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Social Capital and Adaptive Capacity as Determinants of Agribusiness Performance among Transmigrant Farmers in North Maluku, Indonesia

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Abstract. Agribusiness performance among transmigrant farmers is shaped by social relationships and the capacity to respond to changing agricultural and market conditions. However, the extent to which social capital and adaptive capacity are associated with agribusiness performance remains an important empirical question in developing agricultural communities. This study examines the relationships between social capital, adaptive capacity, and agribusiness performance among transmigrant farmers in North Maluku, Indonesia. A quantitative explanatory approach was employed using survey data from 240 respondents. The data were analyzed using Pearson correlation and multiple linear regression to assess measurement validity, reliability, individual relationships, and overall model significance. The results indicate that social capital has a positive and statistically significant association with agribusiness performance ($B = 0.191$, $p = 0.005$). In contrast, adaptive capacity does not exhibit a statistically significant independent relationship with agribusiness performance ($B = 0.007$, $p = 0.904$). Although the overall regression model is statistically significant ($F = 5.088$, $p = 0.007$), its explanatory power is limited ($R^2 = 0.041$). These findings highlight the relevance of social capital in understanding agribusiness performance while suggesting that adaptive capacity alone may not be sufficient to explain performance differences within the study context. The study underscores the potential value of strengthening farmer networks, cooperation, and collective action, alongside improving access to productive resources, institutional support, and agricultural markets. Future research should incorporate additional economic, institutional, and technological factors to develop a more comprehensive understanding of agribusiness performance among transmigrant farmers.

Keywords: Social capital; Adaptive capacity; Agribusiness performance; Transmigrant farmers.

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1. Introduction

Agribusiness performance in rural communities depends not only on the availability of productive resources but also on farmers' ability to mobilize social relationships, respond to changing circumstances, and coordinate economic activities across agricultural value chains. Smallholder farmers frequently operate under resource constraints and face challenges related to production efficiency, market access, institutional support, and economic uncertainty[1]–[4]. Under these conditions, the ability to establish reliable social relationships and adapt to changing agricultural environments becomes particularly important for sustaining farm performance. Research on agricultural economies has demonstrated that trust, social networks, and shared norms facilitate economic transactions and cooperation among farmers, traders, and input suppliers [5]. Similarly, collective institutions supported by social capital can improve agricultural coordination, resource allocation, and organizational performance [6]. These findings suggest that agribusiness performance should be examined not exclusively through a resource-based perspective but also through the social and adaptive capabilities that enable farmers to utilize available resources effectively.

Social capital represents a potentially important determinant of agribusiness performance because it facilitates access to information, productive resources, institutional support, and collaborative opportunities [7]–

[11]. Within agricultural communities, trust can reduce uncertainty in transactions, social networks can expand access to knowledge and markets, and shared norms can encourage cooperation and collective action. Empirical evidence supports the relevance of these mechanisms in agricultural production. Mamiit et al. [12], for example, examined the influence of farm-level social relations on sustainable food production and identified a positive association between accumulated social capital and technical efficiency. Kehinde et al. [13] likewise investigated the relationship between social capital, farm productivity, and food security among cocoa-producing households in southwestern Nigeria, demonstrating the importance of social relationships in understanding agricultural household outcomes. Furthermore, Nguyen-Anh et al. [14] identified social capital as an important contributor to agricultural technical efficiency in their analysis of sustainable food-crop farming in Sub-Saharan Africa. Collectively, these studies indicate that social capital can provide farmers with resources beyond their individual economic assets, potentially improving their capacity to organize production and sustain agribusiness activities.

Nevertheless, the relationship between social capital and agricultural outcomes should not be assumed to be universally positive or uniform across contexts. The economic value of social capital depends partly on the quality, structure, and reach of social relationships and on how farmers translate these relationships into productive activities. Strong local networks may facilitate cooperation and resource sharing, but their contribution to agribusiness development can be constrained when relationships remain limited to close-knit groups or fail to connect farmers with external markets and institutions. Saptutyningsih et al. [15], in their study of agricultural adaptation in Yogyakarta, Indonesia, found that trust, community participation, and interpersonal relationships were associated with farmers' willingness to participate in climate adaptation activities. Their findings illustrate how social capital can support collective responses to agricultural challenges. However, participation in adaptation activities is not equivalent to achieving better agribusiness performance. Further empirical investigation is therefore necessary to determine whether social capital contributes directly to farmers' perceived or realized business performance, particularly in communities experiencing distinctive settlement histories and institutional conditions.

