

# Impact of Social Capital on Poverty Reduction: The Moderating Role of Youth Empowerment in North Central States of Nigeria

Shiaki Tsokwa Kweseti, Nasamu Gambo

Department of Business Administration and Entrepreneurship, Nile University of Nigeria, Abuja

doi: <https://doi.org/10.37745/ijbsber.2013/vol14n27594>

Published June 11, 2026

---

**Citation:** Kweseti S.T., and Gambo N. (2026) Impact of Social Capital on Poverty Reduction: The Moderating Role of Youth Empowerment in North Central States of Nigeria, *International Journal of Small Business and Entrepreneurship Research*,14, (2),75-94

---

**Abstract:** *This study is to examine the influence of social capital on poverty reduction with the moderating role of youth empowerment in the North Central States of Nigeria. The motivation of the study is linked to the fact that the region is facing continued poverty in spite of the existence of robust community networks and youth populations. The focus of this study is on three dimensions of social capital namely cooperative membership, social media membership, and social club membership, while youth empowerment is used as a moderating variable. A descriptive survey design was adopted and data were collected from 459 respondents using a structured 5-point Likert questionnaire. A correlation and multiple regression analyses were used to investigate the inter-relationships between the variables. The results indicate that social capital has a significant contribution to poverty reduction as the  $R^2$  is 0.653 which means 65.3% of the variance in poverty reduction is accounted for by the predictors. Youth empowerment was the most influential ( $B=0.511$ ,  $p<0.001$ ), followed by cooperative membership ( $B=0.281$ ), social media membership ( $B=0.305$ ) and social club membership ( $B=0.198$ ) showing significant association. The study has recommended strengthening of cooperative networks, expanding digital inclusion and targeted youth empowerment programmes to improve poverty reduction outcomes.*

**Keywords:** Poverty reduction, social capital, cooperative membership, social media membership, and social club membership, youth empowerment

---

## INTRODUCTION

Poverty continues to be a persistent socio-economic challenge in many developing countries, especially in Sub-Saharan Africa where there are still very limited access to productive resources, employment opportunities, and social support systems to support sustainable development. Recent studies demonstrate that poverty in rural communities and its relationship to low access to information, financial resources and productive networks that may enhance livelihood opportunities (Shiaki et al,

2024; Wu et al, 2023). In response to these challenges, there has been growing emphasis from academics and development practitioners to the importance of social capital as a critical driver of the reduction of poverty, as social relationships and networks facilitate cooperation, information exchange and collective economic activities. Social capital facilitates access to resources, information generation and community resilience, which results in better welfare outcomes among households. Empirical evidence shows that having strong social networks has a significant impact in increasing income generation and reducing vulnerability amongst rural populations (Ren et al, 2023). Similarly, Zhu et al. (2024) found that social capital alleviates household energy poverty by increasing people's access to financial support and capability to meet basic needs.

In many developing economies, social capital is in the form of taking part in community organisations and cooperatives and increasingly in digital networks that make economic collaboration and knowledge sharing easy. Cooperative membership allows the assemblage of resources, access to market information and joint solutions to production problems which results in enhanced income chances amongst members (Zhang & Zhao, 2024). In addition to traditional networks, digital platforms and social media communities have arisen as novel forms of social interactions that support the exchange of economic information and the creation of larger social connexions. These digital interactions allow people to access market information, employment opportunities and entrepreneurial networks that can enable them to do better economically. Research has found that digital social networks boost social capital by increasing people's access to information and economic opportunities (Van Ninh & Van Tam, 2026). Furthermore, involvement in social clubs and community organisations fosters trust and reciprocity between members that boosts cooperation and collective economic activities that contribute to poverty reduction (Parvin et al., 2023).

Despite the potential benefits of social capital, poverty still persists in many parts of Nigeria and especially in the North Central states where agriculture and informal economic activities are the major sources of livelihood. Despite the region's significant agricultural potential, many households still encounter challenges such as poor access to finance, poor infrastructure and low levels of productivity. Studies show that social capital has a significant role in enhancing agricultural productivity and economic well-being in the region by participating in cooperative societies and other social networks (Shiaki et al., 2026). However, the impact of these networks in helping to reduce poverty, may rely on people's capacity to make use of available opportunities in these networks. Youth empowerment has therefore been recognised as a key factor in strengthening the effectiveness of social capital by equipping young people with skills, knowledge and access to productive resources (Parvin et al., 2023). There is also evidence that agencies that empower people are better equipped to use social networks and economic opportunities to help them improve their livelihoods and lessen their vulnerability (Shiaki et al., 2024; Zhang & Zhao, 2024).

Nevertheless, the existing literature has often concentrated on investigating the linear relationship between social capital and economic outcomes and has not sufficiently examined the mechanisms that social networks play in poverty reduction. Several studies report the positive association between social capital and better welfare outcomes, but the role of various aspects of social participation such as cooperative membership, social media membership, and social club membership has not been explored in enough detail in many developing economies. Recent empirical evidence indicates that

social capital can play an important role in improving livelihood outcomes through social capital that boosts access to information, financial support and cooperation in the community (Ren et al., 2023). However, there is scanty empirical research on the interplay between social capital and empowerment initiatives particularly in Nigerian context. Zhu et al. (2024) further emphasise how the benefits of social capital are often conditional on the context including the access to information, institutional support and the individual capabilities.. Consequently, investigating the moderating role of youth empowerment is crucial toward understanding the role of social networks in poverty reduction.

Against this background, this study discusses the role of social capital in poverty reduction focusing on the moderating role of youth empowerment in North Central Nigeria. Specifically, the study addresses cooperative membership, social media membership, and social club membership as key dimensions of social capital that may affect the outcomes of poverty reduction. The research aims to find out how these various forms of social participation have contributed to improving the household welfare and reducing poverty among people in the region. By adding the concept of youth empowerment to the analysis, the research gives a deeper insight into how empowerment initiatives help people increase their ability to make effective use of social networks in relation to economic activities. Recent research indicates the value of the empowerment programmes with regards to support the social capital and promote inclusive social development (Van Ninh and Van Tam, 2026). Ultimately, the outcomes of such research are projected to contribute to the policy discussion about alleviating poverty by providing evidence-informed insights on which to base interventions that aim at strengthening the social network, young adult empowerment and sustainable economic development (Wu et al., 2023).

## Literature Review

### Conceptual Consideration

**Poverty Reduction:** Poverty reduction involves the process of improving standards of living of individuals and households by influencing the increase in income, access to resources and economic opportunities. It is related to policies and interventions, increasing livelihoods, decreasing vulnerability, and furthering sustainable development by improved access to education, employment and finance, and social support systems (Zhang et al., 2017). Empirical studies found that social capital and community participation may play a useful role in reducing poverty both in terms of income-generation and in strengthening social support networks and easing the access to productive resources (Wu et al., 2023; Ren et al., 2023).

