



Research Article

The role of local management in enhancing rural structural empowerment for sustainable development in Iran's arid regions

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Abstract

Improving rural empowerment is considered one of the essential components of sustainable rural development. However, in many developing countries such as Iran, insufficient attention has been paid to the improvement of the various dimensions of structural empowerment influenced by the performance, internal and individual characteristics, and institutional characteristics of local management in the process of sustainable rural development. Consequently, few studies have addressed this issue. To fill this gap, the present study seeks to identify the endogenous factors affecting local management performance in improving structural empowerment indicators for sustainable rural development. Accordingly, villages located around the desert regions of Iran were selected as the case study. Questionnaire was completed from the villagers' perspective to assess the endogenous factors affecting local management performance in improving structural empowerment. The questionnaire analysis focused on the indicators of structural empowerment, local management performance, and the dimensions of sustainable rural development. The research methodology was based on structural equation modeling. The results showed that villagers' structural empowerment is influenced by the performance, internal and individual characteristics, and institutional characteristics of local management, and that structural empowerment, in turn, positively affects the dimensions of sustainable rural development. However, the endogenous factors affecting local management performance, particularly in top-down political systems such as Iran, remain significant inherent obstacles to improving the structural empowerment of villagers. The findings further indicated that if the challenges associated with the endogenous factors affecting local management are addressed and villagers' empowerment is strengthened, their capabilities will increase, enabling both local management and villagers to make more effective use of these capabilities. This article concludes by discussing the implications of these findings for improving rural empowerment and promoting sustainable rural development.

Keywords: Local Management, Structural Empowerment, Sustainable Rural Development, Iran

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Introduction

Kanter introduced the theory of structural empowerment in 1977 and further developed it in 1993. This theory emphasizes communities' access to four key structural factors: opportunity, information, support, and resources (Fernandez and Moldogaziev, 2015). The opportunity dimension refers to independence, personal growth, a sense of challenge, and opportunities for learning and development. Information refers to the data, technical knowledge, and expertise required for individuals to perform their roles effectively. Support involves receiving constructive feedback and assistance from managers, colleagues, and subordinates. Finally, resources refer to the money, materials, equipment, facilities, and time required to achieve organizational and community goals (Hayes et al, 2014; Santosa, 2014). According to Kanter, power and capability are acquired when local communities have access to the necessary information, learning and development opportunities, support, and resources (Wallace et al, 2011; Amor et al, 2019). She argued that when stakeholders gain access to empowering structures, including information, opportunities for learning and development, support, and resources, they experience a sense of power, which enhances their performance and participation. Conversely, the absence of such access results in feelings of powerlessness (Guo et al, 2016; Amor et al, 2019). Consistent with the perspectives of Rowlands (1995) and other scholars, including Foucault (1989), Fraser (1989), Giddens (1994), Harding (1995), and Hartsock (1998), empowerment is viewed as a transformative process through which human capacities and behaviors are enhanced to achieve desired goals (Sen, 1995; Rowlands, 1995; Strelezecka et al, 2017). Accordingly, empowerment, depending on the underlying power structure, may take either generative or non-generative forms (Pemberton and Goodwin, 2010; Shafieisabet and Mirvahedi, 2020). Therefore, empowerment facilitators help shift power relations from "power over" (dominance) and the notion of the workable man toward "power with" and "power within," thereby enhancing individuals' capacity to influence and participate in sustainable development processes (Knight and Cottrell, 2016; Richardson-Ngwenya et al, 2019). The management system and its effective

organization, together with economic, social, and cultural factors, play a critical role in rural development. Chambers argued that no factor contributes more significantly to the failure of rural development programs than an inadequate understanding of rural management (Jaafar et al, 2015). In most developing countries, including Iran, dominant approaches to rural development management have traditionally been based on instrumental-technical perspectives that prioritize the authority of specialists (Healey, 2000; Allmendinger, 2002). Consequently, limited attention has been devoted to generative empowerment and the enhancement of its indicators as essential components of sustainable development (Foley and Lauria, 2000). Although rural development practitioners in developing countries have implemented numerous empowerment initiatives, the predominance of non-generative education and empowerment has limited their ability to transform villagers from working men into active participants in sustainable rural development projects (Innes, 1995; Healey, 1996). Today, overcoming development bottlenecks and moving from centralized toward decentralized management requires fundamental changes in rural development management systems through strengthening the capacities and participation of local people and institutions (Sarker, 2006; Zasada et al, 2017). One of the defining characteristics of modern rural planning and management is the strengthening of local planning and government institutions (Tang and Jones, 2012). In response to globalization and the declining role of national governments, policymakers and local managements increasingly recognize empowerment as an effective strategy for strengthening local communities (Isaac and Harilal, 1997). Capacity development in rural settlements represents one of the most important determinants of social participation. Structural empowerment enhances knowledge, skills, capacities, and abilities while improving people's understanding of the benefits of development, thereby promoting greater participation in rural management processes (Watson et al, 2018). Villagers' beliefs and attitudes toward the performance of local management, together with their perceptions of capacity-building efforts, significantly influence their participation in rural development projects and, ultimately, the

process of sustainable rural development (Alao et al, 2017). Accordingly, attention should also be given to the intrinsic and individual characteristics of local management managers, including age, educational level, educational orientation, professional training, and other personal characteristics. These characteristics contribute to improving local management by enhancing skills and strengthening the division of labor at the local level (Abelshausen et al, 2014; Amundsen and Martinsen, 2015; Whaley and Cleaver, 2017). In this regard, it has been argued that the intrinsic and individual characteristics of local management motivate members to pursue organizational and community goals. Consequently, understanding people's expectations regarding development programs and achieving villagers' satisfaction are closely associated with the intrinsic characteristics of local management (Bezzina, 2000). Although numerous studies have examined empowerment within the context of sustainable rural development, and a substantial body of research has investigated the role of management in promoting sustainable development, limited attention has been devoted to simultaneously examining the relationship between improvements in structural empowerment, influenced by the intrinsic and individual characteristics of local management, and their subsequent effects on the dimensions of sustainable rural development. The principal contribution of the present study is the development and empirical validation of a comprehensive model that examines the mediating role of structural empowerment in the relationship between the intrinsic and individual characteristics of local management and the four dimensions of sustainable rural development in Iran's arid and desert regions. To address this research gap, and given the critical role of rural residents in achieving sustainable rural development, this study investigates the implications of improvements in the structural empowerment of rural residents, resulting from the performance of local management (i.e., its intrinsic and individual characteristics), for enhancing the dimensions of sustainable rural development from the perspective of rural residents in Iran's arid and desert regions. These villages constitute a substantial proportion of Iran's rural settlements and occupy a considerable share of the country's territory.

The central research problem addressed in this study is to determine the extent to which structural empowerment, influenced by the intrinsic and individual characteristics of local management, contributes to improving the dimensions of sustainable rural development. Accordingly, two research questions and two corresponding hypotheses were formulated. Before presenting the hypotheses, however, the relevant theoretical and empirical literature is critically reviewed. Based on this review, the conceptual framework and research hypotheses are proposed to address the following research questions:

1. How do the intrinsic and individual characteristics of local management affect the structural empowerment of rural residents?
2. How does structural empowerment, influenced by the performance of local management, affect the dimensions of sustainable rural development?

