Jurnal Ilmu Produksi dan Teknologi Hasil Peternakan
ISSN 2303-2227 eISSN 2615-594X
Accredited by National Journal Accreditation No. 105/E/KPT/2022

Vol. 13 No. 3 October 2025, Page: 130-138
DOI: https://doi.org/10.29244/jipthp.10.2.130-138
Available online at https://journal.ipb.ac.id/index.php/ipthp/index

Analysis of Transformation the Institutional Economy of Goat Farming as a Farmer-Owned Business Entity (BUMP) (*Case Study of Farmer Groups in Borobudur District - Magelang Regency*)

F. Achmad[1*], H. T. Wibowo[1], E. Purwono[1], H. Nurzayyan[1], D. A. K. Masrocha[1], & S. Prabowo[2]
[1]Livestock Extension and Animal Welfare Department, Agriculture Polytechnic Development of Yogyakarta–Magelang (*Polbangtan YOMA*)
Jl. Magelang – Kopeng, Km. 6 Tegalrejo Magelang 56192
[2]Department of Animal Production and Technology, Faculty of Animal Science, IPB University
Jl. Agatis, Kampus IPB Darmaga Bogor 16680, Indonesia
*Corresponding author: fairdee27@gmail.com
(Received 01-06-2025; Revised 22-08-2025; Accepted 21-10-2025)

ABSTRACT

The capacity of farmer group institutions in Indonesia is expected to be increased to become Farmer-Owned Business Entity (BUMP) in order to further empower the farmer group members. This study aimed to analyze the institutional level of goat farmer groups in Borobudur District, Magelang Regency, and the relationship between group business entity indicators and the preparation for BUMP Establishment. The data were enumerated with the Likert scale, with three levels of scoring, using a questionnaire, and the accumulation of the total score was classified into low (120 to 200), moderate (200 to 280), and high (280 to 360). Subsequently, the structural equation modeling (SEM) analysis and path analysis were performed. The results of the study indicated that the institutional level of goat farmer groups in Borobudur District, Magelang Regency, was at a moderate level, and there were 2 (two) variables that influence the establishment of BUMP at a 95% confidence level (P<0.05), namely the farmer group's institutional performance and the farmer group's institutional organizational management variable. Corrective programs to elevate the farmer business institutional levels in Magelang should emphasize the institutional performance and organizational management aspects as final counsel.

Keywords: BUMP, Farmer's Economic Institution, Goat Farmers, Structural Equation Modelling (SEM)

ABSTRAK

Kelembagaan kelompok ternak di Indonesia diharapkan ditingkatkan kapasitasnya menjadi Badan Usaha Milik Petani (BUMP) agar lebih memberdayakan para peternak yang menjadi anggotanya. Penelitian ini bertujuan melakukan analisis level kelembagaan kelompok ternak kambing di Kecamatan Borobudur, Kabupaten Magelang, serta hubungan antara indikator kelembagaan kelompok terhadap persiapan pembentukan BUMP. Data dikumpulkan dengan skala Likert, dengan tiga level pemeringkatan, menggunakan angket, dan akumulasi skor total diklasifikasikan menjadi rendah (120-200), sedang (200-280), dan tinggi (280-360). Selanjutnya dilakukan analisis *structural equality modeling* (SEM) dan *path analysis*. Hasil penelitian menunjukkan bahwa level kelembagaan kelompok ternak kambing di Kecamatan Borobudur, Kabupaten Magelang berada pada level sedang, serta terdapat 2 (dua) variabel yang berpengaruh terhadap pembentukan BUMP pada derajat kepercayaan 95% (P<0,05), yaitu variabel performa kelembagaan kelompok ternak dan variabel manajemen organisasi kelembagaan kelompok ternak. Program perbaikan untuk meningkatkan taraf kelembagaan usaha petani di Magelang hendaknya lebih menekankan pada aspek kinerja kelembagaan dan manajemen organisasi sebagai arahan akhir.

Kata kunci: BUMP, Kelembagaan Ekonomi Petani, Peternak Kambing, *Structural Equation Modelling* (SEM)

INTRODUCTION

Agriculturists are professionals who work in various fields, including land rearing, animal maintenance, and throughout the farm circular business entity (Haryati 2021). Thus, a regulation of the Minister of Agriculture of the Republic of Indonesia Number 67 of 2016 concerning the Development of Farmer Institutions states that institutions are developed from, by, and for farmers in order to strengthen and fight for the interests of farmers. Farmer institutions including farmer groups are formed by livestock farmers on the basis of common interests, common social, economic, and resource environmental conditions, common commodities, and familiarity to improve and develop the businesses of their members (Rifa'i *et al.* 2021).