**Cooperative Membership:** Cooperative membership is the participation of individuals in the functional groups organised for the common purposes of economic, social or production-related goals and objectives. Such memberships give the members access to shared resources, market information, and financial services, and have the collective power for bargaining for better productivity and income generation (Tenzin et al., 2015; Shiaki et al., 2026). Researches indicate that cooperative participation represents an important factor in bridging the development of social capital and economic improvement among farmers in the sense that it helps foster the exchange of knowledge, as well as facilitating access to agricultural inputs (Zhang & Zhao, 2024; Wu et al., 2023).

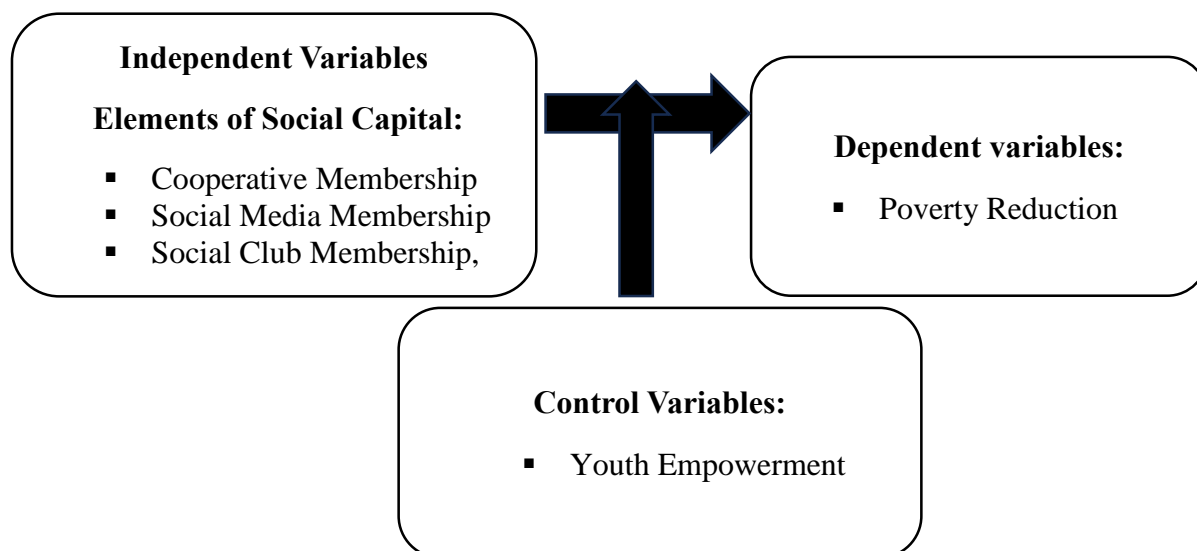
Publication of the European Centre for Research Training and Development-UK

**Social Media Membership:** Social media membership is the participation of individuals using social media platforms and digital networks which can be used to communicate, exchange information and socialise. These platforms allow users to access knowledge, create social connexions and engage in digital communities that facilitate economic and social activities (Shiaki et al., 2026; Van Ninh & Van Tam, 2026). Research suggests that social media networks play a part in the building of social capital by increasing information access while helping individuals connect with larger economic and professional networks (Carrasco et al., 2024; Waseem et al., 2024).

**Social Club Membership:** Social club membership is membership in informal or formal social clubs that foster interaction, networking, and support among the members. These clubs often have an added benefit of strengthening bonding and bridging social capital by fostering trust, cooperation and collective engagement among communities (Shiaki et al., 2024). Empirical evidence shows that club membership facilitates people's access to social support, information and opportunities that can improve livelihoods and mitigate soci-economic vulnerability (Zhang et al., 2017; Parvin et al., 2023).

**Y**

**outh Empowerment:** Youth empowerment refers to the process of empowering young people with the necessary skills, knowledge, resources, and opportunities they need to be actively involved in the economic and social development process. It looks to boost the agency, decision-making capacity, and access of young people to education, finance, technology, and leadership opportunities (Shiaki et al., 2024). Studies reflect with empowered youth being able to utilising social networks, adopting innovative practises as well a productive activities towards improved livelihoods and poverty reduction (Shiaki et al., 2026; Parvin et al., 2023).



**Figure 2.1 Conceptual Framework**

**Sources: Shiaki et al. (2024)**

The relationship between the components of social capital, such as cooperative membership, social media membership, and social club membership, and poverty reduction has received a great deal of empirical attention in the development literature. Cooperative membership promotes a reduction in

poverty as it helps people gain access to shared resources, financial support, market information, and collective bargaining opportunities that support someone's ability to generate income and maintain their livelihood (Tenzin et al., 2015; Zhang et al., 2017). Similarly, social media membership allows for the dissemination of information, knowledge sharing, and networking opportunities making economic activities improve and access to markets and employment opportunities to expand (Van Ninh & Van Tam, 2026; Carrasco et al., 2024). Social club membership also helps in poverty reduction by building trust, reciprocity, and social cohesion in the community, which consequently brings about an informal support system and opportunities for economic collaboration (Putnam, 2000; Wu et al., 2023). However, the power of these dimensions of social capital in poverty reduction is often enhanced by youth empowerment, such that it provides greater capacity for people to use networks effectively with improved skills, access to finance, leadership, and digital literacy (Sen, 1999; Zimmerman, 2000). Further empirical evidence indicates youth empowerment's ability to mediate or moderate the relationship between social capital and economic outcomes in the form of increased ability of individuals to mobilise social resources to engage in productive activities and livelihood improvement (Shiaki et al., 2026; Parvin et al., 2023). Consequently, there is an important interaction between social capital networks and youth empowerment when focusing on sustainable poverty reduction and inclusive development.

### **Theoretical Background**

This study is anchored on Social Capital Theory, which emphasises the value embedded in social networks, trust, shared norms, and relationships that facilitate cooperation and collective action for mutual benefit. The theoretical bases of social capital have been advanced by Bourdieu, Coleman, and Putnam, who stated that social relationships represent valuable resources that individuals and communities can harness to achieve socio-economic advancement (Bourdieu, 1986; Coleman, 1988; Putnam, 2000). Social capital increases people's access to information, economic support, employment opportunities, and institutional resources through their involvement in social networks and associations. Empirical studies have demonstrated that strong social networks contribute to a better welfare outcome and poverty reduction. For instance, Zhang et al. (2017) found that structural and relational dimensions of social capital significantly reduce household poverty through access to political, business, and community networks. Similarly, Ren et al (2023) highlighted that social capital assists households in overcoming economic constraints and energy poverty by way of enhanced resource sharing and cooperation. In addition, individual households gained substantial increases in income in rural areas and reduced chances of poverty (Wu et al., 2023), and social networks improved access to financial and informational resources by households, reducing energy poverty (Zhu et al., 2024). These studies together strengthen the theoretical argument that social capital is an important informal institution that can enhance the living situation and sustainable development.