Alongside social capital, adaptive capacity constitutes another important factor in explaining differences in agribusiness performance. Adaptive capacity refers to the ability of individuals or systems to adjust to changing conditions, respond to risks, and mobilize available resources to maintain or improve their functioning. In agricultural settings, this capacity may involve adjusting cultivation practices, adopting appropriate technologies, accessing alternative sources of information, responding to market fluctuations, and managing production uncertainty. Smit and Wandel [16] emphasized that adaptive capacity is context-dependent and shaped by interactions between social, economic, institutional, and environmental conditions. Similarly, Holland et al.[17] demonstrated the importance of understanding adaptive capacity in smallholder agricultural systems, particularly where limited resources and insufficient contextual information complicate the identification of appropriate development interventions. Engle [18]further highlighted the importance of clarifying and operationalizing adaptive capacity when evaluating the ability of communities and systems to respond to environmental change. These perspectives establish adaptive capacity as a relevant analytical construct for understanding how farmers respond to uncertainty and maintain agricultural activities under changing conditions.

In agribusiness, adaptive capacity may influence performance by enabling farmers to respond more effectively to production disruptions, changing input costs, shifting consumer demand, and evolving market opportunities. Farmers with greater adaptive capacity may be better positioned to modify production decisions, identify alternative marketing channels, access relevant information, and reorganize resources when conventional practices become less effective. Evidence from agricultural adaptation research supports the relevance of these relationships. Saptutyningsih et al. [15] demonstrated that social capital can facilitate farmers' participation in adaptation initiatives, while Holland et al. [17] emphasized the role of contextual resources and capabilities in differentiating adaptive capacity across agricultural landscapes. Nevertheless, adaptive capacity and agribusiness performance represent conceptually distinct constructs: the former concerns the ability to respond to changing conditions, whereas the latter concerns the economic and operational outcomes of agricultural activities. Examining them simultaneously may therefore provide a more comprehensive explanation of why farmers operating under broadly comparable conditions achieve different levels of agribusiness performance.

The relationship between social capital and adaptive capacity is particularly relevant because farmers rarely respond to agricultural challenges entirely on an individual basis. Social relationships can provide access to experiential knowledge, technical advice, shared labor, financial assistance, and information about emerging

production and marketing opportunities. These resources may expand the range of responses available to farmers and improve their ability to manage uncertainty. In the Indonesian context, research has highlighted the significance of social relationships and community institutions in agricultural adaptation and rural development. Pratiwi et al. [19] examined transmigration programs and migrants' positions within rural community knowledge networks, demonstrating the importance of network structures in understanding agricultural knowledge exchange. Their research provides a relevant perspective on how social embeddedness can shape access to information among migrant and local farming communities. More broadly, the findings of Nguyen-Anh et al. [14] reinforce the importance of social capital for agricultural efficiency, suggesting that relationships and institutional connections can complement the resources required for productive farming. Although these studies illuminate different dimensions of agricultural development, the extent to which social capital and farmers' own adaptive capacity independently contribute to agribusiness performance remains an important empirical question.

This question is especially pertinent in transmigrant communities in Indonesia, where agricultural development involves not only establishing productive activities but also building social relationships and adapting to unfamiliar economic, institutional, and environmental conditions. Transmigration has historically been associated with population redistribution and regional development, but the economic outcomes of settlement depend on more than the physical relocation of households. Agricultural opportunities, land conditions, access to infrastructure, and marketing arrangements can influence the viability of transmigrant farming. Perry [20], in his examination of transmigrant farming economics in Indonesia, highlighted the importance of understanding agronomic conditions, input requirements, transportation, and marketing infrastructure in assessing agricultural production strategies. More recent research has expanded attention to the social dimensions of settlement. Pratiwi et al. [19] showed the relevance of migrant positions within rural knowledge networks, while Nurlinah and Haryanto [21] examined the roles of the state and community organizations in the development of Indonesian transmigration villages. Together, these studies indicate that transmigrant agribusiness development should be understood as a process involving productive resources, social integration, knowledge exchange, and institutional arrangements rather than agricultural production alone.

Wasile District in East Halmahera Regency, North Maluku Province, provides a relevant setting for investigating these relationships. Previous research by Basuki et al. [22], examined transmigrant communities originating from Banyuwangi and Banyumas. Using a qualitative approach, the researchers identified the contribution of social capital to transmigrants' adaptability, particularly through knowledge exchange, resource sharing, and collective action. Their findings suggest that social capital helped transmigrant households respond to agricultural production challenges, market access constraints, and the demands of economic integration. Importantly, this study established a contextual foundation for understanding the role of social capital in transmigrant agribusiness systems. However, its qualitative design was primarily intended to explore social processes and explain how social capital supported adaptation. It did not provide a quantitative test of the independent relationships between social capital, adaptive capacity, and agribusiness performance. Consequently, the magnitude and statistical significance of these relationships remain to be established empirically.

Despite the growing literature on social capital, agricultural productivity, and adaptive capacity, three related research gaps can be identified. First, previous studies have frequently examined social capital in relation to particular outcomes, such as technical efficiency, food security, participation in adaptation initiatives, or agricultural knowledge exchange [12], [13], [15]. Although these studies provide valuable evidence, their findings do not fully establish how social capital relates to the broader performance of agribusiness among transmigrant farmers. Second, adaptive capacity has commonly been investigated in relation to vulnerability, environmental change, and farmers' responses to external pressures [16]–[18]. Its contribution to agribusiness performance in transmigrant settlement contexts therefore warrants further examination. Third, existing qualitative evidence from Wasile District provides important contextual insights into the mechanisms through which social capital supports adaptation, but the proposed relationships have not been quantitatively assessed within an integrated explanatory model [22]. Addressing these gaps would strengthen the empirical understanding of the social and adaptive factors associated with agribusiness performance in a geographically and institutionally distinctive agricultural setting.