Literature review and hypotheses

Internal features of local management and the promotion of villagers' structural empowerment

Local management comprises a set of activities that shape and guide the economic, physical, and social development of local areas. Its primary objective is to manage the components of the local system. McGill (1998), however, presents a more comprehensive perspective, arguing that local management should be viewed as a holistic, inclusive, and integrated process. Inclusiveness implies the involvement of all local stakeholders and actors, whereas integration emphasizes local development as the ultimate goal of local management through the development of villagers' capacities and capacity building. During the past two decades, decentralization has been introduced in many developing countries. Through decentralization, governments have created favorable conditions for strengthening local management by promoting empowerment and participation at the local level (Frey et al, 2021; Shafieisabet and Yousefi, 2021). As cooperation between citizens and management increases within local management systems, decision-making authority is increasingly shared, thereby fostering participatory democracy through the transfer of greater authority to the local level (Mengistu and Assefa, 2020). Local management plays a significant role in enhancing empowerment, improving service

delivery, promoting community welfare, and developing knowledgeable human resources. Building empowerment through learning and education within local communities facilitates the acceptance of change, strengthens effective communication, and fosters trust and social cohesion among community members (E. Johnson et al, 2020). In other words, empowerment is a process of social change that can emerge from local resources and be strengthened through local management (Butler and Current, 2021). The local management approach has considerable explanatory power and serves as a practical framework for sustainable rural development because it places particular emphasis on institution building, capacity building, empowerment, and participatory development (Cinner et al, 2009; Shafieisabet et al, 2020). Owing to its participatory nature, this approach generates stronger empowerment outcomes than many alternative development approaches (Tomashuk, 2017). Local management enhances villagers' capabilities and strengthens their sense of social and cultural belonging to their place of residence by encouraging active participation in village management and decision-making (Silva and Peres, 2016). Today, local management incorporates programs designed to improve the performance of groups, organizations, and communities (Shakil Ahmad and Abu Talib, 2014). These programs emphasize networking, training, and the employment of knowledgeable and well-trained managers as effective development management strategies for promoting empowerment (Burza et al, 2015). Ane atanga (2020) reported a significant relationship between knowledgeable and informed managers, an efficient and endogenous control and management system, and the success of rural management. Likewise, Golka's studies indicate that an appropriate administrative structure and organization, together with knowledgeable and well-trained managers, constitute important social and cultural factors influencing the effectiveness of rural development management (Cyprian Eneh, 2011; Steimanis et al, 2020). One important internal feature of local management is age diversity, which helps reduce interpersonal tensions and unnecessary competition (Steimanis et al, 2020). Organizations that consider the age structure of their managers and

workforce seek to maintain workforce continuity while facilitating the effective transfer of knowledge from older employees to younger generations over time (Backes-Gellner and Veen, 2009). Similarly, workforce diversity in terms of educational attainment can enhance the division of labor by providing a broader range of skills within the organization (Simsarian-Webber and Donahue, 2001). The educational level of managers and employees is also regarded as an important factor in motivating organizational members to pursue collective goals (Kearney et al, 2007).

Accordingly, attention to the internal and individual characteristics of management, including age, educational level, academic orientation, training, experience, and other personal attributes is essential for improving the effectiveness of local management. These characteristics contribute to a greater division of labor by providing diverse skills at the local management level (Douglas, 2005; Tavares et al, 2014; Park and Kim, 2014; Afsharipour et al, 2021). Furthermore, understanding villagers' expectations regarding the outcomes of development programs and projects, as well as achieving their satisfaction, is directly associated with the internal characteristics of local management (Bezzina, 2000). The underlying assumption is that, given its broad scope of intervention in rural affairs, local management can improve the living conditions of different rural groups by strengthening the shared values of villagers. Therefore, this study argues that the internal characteristics of local management contribute to building villagers' trust and confidence while promoting structural empowerment, thereby encouraging greater participation in local development. Accordingly, the following hypothesis is proposed to address the first research question.

Hypothesis 1: The internal and individual characteristics of local management positively affect the structural empowerment of villagers.

Structural empowerment and sustainable rural development

Today, the concept of development has shifted toward the empowerment of local communities. Empowerment refers to enabling communities to utilize economic resources effectively while encouraging them to pursue social freedom within the existing institutional structure (Zhang et al, 2018). Community empowerment is widely recognized as a

powerful approach to addressing many of the challenges faced by local communities. Rural development plans and projects are more likely to achieve their intended outcomes when they are grounded in the empowerment and active participation of local communities (Herawati et al, 2014). Empowerment involves delegating authority and decision-making power to individuals regarding matters that affect their own lives. It moves individuals beyond passive acceptance and encourages them to act consciously and proactively (Orgambidez-Ramos et al, 2017). Empowerment also strengthens individuals' sense of usefulness, influence, value, security, and self-efficacy (Orgambidez-Ramos and Almeida, 2020). Various definitions describe empowerment as a voluntary, continuous, and community-centered process (Kuumuori Ganle et al, 2015). It is characterized by mutual respect, critical thinking, and collective participation, through which individuals with limited access to resources gain greater access to and control over those resources (Rappaport, 1984; Sen, 1995). Within a centralized power structure, the empowerment of villagers may take the form of non-generative or passive participation. In contrast, under a democratic power structure, empowerment is manifested through generative and active participation, fostering self-reliance and promoting sustainable rural development (Giampiccoli and Mtapuri, 2012). Productive empowerment, through effective education and awareness, the enhancement of knowledge and skills, and the formation of local organizations is considered one of the most important drivers of transformation that facilitates villagers' participation in sustainable rural development (Knight and Cottrell, 2016; J. Gracia et al, 2020; Sievers et al, 2021; Steimanis et al, 2020). In this context, Rowlands (1995) argues that the concept of power within refers to the ability or capacity to act, whereas power over describes relationships based on domination and coercion. In contrast, power with emphasizes collective action and productive collaboration, whereby increasing one person's power does not necessarily diminish the power of others (Rowlands, 1995). Furthermore, Rowlands (1995) argues that strengthening power within focuses primarily on the individual level by enhancing people's capacity to challenge the status quo and overcome existing constraints (Richardson-Ngwenyaa et