The development of goat farming in rural areas to be able to develop and be independent requires empowerment of farmers as subjects of livestock development, this is very important and includes a challenge and opportunity for the development of the livestock sub-sector, especially goats in rural areas. The tendency to decline in the production capacity of livestock commodities can be overcome through local wisdom that has tended to decline so that breakthroughs and support from technology, human resources (HR) are needed through the development of goat farmer groups.

The approach to coaching goat farmer groups for the development of goat farming businesses to achieve a productive economy can be done through participatory training interventions with a learning by doing pattern (Rasyid *et al*. 2016). The institution of the farmer group can be implemented well, if all aspects of the institution of natural resources, human and financial resources (Resources/R); Organization (Organization/O) and Norms (Norms/N)) are implemented well in order to achieve common goals in the group (Aminawar *et al.* 2018).

Furthermore, Regulation of the Minister of Agriculture (Permentan) Number 18 of 2018 concerning guidelines for developing agricultural areas based on farmer corporations states that farmer corporations are legal farmer economic institutions in the form of cooperatives or other legal entities with the majority of capital owned by farmers which are developed with a strategy of empowering farmers. Business entities that are expected to come from these farmer groups include Cooperatives, Limited Liability Companies (PT), and Commanditer Venootschap (CV). Farmer-Owned Business Entity (BUMP) which are institutions formed, owned, and managed by farmers with the aim of improving the quality of business and management of farming businesses in order to realize increased productivity, added value of products, and improvement of farm income, improvement of bargaining power and the ability to build synergistic partnerships (the role of related stakeholders), which are advanced, innovative, and sustainable.

Referring to Law Number 19 of 2013 concerning the protection and empowerment of farmers, BUMP is expected to become an effective farmer organization in empowering farmers by involving farmers in BUMP activities so that there is strengthening of the capacity of farmer human resources, farming businesses, farmer institutions, and the physical and social environment (Mardiyanto 2022). A common problem faced by livestock groups, including goat farmers, is weak institutionalization (Mutaqin *et al.* 2024). This is because many farmers have not yet joined a livestock group. Very few existing livestock groups have formal legal entities that would allow them to access grants from the Ministry of Agriculture, access capital loans, establish collaborative networks with investors, or facilitate marketing collaborations.

According to data from the Central Statistics Agency (BPS) of Central Java Province for the 2024 fiscal year, Magelang Regency is one of the areas with quite a lot of small livestock (goats/ sheep). Borobudur District is the district with the largest goat population in Magelang Regency, which is 18,644 heads. In general, there are still many smallholder farmers in Borobudur District who are not/have not joined farmer institutions (farmer groups, farmer group associations, associations, etc.).

Empowerment and strengthening of community goat farmers will be stronger and more independent if the farmers are willing to join a farmer institution, which can later be increased in capacity and capability to become a Farmer-Owned Business Entity (BUMP). Previous research related to livestock farming institutions studied more natural resource and financial aspects (Rasyid *et al.* 2018), measuring performance using qualitative methods (Kaharudin 2025), assessing performance using SWOT analysis (Manalu 2018), using the Miles and Huberman interactive analysis model (Ulfa *et al.* 2021), while this research will analyze the main aspects for carrying out the institutional transformation of livestock groups into BUMPs using quantitative methods.

Based on this, a study was conducted with the aim of analyzing the institutional level (institutional performance, institutional organizational management, operational techniques, and farmer business management) of goat farmer groups in Magelang Regency and analyzing the relationship between the institutional aspects of the farmer group and the preparation for the transformation of BUMP.

MATERIALS AND METHODS

The study was conducted from November to December 2024 in Borobudur District, Magelang Regency, Central Java Province with the location determined purposively, according to the largest number of goat livestock population. Data were obtained using a series of questions (questionnaires) and in-depth interviews with 40 goat farmers from 5 (five) farmer groups according to Table 1.