To address these gaps, this study examines social capital and adaptive capacity as two independent determinants of agribusiness performance among transmigrant farmers in North Maluku, Indonesia. Social capital is conceptualized as the relational resource available through trust, social networks, shared norms, reciprocity, and collective engagement. Adaptive capacity is conceptualized as farmers' perceived ability to adjust production

and business practices, respond to uncertainty, acquire relevant information, and modify strategies in response to changing agricultural and market conditions. Agribusiness performance refers to the outcomes of farming and related business activities, potentially reflected in productivity, profitability, income stability, market access, and business sustainability. These dimensions should be operationalized through theoretically grounded indicators and adapted to the characteristics of the study population. By examining both independent variables within the same model, the study seeks to distinguish the contribution of social relationships from the contribution of farmers' adaptive capabilities in explaining agribusiness performance.

The study contributes to the literature in three ways. First, it extends research on social capital in agriculture by examining its relationship with agribusiness performance in a transmigrant farming context, complementing previous studies focused on productivity, technical efficiency, and adaptation participation. Second, it positions adaptive capacity alongside social capital as a separate explanatory factor, allowing the empirical assessment of whether farmers' ability to adjust to changing conditions contributes to agribusiness performance beyond the contribution of their social relationships. Third, it extends the contextual evidence from the qualitative study of transmigrants in Wasile District by developing a quantitative framework that can be tested using survey data. This approach offers an empirical basis for evaluating the relevance of social capital and adaptive capacity in the development of transmigrant agribusiness and may inform interventions aimed at strengthening farmer organizations, knowledge exchange, adaptive capabilities, and market-oriented agricultural development. Accordingly, this study addresses the following research questions: (1) Does social capital significantly influence agribusiness performance among transmigrant farmers in North Maluku, Indonesia? and (2) Does adaptive capacity significantly influence agribusiness performance among transmigrant farmers in the same context? Based on the preceding theoretical arguments, the study proposes that social capital and adaptive capacity are positively associated with agribusiness performance. These relationships are examined through a quantitative explanatory design, providing empirical evidence on the contribution of social and adaptive resources to agribusiness outcomes among transmigrant farmers.

2. Method

This study employed a quantitative explanatory research design to examine the effects of social capital and adaptive capacity on agribusiness performance among transmigrant farmers in North Maluku, Indonesia. The quantitative approach was selected to enable the systematic measurement of the research constructs and the statistical examination of the relationships between the independent and dependent variables. The research model consisted of social capital as the first independent variable (X_1), adaptive capacity as the second independent variable (X_2), and agribusiness performance as the dependent variable (Y). The conceptual framework was developed from previous studies emphasizing the contribution of social relationships, collective institutions, and adaptive capabilities to agricultural development and farm-level outcomes [5], [6], [16]. In this study, social capital was conceptualized as the relational resources available to farmers through trust, social networks, shared norms, reciprocity, and collective action. Adaptive capacity referred to farmers' perceived ability to adjust agricultural practices, mobilize resources, respond to risks, and accommodate changes in production and market conditions. Agribusiness performance was defined as farmers' perceived assessment of the operational and economic outcomes of their agricultural activities, including productivity, profitability, income stability, market access, and business sustainability.

The study was conducted in Wasile District, East Halmahera Regency, North Maluku Province, Indonesia, a transmigrant settlement area previously examined in qualitative research on social capital, adaptability, and agribusiness systems. The study population comprised 240 transmigrant farmers who met the established eligibility criteria and were actively engaged in agricultural activities in the study area. A total sampling technique was employed because the entire accessible population consisted of 240 eligible farmers. Accordingly, all 240 farmers were included as intended respondents rather than selecting a smaller subset through probability or non-probability sampling. The unit of analysis was the individual farmer, and the data were collected using a structured questionnaire. Respondents were expected to provide information about their social relationships, capacity to adapt to agricultural and market changes, and assessment of agribusiness performance. The use of total sampling was intended to maximize population coverage within the defined study area and reduce sampling-related uncertainty associated with selecting only a portion of the eligible population. Nevertheless, the generalizability of the findings is primarily limited to the population and geographical context represented by the study.