al, 2019). Based on the above discussion, transforming the power structure from a *power-over* and non-generative system toward a *power-within* approach promotes empowerment, self-awareness, and self-organization, thereby creating favorable conditions for greater participation and sustainable rural development. According to the literature, productive education and awareness among villagers, together with the use of indigenous knowledge and skills in development activities as components of structural empowerment, enhance the perceived value of development benefits and provide a strong foundation for sustainable rural development (Guirado et al, 2017). Governance policies that create favorable conditions through financial support, education, equal opportunities for all development actors, and external assistance are also recognized as key components of villagers' empowerment within rural management systems (Sarkar, 2016; Akurugu et al, 2021). Previous studies have further shown that the transfer of power from top-down governance structures to local communities (Amdam, 2010; Jena et al, 2019), improvements in education and awareness (Mininni, 2017; Daniel et al, 2017; Kakodkar et al, 2017; Ahmed et al, 2020), enhancement of knowledge and skills (Kakodkar et al, 2017; Hatthakijphong and Ting, 2019), and improved access to resources (Koyana et al, 2017) are major dimensions of empowerment that can significantly strengthen villagers' participation in sustainable rural development. Numerous studies have also demonstrated that villagers' empowerment and participation in local management generate environmental, ecological, socio-cultural, and economic benefits that improve rural livelihoods. These outcomes include improved water resource management and more efficient utilization of agricultural land (Shafieisabet et al, 2019; Abreu and Mesias, 2020; Hung Lee et al, 2021; Zhao et al, 2021), enhanced self-confidence, better health, and greater personal and social security (Gorbenkova et al, 2018; Saladini et al, 2018), increased income and savings, improved productivity in agricultural and non-agricultural activities, and greater employment diversification (Gunnarsdottir et al, 2020; Kaviti Musango et al, 2020; Patias et al, 2021). In addition, improved service delivery has been identified as another important outcome of

villagers' empowerment and participation in rural areas (Pedro and Sito Meiyanto, 2019; Sarkar et al, 2021; Abu-Rayesh and Dincer, 2021; Brown et al, 2021). Overall, the performance of local governances in promoting structural empowerment has been recognized as a key determinant of more efficient resource utilization and improved sustainable rural development outcomes.

Therefore, based on the second research question, the following hypothesis is proposed:

Hypothesis 2: Structural empowerment, influenced by local management performance, positively affects sustainable rural development.

Conceptual model of the research

The conceptual model was developed as a general framework to reveal the relationships

among the research variables and to examine the internal and individual characteristics of local governance and their impact on its performance in enhancing the structural empowerment of villagers for sustainable rural development (Figure 1). The components of this model were designed based on the theoretical background and literature on the subject, as well as the conditions of local governance in Iran and indigenous knowledge. The model includes: 1) the independent variables, namely the internal and individual characteristics of local governance, which affect local governance performance; 2) the mediating variable, namely the structural empowerment of villagers; and 3) the dependent variable, namely the dimensions of sustainable rural development.

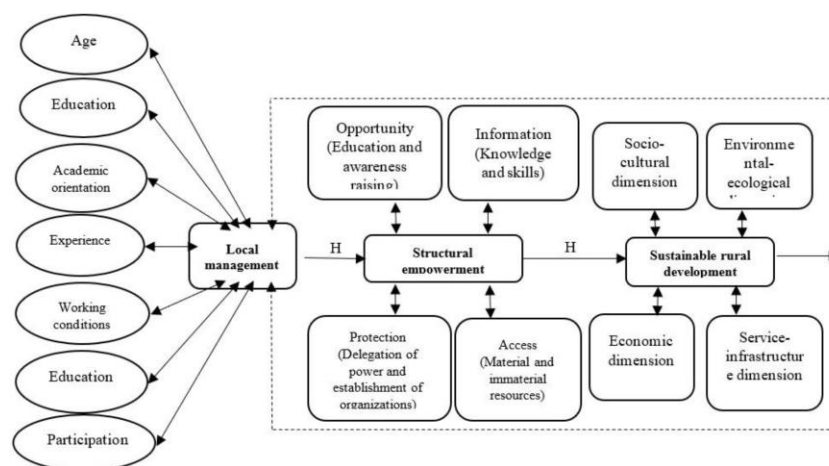


Fig. 1: Conceptual model of research

Materials and Methods

The study area comprises the desert villages and the surrounding desert plains of Iran (Figure 2). These villages were selected for two main reasons. First, their unique geographical characteristics, particularly their location in and around desert areas, have made the sustainability of life, livelihoods, and human settlements highly challenging due to water scarcity and prolonged drought. Therefore, empowering villagers in these settlements is essential for enhancing the stability of their living conditions and livelihoods. Second, these villages have experienced profound changes over recent decades as a result of the extensive interaction between local managers and villagers, as well as the implementation of numerous empowerment programs and

activities. These programs have been carried out by both formal and informal organizations in the rural settlements of the study area, taking into account local livelihoods, lifestyles, and both agricultural and non-agricultural activities. In Iran, institutions that provide training and empowerment programs for local and rural management include formal (governmental) and semi-formal organizations and actors involved in rural development management. These institutions play a central role in promoting rural participation in the rural development management process (Table 1). Therefore, identifying the role of these institutions in strengthening the empowerment of villagers and local governances to participate in social and economic activities contributes to enhancing the dimensions of sustainable rural

development. Consequently, examining the relationship between local governances, structural empowerment, and the improvement of sustainable rural development has become increasingly important, particularly in developing countries such as Iran.

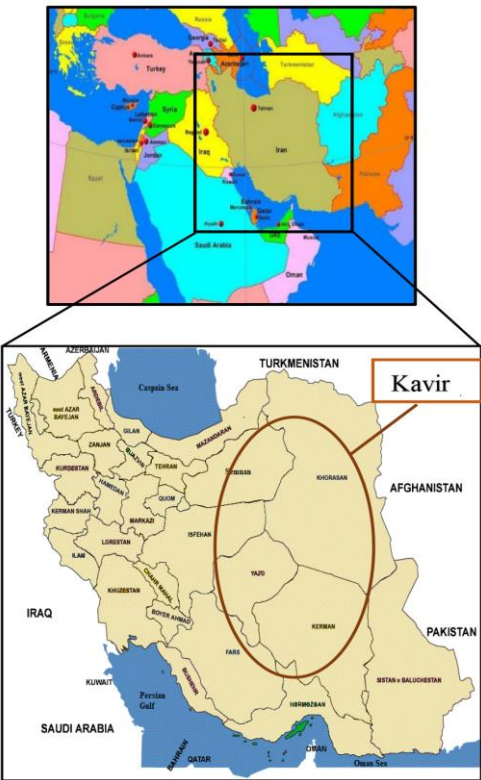


Fig. 2: Geographical location of desert and desert settlements in Iran and the Middle East (2025)

Table 1: Centers offering training and empowerment courses for local governance and villagers

Informal organizations (agricultural engineering systems, etc.)	Formal training organizations	
	Ministry of Interior (governorate, governorate, and district)	Rural housing foundation
-Education in the field of livestock, agriculture, horticulture -Education in the field of aquaculture and fisheries -Education in the field of rural industries, Agricultural promotion -Water and soil training, plant protection Nomadic affairs, etc-	-Waste management, crisis management -Waste management, administrative correspondence -Employment and investment -Familiarity with rural guide plans -Familiarity with the duties and position of rural councils -Familiarity with Islamic councils -Familiarity with development plans and projects, etc.	-Principles of designing valuable rural texture -Principles and workshop supervision in the implementation of passages -Land protection and issuance of a document of places -Set of rules of Registration rights and real estate -Participation of villagers in the preparation and implementation of rural development plans -Improving the mechanism of financial and executive supervision over rural development projects -Acquisition and transfer of national and governmental lands, etc.