The data obtained in the study include primary and secondary data. Primary data were obtained directly from the source (goat farmers) either in the form of field data/facts or in the form of opinions/ideas. The collection of primary data was carried out through direct interviews with each goat farmer using a questionnaire instrument that had been provided previously. Secondary data were obtained from agencies related to this study, including the Agricultural Extension and Human Resources Development Agency,

Table 1. Respondents of Farmer Groups in Magelang Regency

No	Name of Farmer Groups	Location	Number of Respondent (person)
1	Jati Mulyo III	Karangjati, Wringin Putih, Borobudur	8
2	Maju Makmur	Sigug, Bumiharjo, Borobudur	8
3	Genjah	Miri Ombo Wetan, Giripurno, Borobudur	8
4	Margo Mulyo	Candirejo, Borobudur	8
5	Menoreh	Kerug, Majaksingi, Borobudur	8
		Total	40

the Central Statistics Agency (BPS), Agriculture Office of Magelang, Animal Husbandry Office of Magelang, and other similar agencies.

To measure the first research objective, namely to conduct an analysis of institutional variables in goat farmer groups in Borobudur District, Magelang Regency, which consists of sub-variables: 1) institutional farmer performance (training, role of poknak in the community, group activity), 2) institutional organizational management (organizational structure, business networks and business partners, business/production units), 3) operational techniques (livestock business techniques, technology utilization, business infrastructure), and 4) farming business management (agribusiness farming, economic scale, upstream to downstream agribusiness) a Likert scale is used with the measurement given a score weighting with the following answer levels: low = 1, moderate = 2, and high = 3 with the class range as follows (Haryanto 2023):

Highest Score = Highest Weight × Number of Resp. × Number of Questions
= 3 × 40 × 3 = 360
Lowest Score = Lowest Weight x Number of Resp. × Number of Questions
= 1 × 40 × 3 = 120
Class Range = (Highest Score – Lowest Score)/ Number of Classes
= (600 – 200)/ 3 = 80

From these values, the following score categories can be created:
Low = 120 s.d 200; **Moderate** = 200 s.d 280; **High** = 280 s.d 360

In order to describe the answer to the third research objective, namely analyzing the relationship between institutional strengthening aspects and the requirements for the establishment of Farmer-Owned Business Entity (BUMP), the Partial Least Square - Structural Equation Model (PLS-SEM) method is used using Smart-PLS software. Other tests that support the analysis of the second objective are Validity Test, Reliability Test, Normality Test, Measurement Model Suitability Test, Structural Model Suitability Test (Model Modification and Bootstrapping), and Path Analysis.

RESULTS AND DISCUSSION

The institutional performance aspect of livestock farmers is an aspect that must be possessed by livestock farmers' organizations in the research location to be developed into BUMP according to the criteria of Permentan No. 18 of 2018. Attached is the distribution of values for each indicator in the institutional performance of livestock farmers listed in Table 2. Table 2 shows that the total assessment score for the institutional group of goat farmers in Borobudur District, Magelang Regency is 266, this result indicates that the institutional group of goat farmers is in the Medium category (score 200 - 280). The results of these calculations are in accordance with research conducted by Harniati *et al.* (2018) which stated that the economic institutional performance of farmers is quite developed, but organizationally it is still weak.

Table 2. Assessment of Farmer Groups Institutional Performance

No	Category	Score	Frequency (person)	Percentage (%)	Weight
1	*2*	*3*	*4*	*5*	*6*
1	**Training/ Field School**				
	Low	3	7	17.5	21
	Moderate	2	24	60	48
	High	1	9	22.5	9
	TOTAL		**40**	**100**	**78**
2	**Role of Farmer Groups**				
	Low	3	12	30	36
	Moderate	2	28	701	56
	High	1	-		
	TOTAL		40	100	92
3	**Farmer Groups Activity**				
	Low	3	17	42.5	51
	Moderate	2	22	55	44
	High	1	1	2.5	1
	TOTAL		**40**	**100**	**96**
			TOTAL SCORE		**266**

Source: Primary Data Analysis (2024)

The role of farmer groups in the community also greatly influences the institutional performance of farmer groups, related to efforts to empower their members, some roles of farmer groups are as business units, as a means of cooperation, farmer services, and as learning classes (Manalu 2018; Mauludin 2012). The activity of farmer groups, including through routine meetings, joint assignments is also one of the factors/indicators that marks the institutional performance of a farmer group. According to Mawarni (2017), one of the characteristics of an independent farmer group is the existence of member meetings or management

meetings that are held periodically (every 2-4 weeks) and continuously.