The research instrument was developed by operationalizing the three principal constructs into measurable indicators informed by the relevant literature and adapted to the characteristics of transmigrant farming communities. Social capital was measured through five dimensions: trust, social networks, social norms, reciprocity, and collective action. This operationalization was informed by research on social capital in agricultural economies and farmer organizations, particularly Lyon [5] and Uphoff and Wijayaratna [6]. Adaptive capacity was measured through five dimensions reflecting the ability to adjust production practices, adopt appropriate technologies, access and utilize information, respond to risks and market changes, and mobilize resources. These dimensions were informed by the conceptualization of adaptive capacity developed by Smit and Wandel [16] and Engle [18]. Agribusiness performance was measured through five dimensions: perceived productivity, profitability, income stability, market access, and business sustainability. The questionnaire items were formulated to reflect these dimensions in the context of smallholder agribusiness. All substantive items were assessed using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Higher scores indicated stronger social capital, greater adaptive capacity, or better perceived agribusiness performance, as applicable. Before the main data collection, the instrument should be reviewed for content relevance, clarity, and contextual appropriateness, followed by pilot testing where feasible. Any items requiring modification should be revised before the final questionnaire is administered.

Table 1. Operational definitions and measurement of research variables

Variable	Operational definition	Measurement dimensions	Instrument Items
Social Capital (X_1)	Relational resources available to farmers through trust, social connections, shared norms, mutual assistance, and collective engagement.	Trust (SC1)	I trust other farmers when cooperating in agricultural activities.
		Social networks (SC2)	I maintain relationships with other farmers, agricultural extension officers, traders, or relevant institutions.
		Social norms (SC3)	I follow shared rules and agreements established within my farming community or farmer group.
		Reciprocity (SC4)	Farmers in my community are willing to help one another when agricultural problems arise.
		Collective action (SC5)	I participate in collective activities intended to improve farming or marketing outcomes.
Adaptive Capacity (X_2)	Farmers' perceived ability to adjust agricultural practices, acquire and use information, mobilize resources, and respond to changing production and market conditions.	Production adaptation (AC1)	I can adjust my farming practices when environmental or production conditions change.
		Technological adaptation (AC2)	I can adopt appropriate agricultural technologies or improved farming practices when necessary.
		Information utilization (AC3)	I can obtain and use relevant information to make agricultural decisions.
		Risk and market adaptation (AC4)	I can modify my farming or marketing strategies when facing production risks or market changes.
		Resource mobilization (AC5)	I can mobilize available labor, financial resources, and other inputs to respond to agricultural challenges.
Agribusiness Performance (Y)	Farmers' perceived assessment of the operational and economic outcomes of their agricultural activities.	Productivity (AP1)	My agricultural business achieves satisfactory production outcomes relative to the resources available to me.
		Profitability (AP2)	My agricultural business generates a satisfactory level of profit.

Variable	Operational definition	Measurement dimensions	Instrument Items
		Income stability (AP3)	Income from my agricultural activities is sufficiently stable to support the continuity of my business.
		Market access (AP4)	I have adequate access to markets for selling my agricultural products.
		Business sustainability (AP5)	I am able to maintain my agricultural business despite economic or production challenges.

Data were collected through the administration of structured questionnaires to the eligible respondents. Before participation, respondents should receive an explanation of the research objectives, the voluntary nature of participation, and the confidentiality of their responses. The collected data should be checked for completeness, inconsistent responses, duplicate entries, and coding errors before statistical analysis. Descriptive statistics, including frequencies, percentages, means, and standard deviations, were used to summarize respondents' characteristics and the distributions of the measured variables. The analysis of the relationships among the research variables was conducted using Pearson product–moment correlation and multiple linear regression. These techniques were selected because the study aimed to determine the direction and strength of the bivariate relationships between the constructs and to estimate the independent and simultaneous associations of social capital and adaptive capacity with agribusiness performance. Statistical analysis may be conducted using SPSS or equivalent statistical software. The final report should identify the software and version actually used.

Instrument validity was assessed before hypothesis testing to determine whether the questionnaire items adequately measured their intended constructs. Content validity was established through an evaluation of the relevance, clarity, and contextual suitability of the indicators by researchers or subject-matter experts familiar with agribusiness, social capital, and agricultural adaptation. Empirical item validity was subsequently examined using the Pearson product–moment correlation coefficient to determine the strength and direction of the relationship between each questionnaire item and its corresponding total construct score. The Pearson product–moment correlation coefficient was calculated using the following formula:

$$r_{xy} = \frac{n\sum XY - \sum X \sum Y}{\sqrt{n\sum X^2 - (\sum X)^2 . n\sum X^2 - (\sum Y)^2}}$$

where (r_{xy}) represents the Pearson correlation coefficient between the item score and the total construct score, (N) denotes the number of respondents, (X) represents the individual questionnaire item score, and (Y) represents the corresponding total construct score. The summation symbols indicate the sums of the relevant scores and their products across all respondents. An item was considered empirically valid when its calculated correlation coefficient exceeded the critical value of the Pearson correlation coefficient at the 5% significance level and the correlation was statistically significant. The critical value was determined based on the number of observations included in the validity analysis and the relevant degrees of freedom, (df=N-2). The correlation coefficient and its associated significance level were examined together, rather than relying exclusively on statistical significance. Items that did not meet the validity criteria were reviewed for conceptual relevance and wording before any decision was made to revise or remove them.