The study is also anchored on the Empowerment Theory, which focuses on the process of enhancing the capacity and the power of individuals as they are considered to have greater control over decisions that influence their socio-economic well-being. Empowerment theory which was made famous by the work of scholars such as Zimmerman and Sen, argues that when people are empowered to equip themselves with skills, knowledge, access to resources and opportunities for participation it will be easier for them to change their living circumstances for the better and play a role in the development process (Sen, 1999; Zimmerman, 2000). Within the context of poverty reduction, empowerment

---

Publication of the European Centre for Research Training and Development-UK

increases the ability of individuals to utilise available resources and social networks more effectively. For instance, Shiaki et al. (2026) showed that youth empowerment has a significant effect on the relationship between social capital and agricultural productivity in North Central Nigeria by improving young farmers' ability to utilise cooperative networks and digital platforms. Similarly, Parvin et al. (2023) found that the use of empowerment, civic participation, and social networks in reducing poverty and improving access to economic control among vulnerable women. Zhang and Zhao (2024) further emphasised on the essentiality of social capital to be more effective in improving livelihoods if an individual has the capability and agency to mobilise available networks and opportunities. In addition, Mertzanis and Houcine (2026) noted that empowered individuals and organisations can be more effective in using institutional social capital to overcome financial constraints and improve economic performance. These perspectives suggest that empowerment is a critical mechanism used to enhance the effectiveness of social capital to advance inclusive development and poverty reduction.

### **Empirical Review**

Zhu et al. (2024) empirically studied the correlation between social capital and energy poverty based on a four-period longitudinal dataset from 2018 to 2021 in the National Key Ecological Function Zones in Northeast China. Using two-way fixed effects and mediating effect models, the study established that social capital has a significant impact on the reduction of energy poverty of residential households. The findings suggest that households that are embedded in strong social networks benefit from better access to information, financial support, and community cooperation that boosts their ability to overcome energy needs. Similarly, Ren et al. (2023) found that social capital makes a positive contribution to reducing energy poverty as they strengthen networks within households, which facilitate the sharing of resources and access to energy-related information. Li et al. (2025) showed further that social capital is associated with less energy poverty in rural areas, as a result of increased household income, better access to informal finance and better health. In addition, Wu et al. found that social capital plays an important role in raising household income and alleviating absolute and relative poverty in rural households.

The mechanisms by which social capital affects welfare outcomes have also received much empirical attention. Zhu et al. (2024) revealed that social capital indirectly reduced energy poverty by encouraging borrowing and lending behaviour among households and improving their perception of energy services. These findings are consistent with the reasoning that social capital promotes access to valuable resources that are embedded in social networks, including business and political connexions that bring about poverty reductions, Zhang et al. (2017). Supporting this view, Zhang and Zhao (2024) stated that diverse forms of strong social ties enable farmers to mitigate their livelihood vulnerability by increasing social support opportunities and collective economic opportunities. Similarly, Harrison et al (2019) have established that communities with higher levels of social capital are associated with poorer levels of poverty, which indicates that strong networks in communities result in high levels of overall welfare and economic stability.

Also, empirical studies underline the importance of social capital in improving productivity and economic performance in rural economies. Shiaki et al (2026) found that social capital plays a significant role in increasing the productivity of agricultural output among smallholder farmers in North-Central Nigeria through cooperative participation, social media interaction and social club

---

Publication of the European Centre for Research Training and Development-UK membership. The study further revealed that such youth empowerment enhances the benefits reaped from social networks through improving access to information, finance, and modern agricultural technologies by farmers. In a similar context, Tenzin et al. (2015) reported that the participation in community groups significantly lowers rural household poverty in Bhutan due to better access to non-farm income opportunities. Wu et al. (2023) also explained that the social capital enhances income diversification among rural households, thereby leading to poverty reduction. In addition, Zhang et al. (2017) have confirmed that structural as well as relational dimensions of social networks have a significant influence on household poverty outcomes.

Beyond economic productivity, social capital has been demonstrated to reduce the vulnerability and resilience of marginalised populations to livelihoods. Zhang and Zhao (2024) showed the key role of social capital in reducing the vulnerability of livelihood among farmers through the enhancement of cooperation, information, and mutual support in communities. Similarly, Parvin et al. (2023) found that the relationship between social networks, trust, and civic participation are important in poverty reduction and improved empowerment among displaced women who are living in urban slums. Galarza-Villamar et al (2024) also highlighted the role of bonding and bridging social capital in enhancing the resilience of smallholder farmers exposed to flood risks in Ecuador. In a broader view, Waseem et al. (2024) concluded that social capital interestingly enhances disaster preparedness and recovery capacity of the communities through social networks, risk perception, and community collaboration.

Despite the positive contributions of social capital to the reduction of poverty, some studies suggest that its effects may differ depending on factors in the context and institutions. Zhu et al. (2024) found that the effect of social capital on energy poverty has differentiated impacts across households based on factors such as information access, housing status or involvement in business activities. Cheng et al (2022) also found that people with higher social capital networks might be much more likely to share poverty alleviation programme benefits disproportionately, at times excluding poorer households with weaker social capital networks from deriving the benefits. Harrison et al. (2019) further proved that the narrower availability of social capital through poverty can be determined because economically poor households may not have the means needed to sustain social relationships. Additionally, Zhang and Zhao (2024) also claimed that the increasing inequality in income can impair the process of social capital accumulation at the level of poor farmers due to the fact that the cost of sustaining social relationships may surpass the benefits.

Furthermore, institutional and socio-economic environments have an important role to play in determining the effectiveness of social capital in tackling development challenges. Mertzanis and Houcine (2026) found that higher levels of institutionalised social capital significantly reduce financing constraints among firms across developing countries, in turn improving access to financial resources for economic activities. Similarly, Abakah (2024) showed that social capital facilitates information transparency and trust, which results in low underwriting costs in financial markets. Carrasco et al. enclosed significance of social capital in being a way to foster community resilience through promoting collaboration, trust, and collective actions in times of crises and disasters. In addition, Van Ninh and Van Tam (2026) elevated the concept of social capital in promoting social

Publication of the European Centre for Research Training and Development-UK participation and sustainable development in rural communities by means of collaborative government and stakeholder involvement.

Despite all the growing literature on social capital and poverty reduction, there are still a number of gaps. Many of the existing studies have focused on the direct relationship between social capital and poverty outcomes without paying adequate attention to the interaction among various factors, such as cooperative membership, social media membership, and social club membership, as these factors interact with each other to affect the poverty reduction process (Wu et al., 2023; Zhang et al., 2017). In addition, there has been little empirical interest in the mediating role youth empowerment plays in mediating these relationships, especially in developing economies. Furthermore, most of the studies are focused on Asian situations with a lack of empirical record on North Central Nigeria (Ren et al., 2023; Zhu et al., 2024).

## METHODOLOGY

The research adopted descriptive survey research design approach in conducting the study with the help of structured questionnaire to gather data from respondents in North-Central states of Nigeria to investigate the issue on the impact of social capital on poverty reduction as well as the role of youth empowerment in moderating poverty reduction. The design allowed for the systematic collection and analysis of quantitative data relating to cooperative membership, social media membership, social club membership, youth empowerment and poverty reduction. Statistical techniques used to analyse the relationships pertaining between the variables and assess the moderating effect of youth empowerment, thus creating evidence for policy-relevant information for poverty reduction in the region.