The second indicator that is the assessment of the economic institution of goat farmers towards a Farmer-Owned Business Entity (BUMP) is the organizational management of the farmer group institution listed in Table 3. Table 3 shows that the total assessment score for the organizational management of the goat farmer group institution in Borobudur District, Magelang Regency is 256, this result indicates that the organizational management of the goat farmer group institution is also in the medium category (score 200 - 280). Rischkowsky (2017) stated that the management of rural goat farmer organizations still has less than optimal performance. Likewise, according to Intano and Madarisa (2018); Syarief and Fatul (2023), who examined the management of livestock group organizations, they stated that the management capacity of goat livestock group institutional organizations is still weak so that many improvements need to be made.

Table 3. Assessment of Institutional Organizational Management of Farmer Groups

No	Category	Score	Frequency (person)	Percentage (%)	Weight
1	*2*	*3*	*4*	*5*	*6*
1	**Farmer Groups Organizational Structure**				
	Low	3	19	47,5	57
	Moderate	2	20	50	40
	High	1	1	2,5	1
	TOTAL		**40**	**100**	**98**
2	**Business Network and Business Partners**				
	Low	3	3	7,5	9
	Moderate	2	28	70	56
	High	1	9	22,5	9
	TOTAL		**40**	**100**	**74**
3	**Business/ Production Unit**				
	Low	3	10	25	30
	Moderate	2	24	60	48
	High	1	6	15	6
	TOTAL		**40**	**100**	**84**
	TOTAL SCORE				**256**

Source: Primary Data Analysis (2024)

According to Suradisastra (2008) the ability of a farmer institution to utilize supporting components is a qualitative benchmark for the performance of the institution in following the rhythm of development in the ongoing system. Active farmer groups with adequate levels of performance will be able to establish partnerships and mutually beneficial cooperation with other agencies, including marketing, capital, processing, etc. According to Nugroho *et al.* (2022), the factors that influence the role of farmer groups include: production input provider facilities, marketing facilities, cooperation with related external parties, regular and ongoing meetings, and communication facilities with sources of information and technology.

The third indicator that is the assessment of the economic institution of goat farmers towards the Farmer-Owned Business Entity (BUMP) is the technical operational performance of the farmer group listed in Table 4. Table 4 shows that the total assessment score for the technical operational institution of the goat farmer group in Borobudur District, Magelang Regency is 250, this result indicates that the technical operational institution of the goat farmer group is both in the Medium category (score 200-280). These results are in line with research conducted by Muaharramah *et al*. (2020) who stated that the technical business of goat farmers is not very good, and even tends to be poor in some livestock groups, due to unskilled management. Every farmer business must pay attention to the quality of the farmers who manage it, both in terms of knowledge, farmer skills, business management, and capital strengthening (Syukur 2016). According to Permana (2023), the success of agricultural development, especially in the livestock sector through the business of ruminant livestock of the goat type, is largely determined by the ability or capacity of its human resources.

Table 4. Operational Technical Assessment of Farmer Groups

No	Category	Score	Frequency (person)	Percentage (%)	Weight
1	*2*	*3*	*4*	*5*	*6*
1	**Farmer Activity**				
	Low	3	12	30	36
	Moderate	2	26	65	52
	High	1	2	5	2
	TOTAL		**40**	**100**	**90**
2	**Utilization of Technology/ Mechanization**				
	Low	3	5	12,5	15
	Moderate	2	28	70	56
	High	1	7	17,5	7
	TOTAL		**40**	**100**	**78**
3	**Farmer Infrastructure**				
	Low	3	6	15	18
	Moderate	2	30	75	60
	High	1	4	10	4
	TOTAL		**40**	**100**	**82**
	TOTAL SCORE				**250**

Source: Primary Data Analysis (2024)

The last indicator that is the assessment of the economic institution of goat farmers towards the Farmer-Owned Business Entity (BUMP) is the farmer business management carried out by the goat farmer group listed in Table 5. Table 5 shows that the total assessment score for goat farmer business management in Borobudur District, Magelang Regency is 254, this result indicates that goat farmer business management is also in the Medium category (score 200 - 280). Purbaningsih *et al.* (2025) stated that farmer businesses are not yet fully business oriented due to the low scale of the business, apart from that,