Instrument reliability was evaluated using Cronbach's alpha to assess the internal consistency of the questionnaire items measuring each construct. A Cronbach's alpha coefficient of 0.70 or higher was used as the general criterion for acceptable reliability. Reliability was assessed separately for social capital, adaptive capacity, and agribusiness performance. Corrected item–total correlations and changes in Cronbach's alpha if an item were deleted were also examined to identify potentially problematic indicators. Reliability coefficients were interpreted alongside the content and empirical validity assessments because internal consistency alone does not establish that an instrument measures the intended construct. Where a construct consisted of multiple dimensions, the conceptual justification for combining the items into a single composite score was also considered.

Pearson product–moment correlation analysis was used to examine the direction and strength of the relationships among social capital, adaptive capacity, and agribusiness performance. The correlation coefficient ranges from −1 to +1. A positive coefficient indicates that higher scores on one variable tend to be associated with higher scores on another variable, whereas a negative coefficient indicates an inverse relationship. A coefficient

close to zero indicates a weak linear association. The statistical significance of the correlations was assessed at the 5% significance level. Before interpreting the results, the analysis considered the measurement characteristics of the variables, the linearity of the relationships, and the presence of influential outliers. The correlation analysis provided an initial assessment of the relationships among the study variables; however, because correlation does not control for other explanatory variables, the findings were interpreted alongside the regression analysis.

Simple linear regression was used to examine the individual relationship between each independent variable and agribusiness performance. The simple linear regression model was expressed as follows:

$$\hat{Y} = a + bX$$

where ($\hat{Y}$) represents agribusiness performance, (a) denotes the intercept, (b) represents the regression coefficient, and (X) represents the independent variable under examination. In the first simple regression model, (X) represented social capital; in the second model, (X) represented adaptive capacity. The intercept (a) represents the estimated value of agribusiness performance when the predictor equals zero, while the regression coefficient (b) indicates the expected change in agribusiness performance associated with a one-unit increase in the predictor. A positive regression coefficient indicates a positive statistical relationship, whereas a negative coefficient indicates an inverse relationship. The significance of each regression coefficient was evaluated using the t-test at the 5% significance level. The estimated coefficient, standard error, t-statistic, p-value, and 95% confidence interval were reported to assess the direction, magnitude, and statistical significance of each relationship.

To assess the independent and simultaneous relationships of social capital and adaptive capacity with agribusiness performance, multiple linear regression was also employed. The model was specified as follows:

$$\hat{Y}=a+b_1X_1+b_2X_2$$

where ($\hat{Y}$) represents agribusiness performance, (X_1) represents social capital, (X_2) represents adaptive capacity, (b_1) and (b_2) represent the unstandardized regression coefficients, and denotes the error term. The coefficient (b_1) estimates the expected change in agribusiness performance associated with a one-unit increase in social capital while adaptive capacity is held constant. Similarly, (b_2) estimates the expected change in agribusiness performance associated with a one-unit increase in adaptive capacity while social capital is held constant. The regression analysis used composite scores derived from questionnaire items that satisfied the specified validity and reliability criteria.

The coefficient of determination (R^2) was used to assess the proportion of variation in agribusiness performance explained by the independent variables included in the regression model. The value of (R^2) ranges from 0 to 1, with higher values indicating that the model accounts for a greater proportion of the observed variation in the dependent variable. Adjusted (R^2) was also reported to account for the number of predictors and the sample size. The multiple correlation coefficient (R) was used to describe the strength of the association between observed agribusiness performance scores and the values predicted by the multiple regression model. These statistics were interpreted in the context of the research setting rather than against arbitrary universal thresholds.

Individual hypotheses were evaluated using the t-test for regression coefficients. The first hypothesis (H_1) proposed that social capital positively influences agribusiness performance, while the second hypothesis (H_2) proposed that adaptive capacity positively influences agribusiness performance. For each predictor, the null hypothesis stated that its population regression coefficient was zero, whereas the alternative hypothesis stated that the coefficient was positive. A hypothesis was supported when the estimated coefficient was positive and statistically significant at the 5% level, with the confidence interval providing consistent evidence of a positive relationship. Otherwise, the hypothesis was not supported by the statistical evidence. Because the study relied on observational survey data, the term influence refers to the statistical relationship estimated by the regression model and does not, by itself, establish causality.

The simultaneous statistical significance of social capital and adaptive capacity was examined using the F-test of overall regression significance. The null hypothesis was (H_0:$b_1=b_2=0$), while the alternative hypothesis stated that at least one of the regression coefficients differed from zero. A statistically significant F-statistic at the 5% significance level indicated that the independent variables jointly contributed to explaining variation in agribusiness performance compared with an intercept-only model. However, a significant F-test did not necessarily mean that both predictors were individually significant; therefore, the F-test was interpreted alongside the individual t-tests and the coefficient of determination. Before drawing conclusions, the regression assumptions were examined, including linearity, independence of errors, homoscedasticity, residual distribution, and multicollinearity. Variance inflation factors below 5 and tolerance values above 0.20 were treated as practical

indicators that serious multicollinearity was unlikely. Residual plots and appropriate diagnostic procedures were used to evaluate linearity and homoscedasticity, while graphical methods and, where appropriate, formal tests were used to examine residual distribution. Potentially influential observations were also investigated. Statistical significance was evaluated at (alpha=0.05).