(Source: Findings of the present study, 2025)

Based on this necessity, the authors of this study focused on the contribution of local governance and village training centers to sustainable development. However, this paper exclusively examines the role of the structural empowerment of villagers as influenced by local governance performance across the dimensions of sustainable rural development. This study is an applied, descriptive-survey research based on the data collection method. According to the nature of the data, the research

was conducted between 2020 and 2021. The statistical population comprised all villages located within the study area. Given the size of the statistical population, a multi-stage cluster sampling method was employed to select the villages. In the first stage, rural clusters located around the desert and arid areas were randomly selected. In the second stage, 40 villages were randomly selected from these rural clusters. This number of villages was determined based on the central limit theorem ($n > 30$) (Kothari,

2009) as well as the researchers' field observations and extensive experience. The authors have conducted research on Iranian rural areas for approximately 30 years. In the third stage, the total number of households in the selected villages was identified using the official statistics of the Statistical Center of Iran to determine the statistical population for sample size estimation. In the fourth stage, Cochran's formula was applied to determine the required sample size for the household questionnaire. Using a 95% confidence level, a precision coefficient of 0.05, and a variance of ($S^2 = 0.25$), the required sample size was calculated as 381 households ($n = 381$). In the fifth stage, the number of samples allocated to each of the 40 selected villages was determined using the Probability Proportional to Size (PPS) sampling method. In the sixth stage, households were selected through simple random sampling from different parts of each village. In villages where the calculated sample size was fewer than six households, the number of respondents was increased to ensure an adequate sample size for the household questionnaire. Consequently, the final sample size was increased to 400 households. A structured questionnaire was used to collect the field data. The questionnaire was designed based on previous studies while considering the social and cultural conditions of Iranian rural communities. To measure the independent variable (the individual and internal characteristics of local governance), seven items were adopted from previous studies, as presented in Table 2. The mediating variable, namely the structural empowerment of villagers, was assessed using 22 items derived

from previous studies, as shown in Table 2. Furthermore, 31 items were used to measure the environmental–ecological, socio-cultural, economic, and physical dimensions of sustainable rural development (the dependent variable), as presented in Table 3.

To ensure the content validity and contextual suitability of the questionnaire, the opinions of 12 university faculty members and researchers from various Iranian universities with expertise in the subject were obtained to evaluate the relevance and importance of the selected indicators. In addition, the questionnaire was reviewed by 35 experts from the Ministry of Interior, the Organization of Municipalities and Rural Development, the Ministry of Agriculture, the Housing Foundation of Iran, and the Rural Development Organization of the President of Iran, all of whom had substantial research experience related to the topic. Based on their feedback, several revisions were made to the questionnaire, including the removal of a number of less significant items. The final variables and indicators representing local governance performance (Table 2) as the independent variable, their effects on improving the structural empowerment of villagers (Table 3), and the resulting sustainable development outcomes (Table 4) are presented. All indicators were measured using a five-point Likert scale ranging from 1 (very low) to 5 (very high). The statistical analyses were conducted using Structural Equation Modeling (SEM) with AMOS software. SEM is a comprehensive multivariate statistical technique widely used to test hypothesized relationships between latent and observed variables (Hermstad et al, 2010).

Table 2: Latent and observed variables of the internal and individual characteristics of local governance (Rural Council).

Latent variable	Observed variables	researchers
Internal and individual characteristics of local governance	Age of local managers	Backes-Gellner and Veen, 2009; Whaley and Cleaver, 2017; Steimanis et al, 2020
	The level of education of managers	SimsarianWebber and Donahue, 2001; Kearney et al, 2007; Sianipar et al, 2013; Amundsen and Martinsen, 2015;
	Educational orientation of managers	Bezzina, 2000; Abelshausen et al, 2014; Shakil Ahmad and Abu Talib, 2014
	The level of experience of managers	Tavares et al, 2014;
	Working conditions of managers	Cyprian Eneh, 2011; Abelshausen et al, 2014
	Learned tutorials	Steimanis et al, 2020; Ane atanga, 2020
	Participation of managers in organizations	SimsarianWebber and Donahue, 2001; Park and Kim, 2014; Afsharipour et al, 2021;

(Source: Based on literature analysis and background, 2025)

Table 3: Latent and Observed variables of structural empowerment process of villagers

Latent variable	Observed variable	Items	researchers
Opportunities	Education and awareness-raising	Education and awareness-raising in the field of financial, civil, and service laws and regulations in the village	Sarkar, 2016; Mininni, 2017; Kakodkar et al, 2017; Jena et al, 2019; Ahmed et al, 2020;
		The success rate of training courses offered to villagers	
		The extent to which villagers have access to educational opportunities in the field of recognizing their duties and limits of authority and about governance institutions	
		Training and awareness-raising in the field of financial and non-financial policies, programs, projects, and decisions	
		Training and awareness-raising in the field of control and supervision of executive plans and projects in the village	
		The amount of information to the villagers about holding training courses	
		The rate of utilization of training courses held	
Information	Knowledge and skills	The level of knowledge and skills of villagers in the field of knowledge and management skills in the village	Kanter, 2008 and 1993; Cinner et al, 2009; Santosa, 2014; Kakodkar et al, 2017; Pedro and Sito Meiyanto, 2019; Jena et al, 2019; Hatthakijphong and Ting, 2019
		The level of knowledge and skills of villagers in the field of participation in decision-making, programs, project implementation and control and monitoring in the village	
		The level of knowledge and skills of villagers in the field of bargaining power with managers and experts of governance institutions to gain more benefits in the village	
		The level of knowledge and skills of villagers in establishing favorable relations with relevant agencies and organizations in rural management	
		Level of knowledge and skills of villagers in the field of managing financial and non-financial resources (such as executive skills and service delivery) in the village	
		The amount of knowledge and skills of the villagers in motivating and establishing the correct flow of information exchange and dialogue among the people to participate in the management of the village	
		The level of knowledge and skills of villagers in creating a sense of trust and responsibility of people in village management	
Support	Delegation of power and authority	Authorizing the villagers to manage the various affairs of the village	Kanter, 2008 & 1993; Knight and Cottrell, 2016; Sarkar, 2016; 2017; Amor et al, 2019; J. Gracia et al, 2020;
		Authorizing the villagers in connection with the active participation of all villagers in the rural development management process	
		The extent of the villagers' sense of power and intellectual independence	
	Creating organizations	Membership and participation of villagers in economic organizations and micro-credit funds in the village	
		Membership and participation of villagers in environmental organizations in the village	
Resources	Access to material resources	Membership and participation of villagers in socio-cultural organizations in the village	Kanter, 2008 and Johnson et al, 2020;
		The extent of villagers' access to low-interest and long-term loans and bank credits in the field of managing various village affairs	

(Source: Based on literature analysis and background, 2025)