### Population and Sample

The estimated number of youth in the North Central region is 11,260,621 as shown in table 1. Owing to the large population size, Krejcie and Morgan (1970) determination of sample size technique adopted to acquire the representative sample. This method is suitable for large populations and it allows statistical reliability (Shiaki et al., 2026; Uzochukwu et al., 2025).

$$\frac{x^2 N P (1-P)}{e^2(N-1)+x^2P(1-P)} \quad (1)$$

$x^2$ =Chi-Square (3.841) at 95% level of confidence; e=Margin of error, N=Population (11,260,621), P=Proportion of Population (40%)

$$\frac{3.841 * 11,260,621 * 0.4 * 0.6}{0.05^2 * (11,260,621 - 1) + (3.841 * 0.4 * 0.6)} = \frac{10,380,490.9}{0.0025 * 11,260,620 + 0.92184}$$

$$= \frac{10,380,490.9}{28151.55 + 0.92184} = \frac{10,380,490.9}{28152.4718} = 369 \text{ approx}$$

Due to the large population size, it was considered necessary to increase the determined sample size by 30% in order to enhance representativeness and reliability. Consequently, the adjusted sample size for the study was 480 respondents (Shiaki et al., 2026).

**Table 1: Estimated Youth Population in North Central Nigeria**

State / Territory	Estimated Youth	Sample
Benue	2,187,531	$\frac{2,187,531}{11,260,621} * 480 = 93$
Kogi	1,591,074	$\frac{1,591,074}{11,260,621} * 480 = 68$
Kwara	1,264,866	$\frac{1,264,866}{11,260,621} * 480 = 54$
Nasarawa	1,027,993	$\frac{1,027,993}{11,260,621} * 480 = 44$
Niger	2,416,211	$\frac{2,416,211}{11,260,621} * 480 = 103$
Plateau	1,680,302	$\frac{1,680,302}{11,260,621} * 480 = 72$
FCT (Abuja)	1,092,644	$\frac{1,092,644}{11,260,621} * 480 = 46$
<b>TOTAL</b>	<b>11,260,621</b>	<b>480</b>

Source: Author's Computation with Information from the Nigeria Population Commission

### Model Specification

In examining the impact of social capital on poverty reduction in the North Central States of Nigeria, this study adapts an augmented empirical model consistent with previous studies that examine the impact of different dimensions of social capital on welfare outcomes (Shiaki et al., 2024; 2026). The functional relationship is specified as:

$$PVT_i = \varphi_0 + \varphi_1 COM_i + \varphi_2 SOM_i + \varphi_3 SOC_i + \varepsilon_i \quad (2)$$

PVT is poverty reduction among respondents in the North Central States of Nigeria, COM is cooperative membership, SOM is social media membership, SOC is social club membership and  $\varepsilon$  is the stochastic error term capturing some other factors that can affect poverty reduction not in the model. These variables have been included because the involvement in social networks leads to improved access to information after the financial and cooperative opportunities that improve household welfare (Wu et al., 2023). Similarly, Ren et al. (2023), highlight that social capital improves increase living conditions with participation of cooperation and sharing of resources.

In addition, youth empowerment (YOE) is included as a moderating variable, since it affects the ability of individuals to make good use of social networks to improve their economy. Youth empowerment- this entails skills acquisition, opportunities for leadership, digital literacy, and access to finance or technology- becomes a basic position to empower individuals to challenge their social connections in a productive opportunity (Parvin et al., 2023). Empirical studies also suggest that empowered people are better able to use social capital and improve livelihoods, which reduces poverty (Zhang & Zhao, 2024). Therefore, interaction to understand the moderating effect of empowerment on the model.

$$PVT_i = \varphi_0 + \varphi_1 COM_i + \varphi_2 SOM_i + \varphi_3 SOC_i + \varphi_4 YOE_i + \varepsilon_i \quad (3)$$

Publication of the European Centre for Research Training and Development-UK

Youth empowerment (YOE) is a process to bolster the impact of social capital (cooperative membership, social media membership, and social club membership) in improving livelihoods and poverty reduction. Empowered youth who have acquired skills, digital literacy, and access to resources have a better ability to utilise the opportunities and information from social networks for their economic opportunities and information exchange (Parvin et al., 2023; Zhang & Zhao, 2024). As a result, empowerment invigorates people's ability to make use of social capital for improved welfare and sustainable development (Wu et al., 2023; Zhu et al., 2024). Thus:

$$PVT_i = \varphi_0 + \varphi_1 COM_i + \varphi_2 SOM_i + \varphi_3 SOC_i + \varphi_4 YOE_i + \varphi_5 (COS * YOE)_i + \varphi_6 (SOM * YOE)_i + \varphi_7 (SOC * YOE)_i + \varepsilon_i \quad (4)$$

### Method of Data Analysis

Three dimensions of social capital such as cooperative membership (COM), social media membership (SOM), and social club membership (SOC) among the youth in North-Central Nigeria was analysed from three dimensions namely the use of correlation and multiple regression analysis to ascertain the influence of social capital to the all poverty reduction (PR) among utmost Nigeria youth (Shamaki et al., 2022; Yusuf et al., 2023; Uzochukwu et al., 2025). Data was collected using a structured 5-point Likert scale questionnaire, which in turn allowed the estimation of the individual and combined effects of COM, SOM, and SOC on poverty reduction. This approach corresponds with the objective of the study, which was to find out which social networking channels can contribute significantly to the improvement of livelihoods and poverty reduction within the regional context.

The model was further expanded to evaluate the moderating effect of youth empowerment (YOE) in the linkage of social capital to the reduction of poverty. Youth empowerment (estimated through capabilities such as skills acquisition, leadership development, digital literacy, access to finance, and technology) to understand whether it accentuates or attenuates the effects social capital have on the outcomes of poverty. These conditional effects were modelled using interaction terms (COM\*YOE, SOM\*YOE, SOC\*YOE). The coefficient of determination (R<sup>2</sup> and Adjusted R<sup>2</sup>) to estimate the proportion of variance in poverty reduction explained by the predictors and/or significance tests to determine the most important variables was performed. In addition, the diagnostic tests, namely the Variance Inflation Factor (VIF), Tolerance values, and Durbin-Watson statistics, were performed to measure multicollinearity and residual independence. This analytical framework offers some empirical insights for prioritising empowerment initiatives and strengthening social network channels to improve poverty reduction in the region.

### Validity and Reliability of Research Instrument

The validity and reliability of the 5-point Likert scale questionnaire designed for assessing the social capital, youth empowerment, and poverty reduction was established and confirmed through expert review, pilot-testing and statistical analysis. Face and content validity were also evaluated through the assessments of a group of academics and practitioners working in the field of development economics and rural development and the assessment of the clarity, relevance and compatibility of the instrument with the constructs of cooperative membership, social media membership, social club membership, youth empowerment and poverty reduction. A pilot survey of some individuals in the study area was conducted to refine the words used as in the questionnaire and uniform the scales of measurement.