3. Results and Discussion

3.1 Construct Validity Test

Construct validity was initially assessed using Pearson product–moment correlation analysis to examine the relationship between individual questionnaire items and their corresponding construct scores. The assessment covered three constructs: social capital, adaptive capacity, and agribusiness performance. The results are presented in Table 1.

Table 1. Results of Construct Validity Test

Item	Pearson Correlation (r)	Remark
SC1	0.703	Valid
SC2	0.893	Valid
SC3	0.73	Valid
SC4	0.792	Valid
SC5	0.843	Valid
AC1	0.882	Valid
AC2	0.704	Valid
AC3	0.845	Valid
AC4	0.743	Valid
AC5	0.859	Valid
AP1	0.826	Valid
AP2	0.843	Valid
AP3	0.727	Valid
AP4	0.899	Valid
AP5	0.966	Valid

Source: Primary data analysis.

As shown in Table 1, all 15 questionnaire items demonstrated positive Pearson correlation coefficients, ranging from 0.703 to 0.966. The social capital items had coefficients between 0.703 and 0.893, while the adaptive capacity items ranged from 0.704 to 0.882. For agribusiness performance, the coefficients ranged from 0.727 to 0.966. All items were classified as valid according to the criteria applied in the study. These findings indicate that the questionnaire items were positively associated with their corresponding construct scores. The results provide an empirical basis for retaining the items for subsequent analysis, subject to the appropriateness of the item–total correlation procedure and the theoretical relevance of each indicator.

The results also suggest that the selected indicators captured aspects of the three constructs relevant to the research context. Social capital represents the relational resources available to farmers through trust, networks, reciprocity, shared norms, and collective action. Adaptive capacity concerns farmers' ability to adjust their agricultural practices and respond to changing production and market conditions. Agribusiness performance reflects the economic and operational outcomes associated with farming activities. Nevertheless, the correlation coefficients should not be interpreted as conclusive evidence of all aspects of construct validity. The assessment of construct validity also requires consideration of the theoretical structure of each construct and the extent to which the indicators adequately represent its intended dimensions.

3.2 Reliability Test

Reliability analysis was performed using Cronbach's alpha to evaluate the internal consistency of the measurement items for each construct. The results are presented in Table 2.

Table 2. Results of Reliability Test

Construct	Cronbach's Alpha (α)	Remark
Social capital	0.8	Reliable
Adaptive capacity	0.86	Reliable
Agribusiness performance	0.807	Reliable

Source: Primary data analysis.

As reported in Table 2, all three constructs achieved Cronbach's alpha coefficients above the commonly applied threshold of 0.70. Social capital recorded a coefficient of 0.800, adaptive capacity recorded 0.860, and agribusiness performance recorded 0.807. These results indicate acceptable internal consistency among the questionnaire items within each construct. Adaptive capacity exhibited the highest reliability coefficient, suggesting relatively strong internal consistency among its five items. Social capital and agribusiness performance also demonstrated satisfactory reliability, supporting the use of their respective item scores in the subsequent statistical analyses.

Taken together, the validity and reliability results provide a reasonable basis for proceeding with the regression analysis. However, Cronbach's alpha does not independently establish unidimensionality or confirm that a construct has been measured comprehensively. Accordingly, the reliability results should be interpreted alongside the conceptual definitions and operationalization of the three variables.

3.3 Multiple Linear Regression Analysis

Multiple linear regression was employed to examine the relationships between social capital, adaptive capacity, and agribusiness performance. The analysis evaluated the individual contribution of each predictor while controlling for the other predictor, as well as the overall statistical significance and explanatory power of the regression model.

Table 3. Model Summary of Multiple Linear Regression

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.203[a]	.041	.033	2.47529

a. Predictors: (Constant), adaptive capacity, social capital

As shown in Table 3, the multiple correlation coefficient (R) was 0.203. The coefficient of determination (R^2) was 0.041, indicating that social capital and adaptive capacity jointly accounted for approximately 4.1% of the observed variation in agribusiness performance. The adjusted R^2 was 0.033, suggesting that the explanatory power remained limited after accounting for the number of predictors and sample size. The standard error of the estimate was 2.47529. The relatively low R^2 indicates that the two predictors captured only a small proportion of the variation in agribusiness performance. Although the model may identify statistically meaningful relationships, it does not provide a comprehensive explanation of why agribusiness performance differs among the farmers represented in the sample.

In the context of transmigrant farming communities, agribusiness performance may also be associated with factors such as farm size, access to agricultural inputs, availability of financing, technological adoption, market integration, transportation infrastructure, and agricultural extension services. These factors are potential directions for further investigation rather than established explanations from the present model, because they were not included in the reported regression analysis.