Table 5. Assessment of Farmer Group Business Management

No	Category	Score	Frequency (person)	Percentage (%)	Weight
1	*2*	*3*	*4*	*5*	*6*
1	**Farmer Agribusiness**				
	Low	3	10	25	30
	Moderate	2	21	52,5	42
	High	1	9	22,5	9
	TOTAL		**40**	**100**	**81**
2	**Economic Scale of Farmer**				
	Low	3	4	10	12
	Moderate	2	32	80	64
	High	1	4	10	4
	TOTAL		**40**	**100**	**80**
3	**On-Farm Activity**				
	Low	3	18	45	54
	Moderate	2	17	42,5	34
	High	1	5	12,5	5
	TOTAL		**40**	**100**	**93**
	TOTAL SCORE				**254**

Source: Primary Data Analysis (2024)

another factor that influences the sub-optimality of farmer businesses is weak access to capital resources (Chrisna *et al.* 2021; Husnaeni *et al.* 2024). Farmer business management, including farmer agribusiness, the economic scale of goat farmer businesses, and goat farmer business from upstream to downstream owned by farmers have not been able to fully support the institutional performance of goat farmer groups in Borobudur District - Magelang Regency.

The motive of smallholder farmers to raise livestock is only for savings, even for some farmers, goat farming is only a side business that will be sold when there is an urgent need. The infrastructure for livestock farming is usually not fully and adequately owned by smallholder goat farmers. Limited capital is also a factor that hinders the completeness of equipment/infrastructure for goat farming. Limited capital makes the development of goat farming constrained.

To answer the second research objective, namely analyzing the relationship between institutional aspects of goat farmers and the transformation of BUMP, Path Analysis using the Structural Equation Model (SEM) was used. The initial SEM model used to answer the research is according to Figure 1.

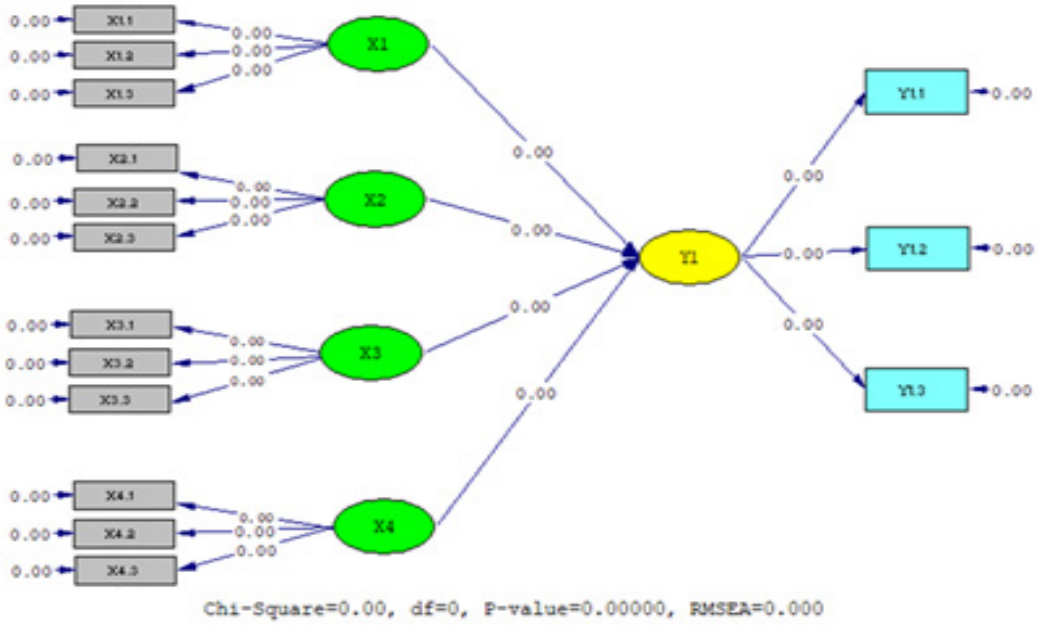

Figure1. Initial SEM Analysis Model of Strengthening Farmer Group Institutions for the Transformation of BUMP

Whereas:

X_1	**Performance of Livestock Groups**	**X_4**	**Livestock Management**
$X_{1.1}$	Training/ Field School	$X_{4.1}$	Agribusiness
$X_{1.2}$	Role of Livestock Groups	$X_{4.2}$	Economic Scale
$X_{1.3}$	Livestock Groups Activity	$X_{4.3}$	Livestock Activity (On Farm)
X_2	**Organizational Management**	**Y_1**	**BUMP Transformation**
$X_{2.1}$	Organizational Structure	**$Y_{1.1}$**	Institutional Aspect
$X_{2.2}$	Business Network and Business Partner	**$Y_{1.2}$**	Management Aspect
$X_{2.3}$	Business/ Production Unit	**$Y_{1.3}$**	Legality Aspect
X_3	**Operational Technical**		
$X_{3.1}$	Livestock Activity		
$X_{3.2}$	Utilization of Technology/ Mechanization		
$X_{3.3}$	Livestock Infrastructure		