Table 4: Process of indexing the dimensions of sustainable rural development

Latent variable	Observed variable	Authors
Environmental-ecological dimension	Improve natural resource conservation	Saladini et al, 2018; Abreu and Mesias, 2020; Gunnarsdottir et al, 2020; Kaviti Musango et al, , 2020;
	Improve rural landscape	
	Improving the quality of the environment	

	Improving biodiversity	Patias et al, 2021; Zhao et al, 2021; Abu-Rayesh and Dincer, 2021.
	Improving plant species	
	Improving animal life	
Socio-cultural dimension	Improving the health, personal and social security of the people	Gorbenkova et al, 2018; Saladini et al, 2018; Abreu and Mesias, 2020; Abu-Rayesh and Dincer, 2021; Sarkar et al, 2021; Brown et al, 2021
	Promoting social trust between people and local institutions	
	Promote solidarity between people and local institutions	
	Promoting social responsibility between people and local institutions	
	Improving villagers' quality of life by creating educational, opportunities, etc. health, service	
	Increase the sense of spatial belonging and reduce the migration of villagers	
	Increasing people's sense of benefit and satisfaction	
	Increasing the level of literacy and education among women and men	
	Promoting justice and equality among all sections of the people	
	Improve collective participation between people and local institutions in various matters	
	Improving public awareness and participation, and interaction with governance and local institutions	
	Increase the transfer of local affairs and delegate authority to village council members and villagers in various matters	
Economic dimension	Improving the income and savings of villagers	Gorbenkova et al, 2018; Garcia et al, 2019; Gunnarsdottir et al, 2020; Kaviti Musango et al, 2020; Patias et al, 2021; Sarkar et al, 2021; Hung Lee et al, 2021; Zhao et al, 2021; Abu-Rayesh & Dincer, 2021
	Increasing job satisfaction of villagers	
	Increase employment	
	Improving the efficiency of villagers in various agricultural and non-agricultural activities	
	Improving income from agricultural activities compared to non-agricultural activities	
	Increasing the production efficiency and productivity of agricultural and non-agricultural economic activities	
	Increasing job diversity	
	Increase awareness to improve agricultural and non-agricultural production capacities	
	Raising awareness of villagers about innovative initiatives in activities related to methods of generating income and expanding employment	
	Growth of economic investments	
	Increase the capital of local funds	
	Improving conversion and complementary industries	
	Increase residents' access to credit services and loans	
Service-infrastructure dimension	Improving the quality of materials used in rural housing	Saladini et al, 2018; Kaviti Musango et al, 2020; Gunnarsdottir et al, 2020; Sarkar et al, 2021; Patias et al, 2021; Abu-Rayesh and Dincer, 2021; Brown et al, 2021
	Increase of newly built residential units	
	The process of improving the improvement, Strengthening, and evolution of physical tissue	
	The process of promoting the development of valuable tissue	
	Improving the status of commercial, educational, and health services, recreational and disciplinary services	

	Improving the status of communication services (landline and mobile)	
	Improving infrastructure services such as roads, transportation, water, electricity, and gas	
	Reduction of service access distance	
	Promote the complementary and balanced development of public services between urban and rural areas	

(Source: Based on literature analysis and background, 2025)

Results and Discussion

The descriptive findings showed that, among the 400 respondents, 39.25% were women. This lower proportion reflects the fact that the number of female-headed households was smaller than that of male-headed households, and female household heads had lower educational attainment. In contrast, approximately 60% of the respondents were men. Regarding educational attainment, the highest proportion of rural household heads (30.25%) had completed high school or held a diploma. Furthermore, the largest proportion of respondents belonged to the 34–54-year age group (Table 5).

Table 5: Characteristics of the respondents in the study area n = 400

		villagers	
Feature		Percentage	Number
Gender	Man	60.75	243
	Female	39.25	157
education	Primary	23.75	95
	Tips	25	100
	High school and diploma	30.25	121
	Associate and Bachelor	17.25	69
	Senior and higher	3.75	15
	20 to 34	24	96
Age	34 to 54	53	212
	55 to 74	23	92

(Source: Research Findings, 2025)

Convergent validity, Cronbach's alpha, and composite reliability (CR) were assessed based on the mean responses, as presented in Table 6. Cronbach's alpha measures the internal consistency of a construct by evaluating the extent to which the observed indicators consistently measure the same latent variable. Composite reliability (CR; Levin–Goldstein) represents the proportion of true score variance relative to the total variance of the scale scores. The reliability of the questionnaire was confirmed, with Cronbach's alpha values exceeding 0.70 and composite reliability values (CR) greater than 0.60 (Hermstad et al, 2010). Convergent validity indicates that the indicators of each construct adequately represent their respective latent construct and are sufficiently distinct from the indicators of other constructs

in the model. In other words, each indicator measures only its intended construct, while the constructs remain conceptually and empirically distinct. Accordingly, convergent validity was evaluated by examining the degree to which the indicators measuring each model variable converged. The Average Variance Extracted (AVE) values showed that all constructs had AVE values greater than 0.50. In addition, all factor loadings were statistically significant, with *t*-values exceeding the critical threshold of 1.96 at the 5% significance level. Therefore, the convergent validity of the measurement model was confirmed.

$$AVE = \frac{\sum \lambda_i^2}{\sum \lambda_i^2 + \sum \text{var}(\varepsilon_i)}$$

Table 6: Convergent validity indices and reliability of research variables

Latent variables	Cronbach's Alpha	rho_A	Composite Reliability (CR)	AVE	R ²
Internal and individual characteristics of local governance	.721	1.021	.851	.591	.003
Structural empowerment (opportunities)	.794	1.068	.810	.632	.016
Structural empowerment (information)	.811	.960	.921	.711	.026
Structural empowerment (support)	.891	.798	.917	.639	.004

Structural empowerment (access)	.709	.984	.914	.669	.004
Environmental-ecological dimensions of sustainable development	.786	1.112	.805	.703	.019
Socio-cultural dimensions of sustainable development	.951	.821	.805	.715	.048
Economic dimensions of sustainable development	.930	.923	.937	.694	.049
Service-infrastructure dimensions of sustainable development	.931	.841	.853	.686	.008

(Source: Research Findings, 2025)

In structural equation modeling (SEM), each research construct is first analyzed. Based on the literature review and the analytical framework, fifteen indicators were examined to assess the role of local governance in the structural empowerment of villagers within the process of sustainable rural development. The model was designed to measure the effect of the independent variable, namely the internal and

individual characteristics of local governance (X1–X7), on the mediating variable, structural empowerment of villagers (Y1–Y4). Furthermore, to measure the dependent variable, namely the dimensions of sustainable rural development, as influenced by villagers' empowerment through local governance, the constructs (Y5–Y8) were developed, as presented in Table 7.