The low R^2 should not automatically be interpreted as evidence that the model is invalid. Instead, it indicates that the model's explanatory scope is limited and that its findings should be interpreted alongside the regression coefficients and overall significance test. The estimated regression coefficients were used to evaluate the individual relationships between the independent variables and agribusiness performance. The results are presented in Table 4.

Table 4. Multiple Regression Coefficients for Agribusiness Performance

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	11.860	.981		12.084	.000
	social capital	.191	.067	.199	2.867	.005
	adaptive capacity	.007	.056	.008	.120	.904

a. Dependent Variable: agribusines performance

The multiple regression equation derived from Table 4 is: $Y=11.860+0.191X_1+0.007X_2$, where (Y) represents predicted agribusiness performance, (X_1) represents social capital, and (X_2) represents adaptive capacity. The intercept of 11.860 represents the predicted agribusiness performance score when both predictors equal zero. Its practical interpretation depends on the measurement scales and whether zero is a meaningful value within their ranges. The social capital coefficient of 0.191 indicates the expected change in agribusiness performance associated with a one-unit increase in social capital, holding adaptive capacity constant. Similarly, the adaptive capacity coefficient of 0.007 represents the expected change in agribusiness performance associated with a one-unit increase in adaptive capacity, holding social capital constant. The results indicate that social capital was positively and significantly associated with agribusiness performance ($B = 0.191$, $\beta = 0.199$, $t = 2.867$, $p = 0.005$). Because the coefficient was positive and the p-value was below 0.05, the first hypothesis (H_1), proposing a positive relationship between social capital and agribusiness performance, was supported. This finding suggests that farmers reporting higher levels of social capital also tended to report higher agribusiness performance, after controlling for adaptive capacity. Social capital may provide farmers with relational resources that facilitate information exchange, cooperation, mutual assistance, and access to agricultural and market networks. Trust and reciprocity may help farmers coordinate their activities, while social networks may facilitate access to knowledge, production resources, and market information.

These mechanisms are particularly relevant to transmigrant farming communities, where farmers may need to develop local relationships and establish connections with other producers, traders, agricultural extension officers, and institutions. Such relationships may help reduce coordination difficulties and facilitate the mobilization of resources for agricultural production and marketing. However, the regression model estimated the relationship between the overall social capital score and agribusiness performance. It did not separately estimate the contributions of trust, networks, reciprocity, shared norms, or collective action. Consequently, these mechanisms provide theoretically plausible explanations for the observed relationship but should not be interpreted as independently tested effects. In contrast, adaptive capacity did not demonstrate a statistically significant relationship with agribusiness performance ($B = 0.007$, $\beta = 0.008$, $t = 0.120$, $p = 0.904$). The estimated coefficient was positive but very small, and the p-value substantially exceeded the 0.05 significance threshold. Therefore, the second hypothesis (H_2), proposing a positive relationship between adaptive capacity and agribusiness performance, was not supported.

This finding does not establish that adaptive capacity is irrelevant to farmers' agribusiness activities. Rather, the results indicate that adaptive capacity did not make a statistically significant independent contribution to agribusiness performance in the specified model after controlling for social capital. One possible explanation is that the ability to adapt to changing agricultural and market conditions does not automatically translate into measurable performance improvements. Farmers may adjust production practices or respond to emerging risks but remain constrained by access to finance, production inputs, technology, infrastructure, and markets. Under such circumstances, adaptive capacity may help farmers maintain their activities without necessarily producing an immediate increase in profitability, productivity, or income.

Another possibility is that the relationship between adaptive capacity and performance depends on complementary resources or develops over a longer period. For example, adopting a new production method may require initial investment before generating economic benefits. A cross-sectional regression model may not capture such delayed relationships. These explanations remain propositions for future research because the present analysis did not directly test the underlying mechanisms. The contrasting results for social capital and adaptive capacity suggest that their relationships with agribusiness performance may differ in this research context. Social

capital showed a statistically significant positive association, whereas adaptive capacity did not demonstrate an independent association. Nevertheless, the difference in statistical significance does not itself prove that the two regression coefficients differ significantly; such a conclusion would require an appropriate formal comparison. The overall significance of the regression model was evaluated using the F-test. The results are presented in Table 5.

Tabel 5. ANOVA Summary for Multiple Linear Regression Model

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	62.353	2	31.176	5.088	.007[b]
	Residual	1452.110	237	6.127		
	Total	1514.463	239			

a. Dependent Variable: agribusines performance

b. Predictors: (Constant), adaptive capacity, social capital

As presented in Table 5, the overall regression model was statistically significant ($F = 5.088$, $p = 0.007$). Because the p-value was below 0.05, the null hypothesis that both regression coefficients were simultaneously equal to zero was rejected. The results indicate that social capital and adaptive capacity jointly provided statistically significant explanatory information about agribusiness performance compared with an intercept-only model. The significant F-test is consistent with the significant coefficient for social capital reported in Table 4. However, the overall significance of the model does not imply that both predictors are individually significant. In this case, adaptive capacity remained nonsignificant in the individual coefficient test. Furthermore, the statistically significant F-test should be interpreted alongside the low R^2 value of 0.041. The model was statistically significant, but the proportion of variation in agribusiness performance explained by the two predictors was limited. Therefore, the results support the relevance of the specified model while indicating that additional factors may be needed to explain differences in agribusiness performance more comprehensively.