Based on the results of the SEM analysis of the Goodness of Fit Test of the Outer Model, there is 1 (one) invalid indicator, namely X2.1 (organizational structure) with an outer loading value <0.5, so it is removed from the model. The next test after adjusting the model, namely the Reliability Test, shows valid results where the composite reliability value is> 0.7. The overall Composite Reliability value of the construct is obtained> 0.7, the overall loading factor> 0.7, and the Cronbach's Alpha value> 0.5 means that the five variables (X1, X2, X3, X4, and Y), after

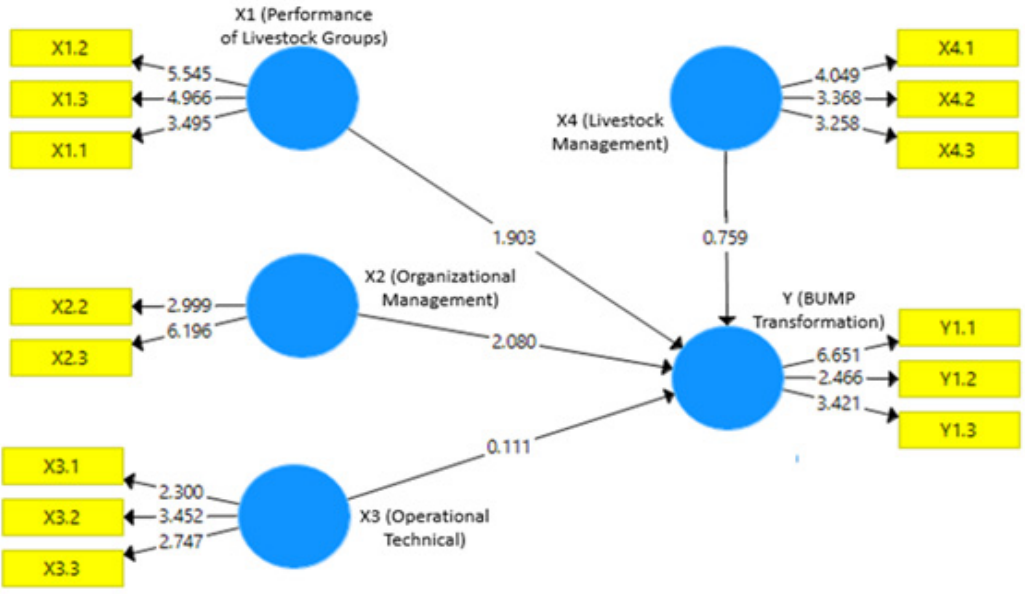

Figure 2. Results of SEM (Bootstrapping) Analysis of Transformation Farmer Group Institutions for the BUMP

being reduced by one indicator, are quite consistent when measuring the same concept or all of these constructs are reliable. A reliable construct value indicates more accurate and reliable results.

The R2 and R2 adjusted values of the BUMP transformation variable are respectively 0.445 and 0.382. The R2 value of 0.445 explains the percentage of BUMP transformation can be explained by 4 (four) variables, namely farmer group institutional performance, farmer group institutional organizational management, farmer group operational techniques, and farmer group business management of 44.5%. While the remaining 55.5% is explained by other variables outside the model, like facilities support, financial support, extensive training-mentoring, and postharvest research-development (Eriyatno *et al.* 2022). The final SEM analysis model from the results of adjustments and reductions to 1 (one) indicator, namely the Organizational Structure Variable (X2.1), obtained the score results according to Figure 2. Figure 2 shows that there are 2 (two) variables/indicators that influence BUMP transformation, namely the farmer group institutional performance variable and the farmer group institutional organizational management variable with values of 1.903 and 2.080 respectively. To ensure that the two variables are significant, it is continued with the path coefficient.

