeted poverty alleviation benefits through collaboration—benefits that include both the individual payoffs of each party as well as the overall payoff, thereby achieving a win-win outcome. It should also be noted that the smooth implementation of cooperative games between local SOEs and grassroots organizations depends on the establishment of their relationship, particularly through the enhancement of mutual trust, which is essential for realizing the maximization of targeted poverty alleviation benefits.

3. Research Conclusions and Recommendations

In the process of targeted poverty alleviation, local SOEs not only directly engage with impoverished groups but also establish connections with grassroots organizations in impoverished areas, thereby ensuring the concrete implementation of targeted poverty alleviation initiatives. Consequently, this paper constructs a cooperative game model between local SOEs and grassroots organizations to explore their relationship in the process of targeted poverty alleviation and to analyze whether they adopt a cooperative or non-cooperative strategy. The study finds that under non-cooperative conditions, local SOEs and grassroots organizations tend to diffuse their efforts in targeted poverty alleviation, which in turn affects the perception of targeted poverty alleviation among impoverished groups in the area, thereby impacting its overall effectiveness. This implies that local SOEs and grassroots organizations should adopt a cooperative approach to jointly promote the implementation of targeted poverty alleviation. Moreover, their cooperation should be premised on the transferability of the utility of targeted poverty alleviation so that both parties can achieve a fair and just outcome with a reasonably allocated share of the benefits in the cooperative game process.

Based on the research conclusions, this paper proposes the following policy recommendations:

First, strengthen resource integration and information sharing. Local SOEs can leverage their resource advantages within the industrial chain to obtain information on macroeconomics, technological innovation, and more through data collection and market research. Meanwhile, grassroots organizations can gather basic information about impoverished households, their actual needs, and the causes of poverty through field visits and household interviews. By establishing a joint data platform, both parties can achieve seamless data integration, and with the aid of big data and artificial intelligence for in-depth analysis, it becomes possible to precisely identify poverty alleviation targets and grasp the overall development context of impoverished regions, thereby making poverty alleviation policies more precise and efficient.

Second, establish a long-term cooperative mechanism. Local SOEs and grassroots organizations can set up joint meetings or working groups that include representatives from local enterprises, grassroots cadres, and relevant government departments. These groups should meet regularly to report on work progress, discuss issues, and formulate subsequent measures. The long-term cooperative mechanism also requires institutional guarantees, such as the establishment of specific evaluation indicators, accountability mechanisms, and dynamic adjustment plans, to ensure that all poverty alleviation measures remain scientific, standardized, and efficient.

Third, promote industrial poverty alleviation. Industrial poverty alleviation is an important pathway to achieve targeted poverty alleviation and rural revitalization. Local SOEs and grassroots organizations can jointly construct a comprehensive industrial chain and supply chain. Upstream, local enterprises can assist local farmers and small enterprises with raw material cultivation and primary processing through order procurement or technical support; downstream, they can utilize mature sales networks and market channels to promote products to a broader consumer base, forming a virtuous cycle from production to sales. At the same time, joint technical training and management guidance can be provided to improve the skills and operational levels of local practitioners.

Fourth, implement public welfare projects and corporate social responsibility. Local enterprises can invest in improving critical infrastructure in impoverished regions—such as transportation, water supply, and communications—while also establishing scholarships or enhancing school facilities in the education sector to bolster the long-term development capabilities of impoverished families. Grassroots

organizations, acting as bridges and links, should ensure that funds and projects are precisely directed to those truly in need, and conduct ongoing supervision during project implementation to guarantee that fund usage is transparent and effective.

Fifth, establish supervision and evaluation mechanisms. In promoting targeted poverty alleviation, local SOEs and grassroots organizations should jointly construct a system for full-process supervision and dynamic evaluation. From project initiation through implementation to acceptance and evaluation, every stage should be subject to strict oversight. To further ensure objectivity and fairness, third-party evaluation agencies or social supervisory forces may be introduced to conduct independent audits and evaluations, allowing for timely identification and correction of any issues. Additionally, an information disclosure mechanism should be established to publicly share key information such as project fund flows, implementation progress, and effectiveness evaluations, enabling real-time supervision by both the public and higher-level departments, thereby creating a multi-level accountability system.

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