Table 7: Influential, mediating, and affective variables in structural equation modeling

Latent variable	Observed variable	Abbreviation in the model
Internal and individual characteristics of local governance	Age of local managers	X1
	The level of education of local managers	X2
	Educational orientation of local managers	X3
	The level of experience of local managers	X4
	Working conditions of local managers	X5
	Training of local managers	X6
	Local managers and participation in organizations	X7
	Mediator variable	Abbreviation in the model
Structural empowerment	Opportunity (education and awareness)	Y1
	Information (knowledge and skills)	Y2
	Support (delegation of power and authority, creation of institution and organization)	Y3
	Access (access to material resources)	Y4
	Dependent variable	Abbreviation in the model
Sustainable Development	Environmental-ecological dimension	Y5
	Economic dimension	Y6
	Socio-cultural dimension	Y7
	Service-infrastructure dimension	Y8
General description	Local governance	F1
	Structural empowerment of villagers	F2
	Sustainable rural development	F3
	Measurement error	e
	Structural error	z

(Source: Research Findings, 2025)

The structural equation model estimates the relationships between latent (circular) and observed (rectangular) variables. The relationships between the observed and latent variables are represented in the measurement model. In the proposed research model, the internal and individual characteristics of local governance are considered the independent (exogenous) variables. The structural empowerment of villagers is influenced by the

internal and individual characteristics of local governance and serves as a mediating variable, whereas the dimensions of sustainable rural development, including environmental–ecological, economic, socio-cultural, and service–infrastructure are the dependent (endogenous) variables. Figure 3 presents the standardized measurement model of the indicators of the internal and individual characteristics of local governance and the

structural empowerment of villagers. Figure 4 illustrates the standardized measurement model of the structural empowerment indicators of villagers and the dimensions of sustainable rural development. Figure 5 presents the integrated structural model combining the two hypotheses and their implications for sustainable rural development. As shown in Figure 3, the path coefficient of 1.43 indicates the effect of the internal and individual characteristics of local governance on the structural empowerment of villagers. Furthermore, the positive degrees of freedom, an acceptable chi-square value, and a significance level below the 0.05 alpha threshold indicate that the model is statistically acceptable. As reported in the standardized regression coefficients (Table 8), all factor loadings for the indicators of the internal and individual characteristics of local governance and the structural empowerment of villagers demonstrate positive relationships between the two constructs. Among the indicators of the internal and individual characteristics of local governance, the educational orientation of local

managers, with a factor loading of 2.574, exerted the greatest influence on the structural empowerment of villagers. In the study area, this finding can be attributed to the presence of educated local managers with academic backgrounds related to rural local governance, rural planning, rural development, and development studies. In addition, the application of empowerment approaches and greater attention to villagers' participation in local governance processes have further strengthened this relationship. As shown in Figure 3 and Table 8, the path coefficients of the structural empowerment indicators also reveal that the opportunity index (education and awareness) has the highest factor loading, whereas the access index (access to material resources) has the lowest factor loading. The extensive training courses conducted in the villages of the study area, together with the willingness of villagers to participate in these programs, have contributed more substantially to improving villagers' capabilities than the availability of financial resources.

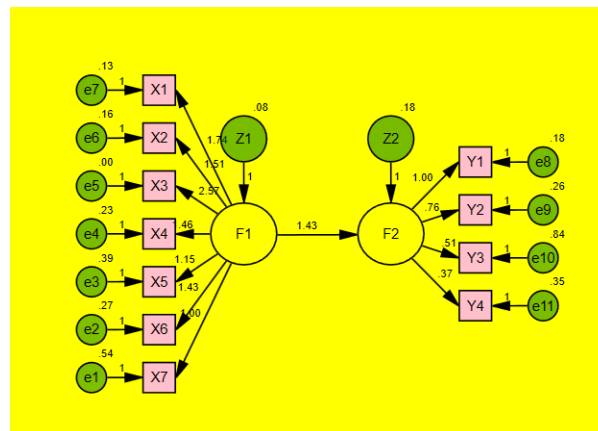


Fig. 3: Relationship between internal characteristics of local governance and structural empowerment of villagers.
(Source: Research Findings, 2025)

Table 8: Estimation of standardized regression coefficients between indices of internal characteristics of local governance and structural empowerment of villagers

Relationship between variables	Estimation
Age of local managers	1.740
The level of education of local managers	1.508
Educational orientation of local managers	2.574
The level of experience of local managers	1.457
Working conditions of local managers	1.150
Training of local managers	1.430
Local managers and participation in organizations	1
Opportunity (education and awareness)	1
Information (knowledge and skills)	.757
Support (delegation of power and authority, creation of institutions and organizations)	.514
Access (access to material resources)	.369

(Source: Research Findings, 2025)

In Figure 4, the path coefficient of 1.33 indicates the effects of the structural empowerment indicators of villagers, influenced by the internal and individual characteristics of the local governance, on sustainable rural development. Furthermore, the positive degrees of freedom (19), the chi-square value greater than 0.50 (55.764), and the significance level below the alpha threshold of 0.05 ($p = 0.000$) confirm the goodness of fit of the model and the significant effects of the structural empowerment indicators of villagers. As presented in the standardized regression coefficients of the structural empowerment indicators of villagers, influenced by the internal and individual characteristics of the local governance, and sustainable rural development (Table 9), all factor loadings indicate a positive relationship between the two constructs. In this regard, the opportunity index (education and awareness), with a factor loading of 1.342, followed by the support index (delegation of power and creating institutions

and organizations), with a factor loading of 1.335, exerts the greatest effects on enhancing the structural empowerment of villagers and promoting sustainable rural development. Holding extensive training courses, improving the capabilities and awareness of villagers, and delegating greater power and authority through the local governance process in the rural settlements of the study area have positively influenced and improved these indicators. As shown in Figure 4 and Table 9, among the indicators of sustainable rural development, the economic dimension, with a path coefficient of 1.618, has the greatest effect, whereas the environmental–ecological dimension, with a coefficient of 1.000, has the lowest effect. Since most activities in the villages of the study area are agricultural, the majority of the training courses have focused on agricultural activities. Consequently, these training programs have generated substantial economic benefits for the villagers.

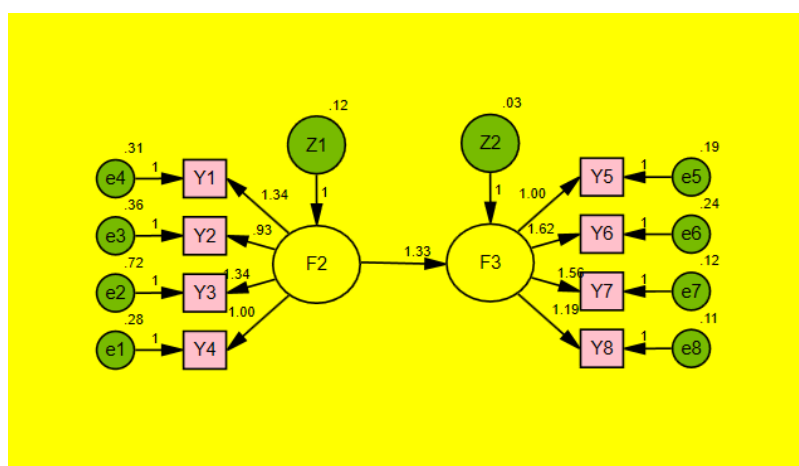


Fig. 4: Relationship between structural empowerment of villagers and dimensions of sustainable rural development. (Source: Research Findings, 2025)