**Table 2: Reliability Statistics**

<b>Variables</b>	<b>Cronbach's Alpha</b>	<b>Cronbach's Alpha Based on Standardised Items</b>	<b>N of Items</b>
Poverty Reduction	0.807	0.836	10
Cooperative Membership	0.819	0.861	10
Social Media Membership	0.817	0.857	10
Social Club Membership	0.843	0.892	10
Youth Empowerment	0.822	0.845	10

Sources: Author's Computation, 2026

The reliability of the instrument was analysed using the Cronbach's Alpha test, which showed that there is a high level of internal consistency of all the variables (above 0.70 as a recommended level). The reliability result, it is found that the results of the reliability is satisfactory for Poverty Reduction ( $\alpha = 0.807$ ; standardised  $\alpha = 0.836$ ), Cooperative Membership ( $\alpha = 0.819$ ; standardised  $\alpha = 0.861$ ), Social Media Membership ( $\alpha = 0.817$ ; standardised  $\alpha = 0.857$ ), Social Club Membership ( $\alpha = 0.843$ ; standardised  $\alpha = 0.892$ ) and Youth Empowerment ( $\alpha = 0.822$ ; standard  $\alpha = 0.845$ ). These results confirm that the measurement instrument is reliable and fit to analyse the relationship between social capital, youth empowerment and poverty reduction in the study.

## RESULTS AND DISCUSSIONS

Table 3 presents the demographic distribution of the responses of the questionnaires. Out of 480 questionnaires administered, 459 were successfully returned representing 95.6% response rate, while 21 questionnaires (4.4%) were not retrieved. This high response rate shows good involvement and is a good basis for analysis. With regard to the age distribution, 131 (28.5%) were in the age group of 15 -20 years, 206 (44.9%) were in the age group 20 -30 years while 122 (26.6%) were in the age group 30 years and above, which shows that most of the respondents were young adults in the age group of active working age.

The educational distribution of the respondents has varied levels of education qualifications. 124 respondents (27.0%) have SSCE/NCE/ND qualifications, 240 respondents (52.3%) have HND/BSc degrees, and 95 respondents (20.7%) have MSc/PhD qualifications. This explains that more than half of the respondents had tertiary education in the undergraduate level, which is likely an indication of a relatively educated sample to be able to understand the survey questions. The distribution also represents a balanced representation of educational backgrounds which enhances the credibility of the responses obtained for analysing social capital, youth empowerment and poverty reduction.

**Table 3: Demographic Analysis of the Questionnaire**

1	Distribution	Distributed		Received
		480		459
2	Participant's Age	15-20	20-30	30 and above
		131	206	122
3	Education	SSCE/NCE/ND	HND/BSC	MSC/Ph.D
		124	240	95

Source: Author's Compilation

### Descriptive Statistics and Correlation

Table 4 shows the descriptive statistics of the variables used by the study. The mean values generated in this study show that the mean values of cooperative membership (COM = 4.124), social media membership (SOM = 4.133), social club membership (SOC = 4.138), youth empowerment (YOE = 4.128), and poverty reduction (PVT = 4.144) are all above 4.0 of a 5-point Likert scale, showing that the respondents generally agreed with the statements relating to the aforementioned constructs. The standard deviations, which range between 0.475 and 0.552 are also fairly low, implying that there is limited variability in the responses and a high level of consistency among the respondents. Additionally, the values of negative skewness (-0.297 to -0.725) suggest that there is slight skewing in the responses towards higher ratings, and the values of kurtosis (0.153 to 1.538), which are positive, suggest moderately peaked distributions around the mean.

Panel B displays the correlation matrix, which indicates the magnitude and sign of relationships between the variables in the matrix. All variables have positive and statistically significant correlations at 1% significance level which indicates that there are meaningful correlations between social capital components, youth empowerment and poverty reduction. Social club membership (SOC) has the highest correlation with the reduction in poverty ( $r = 0.644$ ), indicating that social club participation may be significant for the improvement in welfare situation. Youth empowerment is also shown to have a moderately strong relationship with poverty reduction,  $r = 0.527$ , thus says the importance of youth getting empowered to utilise social networks effectively. Social media membership ( $r = 0.378$ ) and cooperative membership ( $r = 0.265$ ) also present positive but relatively weaker correlation with poverty reduction. Overall, the results show that being more involved in the social networks and having a higher level of youth empowerment are related to achieving a greater reduction of poverty among respondents.

**Table 4: Descriptive Statistics and Correlation Matrix**

Panel A: Descriptive Statistics					
Statistics	COM	SOM	SOC	YOE	PVT
N	459	459	459	459	447
Range	3.55	3.45	3.35	3.55	3.55
Minimum	1.0	1.0	1.0	1.0	1.0
Maximum	5.0	5.0	5.0	5.0	5.0
Sum	1294.9	1275.3	1276.9	1276.9	1267.9
Mean	4.124	4.133	4.138	4.128	4.144
Std. Deviation	0.475	0.549	0.531	0.505	0.552
Skewness	-0.725	-0.297	-0.556	-0.583	-0.574

## Publication of the European Centre for Research Training and Development-UK

Kurtosis	1.444	0.153	1.359	1.538	1.367
Panel B: Correlation Matrix					
Variables	COM	SOM	SOC	YOE	PVT
COM	1	0.438**	0.416**	0.389**	0.265**
SOM	0.438**	1	0.548**	0.469**	0.378**
SOC	0.416**	0.548**	1	0.531**	0.644**
YOE	0.389**	0.469**	0.531**	1	0.527**
PVT	0.265**	0.378**	0.644**	0.527**	1

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

### Social Capital and Poverty Reduction

The results of the stability and reliability of the model obtained from regression in Table 5 in examining the effect of social capital on poverty reduction. The value of R-squared is 0.653, which means that 65.3% of the variation in poverty reduction (PVT) is explained by the independent variables-cooperative membership, social media membership, social club membership, and youth empowerment. The adjusted R-square of 0.571 indicates that after controlling for the number of predictors, 57.1% of the variation in poverty reduction still remains to be accounted for by the model, indicating its explanatory strength. The Durbin-Watson statistic is close to the ideal value 2; it is 2.015, so there is no autocorrelation in the residuals. Furthermore, the Variance Inflation Factor (VIF), which range from 1.284 to 1.787 and the tolerance values exceeding 0.5 show that no multicollinearity problem of any seriousness exists in the set of independent variables, proving the stability of the regression estimates. The regression coefficients further show that cooperative membership (COM) has a positive and statistically significant influence on the reduction of poverty ( $B = 0.281$ ,  $p = 0.002$ ). This implies that the more people are engaged in participating in cooperative societies, the better their welfare and livelihood outcomes are among the respondents. Similarly, social media membership (SOM) is found to have a positive and significant association with poverty reduction ( $B = 0.305$ ,  $p = 0.000$ ), hence, it is possible that people who engage in the social media networks get to access valuable information, opportunities and economic relationships that can lead to improved incomes and welfare. Social club membership (SOC) also has a positive and significant impact on alleviation of poverty ( $B = 0.198$ ,  $p = 0.037$ ) which suggests that social club membership helps to strengthen social support mechanisms and group action that can contribute to improving economic conditions.