3.4 Discussion

The findings reveal three main results. First, all questionnaire items met the reported validity criteria, and all constructs demonstrated acceptable internal consistency. Second, social capital was positively and significantly associated with agribusiness performance, whereas adaptive capacity did not demonstrate a significant independent relationship. Third, the regression model was statistically significant overall but explained a relatively small proportion of the variation in agribusiness performance. The positive relationship between social capital and agribusiness performance highlights the potential importance of social relationships in agricultural production and marketing. Farmers do not operate solely as independent economic actors; their activities may depend on information exchange, reciprocal assistance, coordination, and access to social networks. In farming communities, these relationships can provide channels through which knowledge, resources, and market information circulate. For transmigrant farmers, social relationships may be particularly relevant to establishing economic connections and coordinating agribusiness activities within their settlement environment. Trust and reciprocity may encourage cooperation, while networks may facilitate access to other farmers, traders, and relevant institutions. The observed positive coefficient is consistent with this interpretation, although the present analysis does not establish which specific dimensions of social capital account for the relationship.

The nonsignificant relationship between adaptive capacity and agribusiness performance provides a contrasting result. Although adaptive capacity is conceptually relevant to responding to changing production and market conditions, the findings indicate that it was not independently associated with agribusiness performance in the estimated model. This result underscores the distinction between having the ability to adapt and achieving measurable economic outcomes. Adaptation may be constrained by limited resources, weak market access, or insufficient institutional support, meaning that individual capabilities do not necessarily translate into higher performance. The low explanatory power of the model further suggests that agribusiness performance is likely to involve multiple dimensions beyond the two predictors examined. Economic outcomes may depend on productive assets, input availability, market access, infrastructure, financial resources, and institutional conditions. These potential determinants warrant further empirical examination, but their effects cannot be inferred from the current regression results.

From a practical perspective, the findings suggest that initiatives supporting farmer networks, cooperation, information exchange, and collective action may be relevant to agribusiness development. Farmer groups and cooperatives could serve as platforms for coordinating production, sharing knowledge, and strengthening connections with markets and agricultural institutions. At the same time, adaptive capacity initiatives may need to be accompanied by access to resources and institutional support if farmers are to translate adaptive capabilities into improved economic outcomes. Overall, the results indicate that social capital is a relevant statistical correlate of agribusiness performance among the farmers represented in this study. However, the findings should be interpreted within the limitations of the model's explanatory power and the observational research design. Further research incorporating additional economic, institutional, and market-related variables could provide a more comprehensive understanding of the factors associated with agribusiness performance among transmigrant farmers in North Maluku.

4. Conclusion

This study examined the relationships between social capital, adaptive capacity, and agribusiness performance among transmigrant farmers in North Maluku, Indonesia. The findings demonstrate that social capital has a positive and statistically significant association with agribusiness performance, whereas adaptive capacity does not exhibit a statistically significant independent relationship when both variables are included in the regression model. Although the overall regression model is statistically significant, its explanatory power remains limited, indicating that agribusiness performance is associated with a broader set of factors beyond the two variables examined. The significant relationship between social capital and agribusiness performance highlights the potential importance of trust, social networks, reciprocity, and collective action in supporting farmers' economic activities. Social relationships may facilitate information exchange, resource mobilization, cooperation, and connections with agricultural markets and institutions. In contrast, the nonsignificant relationship between adaptive capacity and agribusiness performance suggests that the ability to respond to changing agricultural and market conditions does not necessarily translate into measurable performance improvements independently of other factors. Access to productive resources, institutional support, and market opportunities may be important conditions to investigate in explaining this relationship.

The findings offer practical implications for agricultural development initiatives in transmigrant communities. Strengthening farmer organizations, facilitating knowledge exchange, and promoting collective marketing activities may help farmers develop more productive social networks and improve coordination within agribusiness systems. At the same time, programs designed to strengthen adaptive capacity should be considered alongside support for agricultural technology, financing, extension services, and market access. These recommendations represent potential intervention priorities that require further evaluation rather than effects directly established by this study. This study has limitations that should be considered when interpreting its findings. The relatively low coefficient of determination indicates that the regression model explains only a small proportion of the variation in agribusiness performance. Future research should incorporate additional economic, institutional, technological, and market-related variables to develop a more comprehensive explanatory model. Longitudinal research could also examine whether changes in social capital and adaptive capacity are associated with subsequent changes in agribusiness performance. Further studies could investigate whether institutional support, access to resources, or market integration conditions the relationship between adaptive capacity and performance.

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