The path coefficient test of SEM analysis using Smart PLS on the institutional strengthening analysis model of goat farmer groups towards the transformation of BUMP in Borobudur District, Magelang Regency obtained results according to Table 6. Table 6 shows the results of the analysis that there are 2 (two) variables that have a significant effect with a 95% confidence level (P<0.05) on the transformation of BUMP, namely the Farmer Group Institutional Performance Variable and the Farmer Group

Table 6. Path Coefficients Transformation of Farmer Institutions into BUMP

Variable	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
1	*2*	*3*	*4*	*5*	*6*
X1 (Performance of Farmer Groups) -> Y (BUMP Transformation)	0.325	0.366	0.171	1.903	**0.029a**
X2 (Organizational Management of Farmer Groups) -> Y (BUMP Transformation)	0.602	0.508	0.29	2.08	**0.019a**
X3 (Operational Technical of Farmer Groups) -> Y (BUMP Transformation)	-0.03	0.057	0.27	0.111	0.456
X4 (Farmer Groups Business Management) -> Y (BUMP Transformation)	-0.133	-0.071	0.176	0.759	0.224

Source: Primary Data Analysis (2024)

Note: a = significant at the level of confidence 95% (P<0.05)

Institutional Organizational Management Variable, with the following details:

1. The institutional performance of farmer groups on the transformation of BUMPs obtained a positive original sample value (O) and p-values = 0.029 < 0.05, so H1: the institutional performance of farmer groups has a direct positive effect on the transformation of BUMPs is accepted.
2. The management of the institutional organization of farmer groups on the transformation of BUMP obtained a positive original sample value (O) and p-values = 0.019 < 0.05, so that H2: institutional organization management has a direct positive effect on the transformation of BUMP is accepted.
3. Operational Techniques on BUMP transformation obtained a negative original sample value (O) and p-values = 0.456 > 0.05, so that H3: operational techniques have a direct positive effect on BUMP transformation is rejected.
4. Farm Business Management on BUMP transformation obtained a negative original sample value (O) and p-values = 0.224 > 0.05, so H4: farm business management has a direct positive effect on BUMP transformation is rejected.

The institutional performance of farmer groups, especially in goat commodities which are characterized by the large number of training/field schools for farmers, the activeness of farmer groups, and the role of farmer groups in empowering the surrounding community are factors that influence the transformation of BUMP (Kaharudin 2025; Nurjanah *et al*. 2022). This is because the human resources who will later become BUMP administrators (Cooperatives, PT, or CV) are usually the surrounding community or community leaders or the younger generation who have the skills and capabilities to be invited to collaborate and work together to develop the farmer's business entity (Aziz *et al*. 2025), through the inclusion of shares owned by farmers/farmers (Ulfa *et al*. 2021). Kiptot and Franzel (2014) stated that the tenacity and exemplary characteristics of advanced farmers who are members of a strong institution and as part of the community can provide examples and encouragement directly or indirectly to the younger generation to carry out the same business in the livestock sector.

The management of the goat farmer group organization consisting of 2 (two) indicators, namely business networks/business partners and business/production units, also influences the transformation of BUMP. According to Sariati (2023), factors that influence the transformation of farmer/livestock groups into Farmer Economic Institutions (KEP) include the quality of human resources, access to financing, access to information, and cooperation networks, as well as capital/social networks (Arrahman *et al.* 2021). One of the absolute requirements in the transformation of BUMP is the existence of a business unit that is determined through the managerial organizational structure of the business entity. The business units in it include post-harvest processing of production results, marketing, capital, etc. The role of these business units is also related to the obligation to enter into partnerships or cooperation with other parties in terms of capital, marketing, purchasing livestock production facilities, etc. in order to facilitate farmers' access to resources (Amam and Rusdiana 2022).

CONCLUSION

Four indicators comprised farmer group institutional performance, institutional organizational management, farmer group operational techniques, and farmer business management, which turned to fundamental to establish institutional level in farmer groups in Borobudur district; still, the level was in moderate degree underlying accumulation score. Specifically, the farmer group's institutional performance and the farmer group's institutional organizational management were the leading ones to leverage the Farmer-Owned Business Entity (BUMP) transformation; thus, these two variables were prioritized to initiate the farmer business groups development program.

ACKNOWLEDGEMENT

Every author unacknowledged a conflict of interest. Authors would like to thank the Director of Polbangtan YOMA who funded this research using the 2024 lecturer research fund, as well as the goat farming groups in Borobudur District, Agricultural Extension Workers at the BPP Borobudur District who helped and facilitated during the research implementation.

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