**Table 5 Impact of Social Capital on Poverty Reduction**

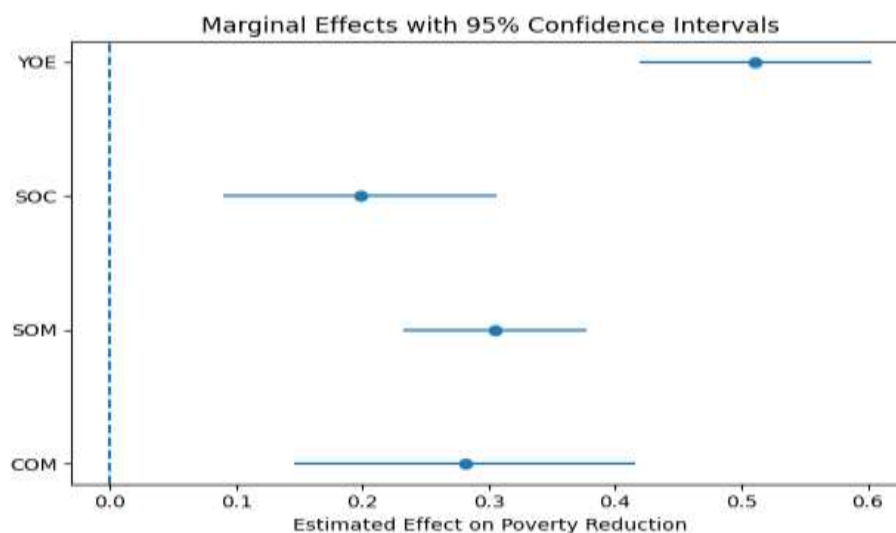
	Unstandardised Coefficients		Standardised Coefficients		t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta				Tolerance	VIF
(Constant)	0.346	0.252			2.592	0.001		
COM	0.281	0.069	0.137		3.216	0.002	0.761	1.284
SOM	0.305	0.037	0.245		3.165	0.000	0.623	1.622
SOC	0.198	0.055	0.094		2.633	0.037	0.759	1.347
YOE	0.511	0.047	0.416		6.304	0.000	0.566	1.787
R-Square	0.653		Adjusted R-Square		0.571		Durbin Watson	2.015

a. Dependent Variable: PVT-Poverty Reduction.

b. Independent Variable: COM-Cooperative Membership; SOM-Social Media Membership; SOC-Social Club Membership; YOE-Youth Empowerment

Publication of the European Centre for Research Training and Development-UK

The results further indicate that youth empowerment (YOE) has the strongest influence on the reduction of poverty among the considered variables in the model ( $B = 0.511$ ,  $p = 0.000$ ). This implies youth empowering youth through skills development, access to resources and leadership opportunities adds considerably to their ability to improve their livelihoods. The relatively high value of the standardised beta values ( $\beta = 0.416$ ) confirms the fact that youth empowerment has an important role to play in enhancing poverty reduction outcomes. Overall, the results show that the dimensions of social capital, namely cooperative membership, social media membership and social club membership, in conjunction with youth empowerment are key contributing factors to reduce poverty among the respondents in the North Central region of Nigeria.



**Figure 1 Marginal Effect Plot**

The marginal effects plot presents the estimated effect of cooperative membership (COM), social media membership (SOM), social club membership (SOC) and youth empowerment (YOE) on poverty reduction (PVT). The dots correspond to the estimated coefficients and the horizontal bars correspond to the confidence interval 95% and the dashed line is the vertical line indicating the absence of an effect. The graph reveals that the strongest marginal effect is for YOE suggesting that increases in youth empowerment have a substantial positive effect on poverty reduction. SOM and COM also have some significant positive impacts, implying that information and economic opportunities are increased through digital networking and cooperative participation. Although SOC is relatively less significant, its positive confidence interval shows that SOC participation in social clubs still has a contribution to increased welfare among the respondents. Overall, the plot proves that strengthening youth empowerment coupled with social capital networks do add significantly to poverty reduction for the North Central States of Nigeria.

### **The Moderating Effect of Youth Empowerment**

The results of regression in Table 6 illustrate the stability and reliability of the mediating model that analyses the effect of youth empowerment in the relationship between social capital and reducing poverty. The R-square value of 0.699 shows that 69.9% variation in poverty reduction (PVT) is

Publication of the European Centre for Research Training and Development-UK explained by the interaction between youth empowerment and the social capital variables. The adjusted R-square equals .564 indicates that with the number of predictors we are left with 56.4% of the variation of poverty reduction explained by this model, which confirms that it has explanatory power. The Durbin-Watson statistic of 2.011 is quite close to an ideal value of 2, suggesting there is no autocorrelation problem in the residuals. In addition, the range of Variance Inflation Factor (VIF) values between 3.628 and 5.824 and tolerance values exceeding 0.10 indicates that there is little multicollinearity, indicating the stability of the model.

**Table 6: Mediating Effect of Youth Empowerment on the Impact of Social Capital on Poverty Reduction**

	Unstandardised Coefficients		Standardised Coefficients		Sig.	Collinearity Statistics	
	B	Std. Error	Beta	t		Tolerance	VIF
Constant	-0.403	1.146		-0.352	0.725		
YOE	2.342	0.237		9.642	0.000		
COM*YOE	1.205	0.142	0.214	2.797	0.002	0.133	5.824
SOM*YOE	0.825	0.123	0.266	3.456	0.000	0.258	3.628
SOC*YOE	0.949	0.134	0.279	3.755	0.000	0.169	5.247
R-Square	0.699	Adjusted R-Square		0.564	Durbin Watson		2.011

a. Dependent Variable: PVT- Poverty Reduction.

b. Independent Variable: COM-Cooperative Membership; SOM-Social Media Membership; SOC-Social Club Membership; YOE-Youth Empowerment; COM\*YOE-Cooperative Membership\*Youth Empowerment; SOM\*YOE-Social Media Membership\*Youth Empowerment; SOC\*YOE-SC-Social Club Membership\*Youth Empowerment

The results further show that youth empowerment (YOE) has a strong and statistically significant positive effect on the reduction of poverty ( $B = 2.342$ ,  $p = 0.000$ ). This means that improvements in youth empowerment - through skills development, leadership opportunities, digital literacy, and access to financial or technological resources - significantly improve poverty reduction outcomes among respondents. The large t-value (9.642) confirms that youth empowerment plays a critical role in the socio-economic conditions improvement of an individual in the North Central region. This finding suggests that empowered youth are better placed to utilise available opportunities, networks, and resources to improve their livelihoods and contribute to poverty reduction.

Furthermore, the interaction terms between youth empowerment and the dimensions of social capital show that they have significant mediating effects. The interaction between cooperative membership and youth empowerment (COM\*YOE) is positive and significant ( $B = 1.205$ ,  $p = 0.002$ ), which implies that empowered youth are better able to utilise cooperative networks for economic activities that reduce poverty. Similarly, the interaction between social media membership and youth empowerment (SOM\*YOE) has a significant positive impact ( $B = 0.825$ ,  $p = 0.000$ ), indicating that empowerment increases people's capacity to use digital networks for information and economic opportunities. The interaction between social club membership and youth empowerment (SOC\*YOE) also has a positive

Publication of the European Centre for Research Training and Development-UK and significant effect ( $B = 0.949$ ,  $p = 0.000$ ), which implies that empowered persons benefit more from community social networks. Overall, the results suggest that youth empowerment reinforces the poverty-reducing effects of social capital, and thus the importance of empowerment initiatives in strengthening the impact of social networks in North Central Nigeria.