Table 9: Estimation of standardized regression coefficients between indicators of structural empowerment of villagers and dimensions of sustainable rural development

Relationship between variables	Estimation
Opportunity (education and awareness)	1.342
Information (knowledge and skills)	.930
Support (delegation of power and authority, creation of institutions and organizations)	1.335
Access (access to material resources)	1
Environmental-ecological dimension of sustainable development	1
The economic dimension of sustainable development	1.618
Socio-cultural dimension of sustainable development	1.562
Service-infrastructure dimension of sustainable development	1.195

(Source: Research Findings, 2025)

Figure 5 presents the integrated model combining the two previous models. The path coefficient between the internal and individual characteristics of local governance and the

indicators of the structural empowerment of villagers (1.374) demonstrates a strong positive relationship. Furthermore, the path coefficient between the structural empowerment of

villagers, influenced by the internal and individual characteristics of local governance, and the indicators of sustainable rural development (1.115) further confirms the overall model. In other words, the indicators of rural empowerment, influenced by the internal and individual characteristics of local governance, act as a mediating variable that indirectly exerts a positive effect on sustainable rural development. Moreover, the model fit statistics, including the degrees of freedom

(88), the chi-square value (388.347), and the significance level below $\alpha = 0.05$ ($p = 0.000$) also support the validity of the overall model. Table 10 presents the standardized regression coefficients for the indicators of the internal and individual characteristics of local governance, the structural empowerment of villagers, and sustainable rural development. All factor loadings indicate positive relationships among the latent construct, the mediating construct, and their observed indicators.

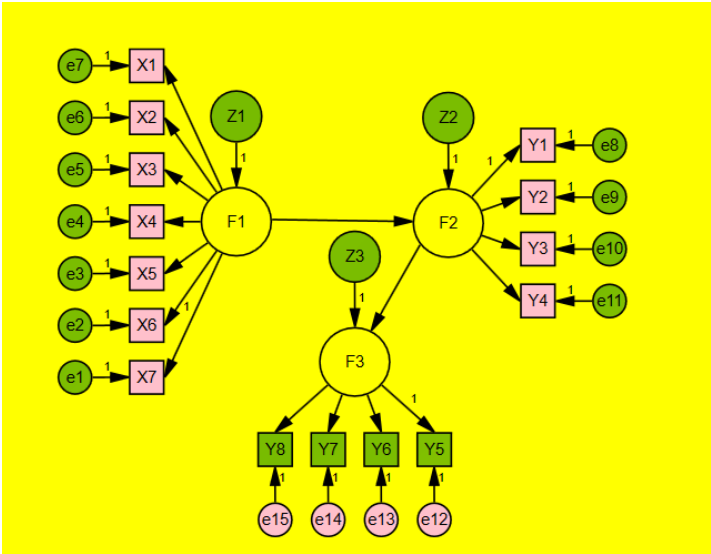


Fig. 5: Relationship between internal and individual characteristics of local governance, structural empowerment of villagers, and dimensions of sustainable rural development (Source: Research Findings, 2025)

Table 10: Estimation of standardized regression coefficients between internal and individual characteristics of local governance, structural empowerment of villagers, and dimensions of sustainable rural development

Relationship between variables	Estimation
Age of local managers	1.786
The level of education of local managers	1.577
Educational orientation of local managers	2.690
The level of experience of local managers	1.490
Working conditions of local managers	1.143
Training of local managers	1.470
Local managers and participation in organizations	1
Opportunity (education and awareness)	1
Information (knowledge and skills)	.638
Support (delegation of power and authority, creation of institutions and organizations)	.837
Access (access to material resources)	.750
Environmental-ecological dimension of sustainable development	1
The economic dimension of sustainable development	1.540
Socio-cultural dimension of sustainable development	1.545
Service-infrastructure dimension of sustainable development	1.261

(Source: Research Findings, 2025)

Three indicators of absolute, comparative, and parsimonious fit were used to evaluate the model fit. Based on the model and the results presented in Table 11 regarding the effect of the internal and individual characteristics of local

governance on the structural empowerment of villagers, the p-value associated with the Chi-square statistic was 191.57. Because the obtained value exceeded the 0.05 significance level, the proposed model was considered

acceptable. Furthermore, the Goodness-of-Fit Index (GFI) was 1.957, indicating an acceptable level of model fit. The Root Mean Square Error of Approximation (RMSEA), another goodness-of-fit indicator, was 0.035. Since this value is below 0.05, it indicates an excellent model fit. These results confirm the effect of the internal and individual characteristics of local governance on the structural empowerment of villagers in the settlements of the study area. Moreover, all other goodness-of-fit indices for the structural equation model presented in Table 11 indicate an optimal model fit. Therefore, the internal and individual characteristics of local governance, including age, level of education, educational orientation, level of experience, and participation, have

effectively enhanced the structural empowerment indicators of villagers, such as opportunity, information, support, and access. Regarding the effect of villagers' structural empowerment, influenced by the internal and individual characteristics of local governance, on sustainable rural development, the model results presented in Table 11 indicate that all goodness-of-fit indices, including absolute, comparative, and parsimonious fit indices demonstrate a satisfactory model fit. Therefore, it can be concluded that the internal and individual characteristics of local governance, through improving the indicators of villagers' structural empowerment, have significantly influenced the dimensions of sustainable rural development.

Table 11: Indicators of the fit model of internal and individual characteristics of local governance, structural empowerment of villagers, and dimensions of sustainable rural development

	Fit index	Index name	Abbreviation	amount	Criterion	Interpretation
Individual and internal characteristics of local governance and the impact on structural empowerment of villagers	Absolute fit indexes	Surface covered by Chi-square	Chi-Square	191.457	More than 0.05	Optimal fit
		Goodness Fit Index	GFI	0.991	More than 0.90	Optimal fit
		Adjusted Goodness of Fit Index	AGFI	0.909	More than 0.90	Optimal fit
	Comparative fit indexes	Normalized Fit Index	NFI	0.966	More than 0.90	Optimal fit
		Comparative Fit Index	CFI	0.936	More than 0.90	Optimal fit
		Relative Fit Index	RFI	0.923	More than 0.90	Optimal fit
		Increasing Fit Index	IFI	0.938	0-1	Optimal fit
	Parsimonious fit indexes	Normalized Parsimonious Fit Index	PNFI	0.712	More than 0.05	Optimal fit
		Root Mean Square Error of Approximation	RMSEA	0.035	Less than 0.08	Optimal fit
		Normalized chi-square	CMIN	1.503	1-3	Optimal fit
Structural empowerment of villagers, affected by the performance of the local governance on improving the dimensions of sustainable development	Absolute fit indexes	Surface covered by Chi-square	Chi-Square	55.764	More than 0.05	Optimal fit
		Goodness Fit Index	GFI	0.914	More than 0.90	Optimal fit
		Adjusted Goodness of Fit Index	AGFI	0.925	More than 0.90	Optimal fit
	Comparative fit indexes	Normalized Fit Index	NFI	0.955	More than 0.90	Optimal fit
		Comparative Fit Index	CFI	0.990	More than 0.90	Optimal fit
		Relative Fit Index	RFI	0.929	More than 0.90	Optimal fit
		Increasing Fit Index	IFI	0.961	0-1	Optimal fit
	Parsimonious fit indexes	Normalized Parsimonious Fit Index	PNFI	0.749	More than 0.05	Optimal fit
		Root Mean Square Error of Approximation	RMSEA	0.027	Less than 0.08	Optimal fit
		Normalized chi-square	CMIN	2.254	1-3	Optimal fit

(Source: Research Findings, 2025)

Table 12 also presents the correlation coefficients among the research variables. In the main diagonal of the correlation matrix, the values of 1 indicate the correlation of each variable with itself. Larger absolute coefficient

values indicate stronger correlations. As shown in Table 12, all correlation coefficients are positive and statistically significant at the 5% significance level.