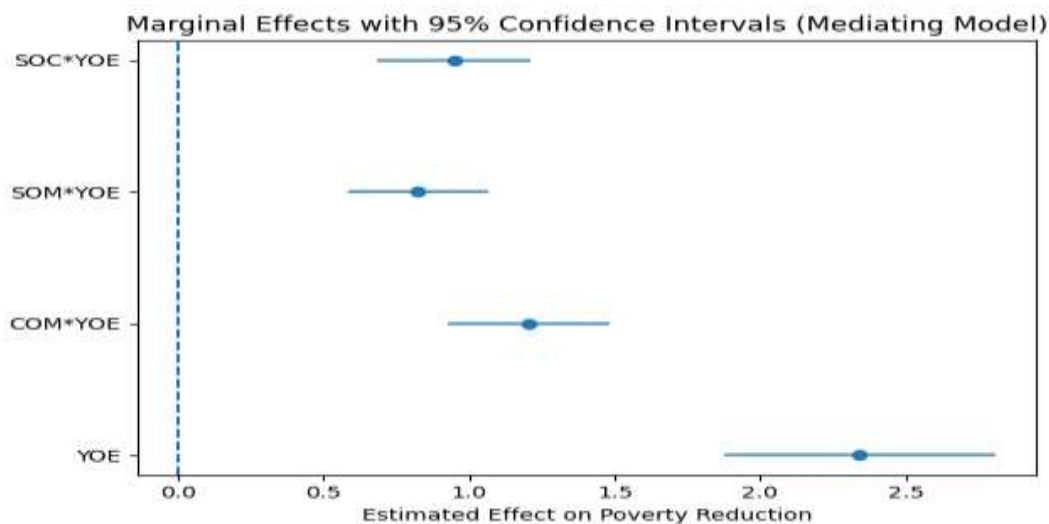


Figure 2 Marginal Effect of the Interaction

The marginal effects plot of the mediating model shows the impact of youth empowerment (YOE) and the moderating effect of social capital variables (cooperative membership (COM\*YOE), social media membership (SOM\*YOE), and social club membership (SOC\*YOE)) on the reduction in poverty (PVT). The points are the estimated marginal effects, and the horizontal bars are the 95% confidence interval, and the dashed vertical line is the zero effect threshold. The graph indicates that YOE has the biggest positive marginal effect, thus confirming that the YOE plays a strong role in increasing the reduction of poverty. The interaction terms also show positive effects, which means that youth empowerment enhances the effects of cooperative networks, digital platforms, and social clubs on improving welfare outcomes. Overall, the plot shows that a higher level of youth empowerment significantly increases the poverty-reducing benefits of social capital in North Central States of Nigeria.

## DISCUSSION OF FINDINGS

The results of this research show that social capital is important in poverty alleviation, especially in cases of cooperative membership, social media use and social club membership. The positive and significant effect of cooperative membership on poverty reduction implies that membership in organised networks enhances access to financial resources, shared knowledge and collective opportunities. This outcome is in line with Wu et al. (2023) who found social capital has a significant effect on household income and poverty reduction among rural households. Similarly, Ren et al. (2023) reported that social networks support cooperation and resource sharing that enhance the household welfare. In addition, Li et al. (2025) showed that social capital helps to reduce poverty by improving income and even informal financial support, while Zhu et al. (2024) led to a conclusion that strong social networks significantly reduce energy poverty among households.

Publication of the European Centre for Research Training and Development-UK

The results also show that the presence of social media membership has a significant contribution in reducing poverty, implying that digital social networks increase the access to economic information and opportunities. Participation in social media platforms helps individuals to include access to market information, employment opportunities, and social support networks that build economic capacity. These findings corroborate those of Zhang and Zhao (2024) who found social capital to reduce livelihood vulnerability through an improvement in information exchange and cooperative relationships between farmers. Similarly, Parvin et al (2023) found that social participation and community networks plays an important role in improving resilience and reducing poverty among vulnerable populations. Evidence from Galarza-Villamar et al. (2024) also emphasises on the strengthening of livelihood resilience of rural households through bonding and bridging social capital. Furthermore, Waseem et al. (2024) concluded that robust social networks increase community collaboration and collective action and these have contributed to better welfare outcomes.

Furthermore, the study finds that youth empowerment significantly increases the poverty-reducing impacts of social capital, suggesting that the more empowered an individual is the better they are able to utilise social networks for their livelihood improvement. The significant interaction effects between youth empowerment and the social capital variables indicate that empowerment increases the benefits from cooperative membership, digital networks and community organisations. This finding supports the work of Shiaki et al. (2026) who found that the strength of the positive influence of social capital on agricultural productivity is enhanced by youth empowerment in North-Central Nigeria. Similarly, Zhang et al. (2017) emphasised that the social networks have a significant impact on poverty reduction by making it easier to access economic resources. In addition, Tenzin et al. (2015) found that involvement in community networks leads to improvements in economic opportunities and the reduction of poverty among rural households whilst Zhang and Zhao (2024) emphasised that empowerment contributes to individuals ability to mobilise social networks to improve welfare outcomes.

The results of this study support the propositions of Social Capital Theory and Empowerment Theory. Social Capital Theory, which was advanced by Bourdieu (1986), Coleman (1988) and Putnam (2000), proposes that social networks, trust, and involvement in associations give individuals access to valuable resources and opportunities that lead to better economic outcomes. The positive and significant impact of cooperative membership, social media membership and social club membership on poverty reduction confirms that being members of social networks boost access to information, financial support and collective opportunities that enhance livelihoods. In addition, the strong influence of youth empowerment supports the Empowerment Theory, which emphasises that individuals with greater skills, knowledge and access to resources are better able to utilise available opportunities for socio-economic advancement (Sen, 1999; Zimmerman, 2000). The significant interaction between youth empowerment and social capital provides further indication that empowerment builds the ability of individuals to effectively use their social networks in order to reap the poverty reducing benefits from them and thereby promoting sustainable development.

## CONCLUSIONS

The study concludes that social capital plays a significant role in poverty reduction in the North Central States of Nigeria especially through cooperative membership, social media membership, and social club membership. Participation in these networks leads to better access to information, financial resources and collective opportunity which contribute to improving livelihood outcomes. The findings also show that the empowerment of youth has been found to play an important role in strengthening the poverty-reducing effects of social capital as empowered youth are more able to utilise social networks for economic activities and income generation. Overall, the interplay of the two concepts of social capital and youth empowerment remains an effective route of achieving sustainable poverty reduction and socio-economic conditions in the region.