Table 12: Correlation matrix of research variables

Latent variables	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)
(a) Internal and individual characteristics of local governance	1								
(b) Structural empowerment (opportunity)	.966	1							
(c) Structural empowerment (information)	.521	.941	1						
(d) Structural empowerment (support)	.520	.339	.461	1					
(e) Structural empowerment (access)	.503	.541	.264	.398	1				
(f) Environmental-ecological dimension	.84	.879	.227	.850	.925	1			
(g) The economic dimension	.231	.898	.412	.766	.564	.488	1		
(h) Socio-cultural dimension	.631	.596	.209	.524	.956	.852	.426	1	
(i) service-infrastructure dimension	.024	.0264	.223	.951	.753	.458	.651	.257	1

(Source: Research Findings, 2025)

Improving the structural empowerment of villagers through the internal and individual characteristics of local governance can provide a strong foundation for enhancing the dimensions of sustainable rural development. Accordingly, this study examined two hypotheses to investigate and analyze these relationships. The results indicate that the internal and individual characteristics of local governance have a positive and significant effect on the structural empowerment of villagers. These findings are consistent with those reported by Tavares et al. (2014) and Afsharipour et al. (2021), who emphasized the role of local governances in decentralization and in strengthening cooperation between citizens and government institutions to increase the availability of knowledgeable and skilled human resources, thereby enhancing community empowerment and participation. These studies further demonstrated that effective local governances create favorable conditions for community empowerment and capacity building. The findings are also consistent with those of Simsarian-Webber and Donahue (2001), Backes-Gellner and Veen (2009), Cyprian Eneh (2011), Ane Atanga (2020), and Steimanis et al. (2020). These studies highlight the effectiveness of local governances in promoting empowerment and strengthening the self-reliance of local communities through continuous education, effective supervision, and purposeful planning.

They also report a positive relationship between informed and knowledgeable managers, trained human resources, and an appropriate administrative and organizational structure in improving local governance performance and increasing community participation and empowerment. In contrast, the findings differ from those of Cinner et al. (2009), who reported that weak management performance limits the enhancement of rural communities' capabilities. Similarly, Shakil Ahmad and Abu Talib (2014), while emphasizing the contribution of local community empowerment to project sustainability, argued that continuous support and further strengthening of local governance are essential for enhancing the empowerment of rural economies. The results further demonstrate that structural empowerment, influenced by the internal and individual characteristics of local governance, has a positive effect on improving the dimensions of sustainable rural development. These findings are consistent with those of Sievers et al. (2021), who identified empowerment as the missing link in sustainable rural development and emphasized its role as a key driver of transformation by facilitating villagers' participation in rural governance and management, thereby improving the various dimensions of rural development. However, the findings differ somewhat from those reported by Akurugu et al. (2021). Their study suggests that, in addition to the empowerment outcomes

associated with local governance performance, support from external governances and development partners is required to further strengthen empowerment and civic participation and, consequently, promote rural development. Likewise, Richardson-Ngwenya et al. (2019) identified the limitations of the "power over" (dominance) structure in empowering agricultural groups. They emphasized strengthening planning capacity and promoting genuine empowerment through "power with" and "power within" approaches to increase stakeholders' influence and participation in the rural development process.

Conclusion

This study, drawing on Kanter's structural empowerment theory (1977, 1993, 2008), Rowlands' theory of power (1995), and the contributions of other scholars in this field, examined the influence of local governance performance, particularly its internal and individual characteristics on the dimensions of sustainable rural development through the promotion of villagers' structural empowerment. The functioning of local governance is such that all members of the community are engaged across different stages of development, from the lowest levels to the highest levels of self-awareness. As key actors in both agricultural and non-agricultural activities, villagers play a fundamental role in providing the workforce required for rural development. Therefore, the implementation of sustainable rural development programs and projects is impossible without their active participation. Moreover, the literature suggests that sustainable rural development is itself a function of enhancing the structural empowerment of villagers, which is influenced by the internal and individual characteristics of local governance. By strengthening structural empowerment dimensions, including opportunity, information, support, and access, local governance can facilitate villagers' participation in rural programs and projects and thereby contribute to sustainable rural development. The empowerment of rural communities should provide the foundation for strengthening villagers' self-confidence, self-efficacy, and self-determination within the process of local governance. In other words, empowerment should move away from a condition characterized by *power over* and

domination toward one based on *power with* and *power within*, thereby fostering greater self-awareness and participation among villagers. According to Rowlands (1995), when villagers' empowerment is directed toward *power within*, it can significantly enhance their participation in local governance processes and, consequently, contribute to the various dimensions of sustainable development. In this sense, local empowerment is important because it can generate sustainable cycles of empowerment. The process of local empowerment encourages the conscious and active participation of rural residents in community affairs. Like many other social processes, empowerment develops gradually, beginning with small-scale experiences through which people learn to collaborate, discuss how they influence their environment, share their experiences, recognize their common needs for shared resources, and jointly design strategies to improve existing conditions. Furthermore, appropriate planning aimed at enhancing villagers' capacities can substantially strengthen participatory processes and support sustainable rural development. The findings of this study have clear implications for territorial policymaking in the arid and desert regions of Iran. Given that the studied villages are located in the vicinity of the Lut Desert and the Dasht-e Kavir and face severe challenges, including water scarcity, aridity, and environmental constraints, strengthening the structural empowerment of rural residents through enhancing the intrinsic characteristics of local governance can serve as a key strategy for environmental planning and the sustainable management of these regions. These findings highlight the importance of investing in environmental education, empowering local communities in the management of water and soil resources, and delegating greater authority to local institutions to improve adaptation to arid climatic conditions. Consistent with the findings of this study, future research should further investigate the role of local governance in strengthening components such as social capital, social exchange, flexibility, and the delegation of authority by employing more comprehensive theoretical perspectives, including Social Exchange Theory, Social Capital Theory, Stakeholder Theory, and Flexibility Theory. In addition, future studies should examine the role of non-governmental

organizations and other stakeholders in enhancing villagers' empowerment and facilitating the transition from *power over* to *power within*.

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