Based on these findings, a number of practical recommendations are made. First, government and development agencies should support cooperative societies and community associations by training them, giving them financial support and access to agricultural inputs to improve their performance in enhancing livelihoods. Second, digital inclusion programmes should be increased to increase youth's access to social media and digital platforms that deliver information on markets, employment and entrepreneurship opportunities. Third, youth empowerment initiatives such as skills acquisition programmes entrepreneurship training and access to credit facilities should be prioritised for young people to utilise social networks productively. Finally, the policymakers should ensure the promotion of community-based development programmes that will promote collaboration between cooperatives, social clubs and youth organisations, thus contributing to the strengthening of social capital structures that support inclusive economic development and poverty reduction.

## REFERENCES

- Abakah, A. A. (2024). Does social capital matter in underwriter's fees? *Global Finance Journal*, 62, 101005. <https://doi.org/10.1016/j.gfj.2024.101005>
- Bourdieu, P. (1986). The forms of capital. In J. Richardson (Ed.), *Handbook of theory and research for the sociology of education* (pp. 241–258). Greenwood.
- Carrasco, S., Ochiai, C., & Tang, L. M. (2024). Social capital and community resilience in the wake of disasters, conflicts and displacements. *International Journal of Disaster Risk Reduction*, 115, 105049. <https://doi.org/10.1016/j.ijdr.2024.105049>
- Cheng, X., Wang, J., & Chen, K. Z. (2022). Does villager social capital hinder poverty targeting? Evidence from poverty-stricken county of Western China. *China Economic Review*, 71, 101728. <https://doi.org/10.1016/j.chieco.2021.101728>
- Coleman, J. S. (1988). Social capital in the creation of human capital. *American Journal of Sociology*, 94, S95–S120. <https://doi.org/10.1086/228943>
- Galarza-Villamar, J. A., Leeuwis, C., & Cecchi, F. (2024). Rice farmers and floods in Ecuador: The strategic role of social capital in disaster risk reduction and livelihood resilience. *International Journal of Disaster Risk Reduction*, 104, 104332. <https://doi.org/10.1016/j.ijdr.2024.104332>

---

 Publication of the European Centre for Research Training and Development-UK

- Harrison, J. L., Montgomery, C. A., & Jeanty, P. W. (2019). A spatial, simultaneous model of social capital and poverty. *Journal of Behavioral and Experimental Economics*, 78, 183–192. <https://doi.org/10.1016/j.socec.2018.09.001>
- Li, Z., Wu, M., Qin, Y., Li, T., & Zheng, X. (2025). Social capital and rural household energy poverty: Evidence from the China Family Panel Studies. *Energy*, 335, 138286. <https://doi.org/10.1016/j.energy.2025.138286>
- Mertzanis, C., & Houcine, A. (2026). Social capital, institutions, and financing constraints: International evidence. *Research in International Business and Finance*, 83, 103284. <https://doi.org/10.1016/j.ribaf.2026.103284>
- Parvin, G. A., Takashino, N., Islam, M. S., Ahsan, R., Kibria, M. G., & Abedin, M. A. (2023). Does social capital contribute to resilience? Exploring the perspectives of displaced women living in urban slums in Khulna city. *International Journal of Disaster Risk Reduction*, 94, 103838. <https://doi.org/10.1016/j.ijdr.2023.103838>
- Putnam, R. D. (2000). *Bowling alone: The collapse and revival of American community*. Simon & Schuster.
- Ren, Z., Zhu, Y., Jin, C., & Xu, A. (2023). Social capital and energy poverty: Empirical evidence from China. *Energy*, 267, 126588. <https://doi.org/10.1016/j.energy.2022.126588>
- Shamaki, H., Ibrahim, U. A. & Azu, N. P. (2022). Evaluating the Influence of Digital Technology on the Performance of Selected Female-Owned Enterprises in Abuja Nigeria. *Journal of Women's Entrepreneurship and Education*. 1-2, 39-60. <https://doi.org/10.28934/jwee22.12.pp39-60>
- Shiaki, K. T., Gambo, N., & Azu, N. P. (2026). Impact of social capital on agricultural productivity: Evidence from the moderating role of youth empowerment in North Central Nigeria. *Asian Journal of Agriculture and Rural Development*, 16(1), 162–172. <https://doi.org/10.55493/5005.v16i1.5883>
- Shiaki, H., Ogbale, A. S., & Kula, T. (2024). The role of social capital and empowerment in enhancing agricultural productivity in Sub-Saharan Africa: A case study of Benue State, Nigeria. *African Journal of Agricultural Economics*, 56(3), 209-223.
- Sen, A. (1999). *Development as freedom*. Oxford University Press.
- Tenzin, G., Otsuka, K., & Natsuda, K. (2015). Can social capital reduce poverty? A study of rural households in eastern Bhutan. *Asian Economic Journal*, 29(3), 243–264. <https://doi.org/10.1111/asej.12057>
- Uzochukwu, I. U., Nwoye, M. I., & Azu, N. P. (2025). Effect of digital technology adoption on the performance of supervisory agencies of the Nigerian communications sector: Does behavioural intention matter? *International Journal of Innovative Research and Scientific Studies*, 8(7), 281–291. <https://doi.org/10.53894/ijirss.v8i7.10436>
- Van Ninh, N., & Van Tam, T. (2026). The role of social capital in enhancing community participation for sustainable agricultural tourism. *Sustainable Futures*, 11, 101612. <https://doi.org/10.1016/j.sftr.2025.101612>
- Waseem, H. B., Mirza, M. N. E. E., & Rana, I. A. (2024). Exploring the role of social capital in flood risk reduction: Insights from a systematic review. *Environmental Impact Assessment Review*, 105, 107390. <https://doi.org/10.1016/j.eiar.2023.107390>
- Wu, Y., Guo, Z., & Qi, D. (2023). Analysis of the effect of social capital on rural household poverty. *Social Policy & Administration*, 57(3), 333–348. <https://doi.org/10.1111/spol.12864>

---

Publication of the European Centre for Research Training and Development-UK

- Yusuf, M., Rabi, M. M., Taryam, M. O. & Azu, N. P. (2023). Economic Impact of School Eye Care Intervention on Academic Performance of School Children in Katsina State, Nigeria. *Journal of Asian Scientific Research* 14(1), 68-80. <https://doi.org/10.55493/5003.v14i1.4990>
- Zhang, Y., & Zhao, W. (2024). Social capital's role in mitigating economic vulnerability: Understanding the impact of income disparities on farmers' livelihoods. *World Development*, 177, 106515. <https://doi.org/10.1016/j.worlddev.2023.106515>
- Zhang, Y., Zhou, X., & Lei, W. (2017). Social capital and its contingent value in poverty reduction: Evidence from Western China. *World Development*, 93, 350–361. <https://doi.org/10.1016/j.worlddev.2016.12.034>
- Zhu, H., Fang, S., Zhang, S., Zhang, X., & Tian, Y. (2024). Effects of social capital on energy poverty: Evidence from the national key ecological function zones in Northeast China. *Energy*, 304, 131956. <https://doi.org/10.1016/j.energy.2024.131956>