



The Impact of the Existence of Village-Owned Enterprises (BUMDes) Business Sectors on Village Development in Indonesia

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ABSTRACT: Through various policy programs, the government provides stimuli for villages to manage their existing potentials, enabling them to develop independently and improve their economy. BUMDes (Village-Owned Enterprises) is one of the government's flagship programs in village development, performing its role as an economic and social institution. The existence of BUMDes is expected to enhance economic self-reliance and community welfare. This research aims to empirically analyze the influence of business sectors and the number of businesses managed by BUMDes on the level of village development in Indonesia. By using the Propensity Score Matching method and linear regression on BUMDes data between 2019 and 2021, this research concludes that BUMDes engaged in social and commercial sectors have a significant impact on the level of village development. However, an increasing number of businesses operated actually decreases the effectiveness of the presence of the Business Sector of BUMDes on village development.

KEYWORDS: BUMDes Business Sector, Economy, Propensity Score Matching, Village-Owned Enterprises, Village Development Index.

INTRODUCTION

Since the enactment of Undang-Undang No 6 Tahun 2014 concerning Villages, the government's attention has been refocused on rural development and community empowerment. In this law, it is stipulated that the basic goal of village development is to improve the welfare and quality of life of the community and address various socio-economic problems in the village. This objective is achieved through efforts to meet the basic needs of the people, build village infrastructure and facilities, develop local economic potential, and optimize the utilization of natural resources and the environment. The position of the village, which was previously considered as part of the structural government organization in the lowest level of the governance structure (local state government), has now changed. Villages have the ability to manage their own governance system independently and inclusively (self-governing community) (Wijaya, 2018). Therefore, various direct government aids to villages are expected to serve as stimuli to enable the villages to manage their existing potential, leading to self-sufficient village development and economic improvement.

The introduction of various policies governing villages provides a special space for villages to have more authority in managing their own affairs independently. The government, through the Ministry of Villages, Disadvantaged Regions, and Transmigration (Kemendesa PDTT), has established the Priority for the Use of Village Funds, as outlined in the Ministerial Instruction (Inmen No. 1 Tahun 2017) concerning the Priorities of Kemendes PDTT Activities. These priorities include the development of Superior Rural Area Programs (Prukades), the establishment of Village-Owned Enterprises (BUMDes), the construction of village reservoirs (embung desa), and the development of village sports facilities.

One of the four priority programs, which has been massively promoted, is the Village-Owned Enterprises program (BUMDes). Since the enactment of the Village Law in 2014, the BUMDes program has become one of the main and flagship programs of the government in rural development efforts. BUMDes is a business entity managed at the village level and aims to run various productive businesses that align with the village's potential, with the goal of improving the welfare of the rural community. The existence of BUMDes is expected to be the main driver of rural economic development by harnessing the village's resources and potential. Through BUMDes, the rural community is encouraged to manage their economy independently and autonomously (Prabowo, 2014). In its journey, the development of BUMDes has progressed rapidly and garnered attention. Since 2014, the number of Village-Owned Enterprises (BUMDes) has significantly increased, with thousands of villages forming and revitalizing local economic potential under BUMDes. In 2014, there were 1,022 BUMDes, and by the year 2020, there were as many as 51,134 active BUMDes units (Kemendesa PDTT, 2020).



Apart from being an entity that serves as a pillar of village economic development, utilizing various village potentials, BUMDes also functions as a commercial institution to generate economic profits and, at the same time, as a social institution, providing a platform to address various socio-economic issues in the village, as stated in Pasal 87 UU Desa. As a village economic entity with both social and commercial benefits, BUMDes can engage in business activities by developing various types of enterprises or diversifying rural economic units according to the potential held by the village.

The previous empirical studies related to BUMDes mostly focus on the impact of BUMDes' presence in a village on the economic activities of the rural community. For example, research conducted by (Srirejeki, 2018; Kania, et al., 2021) shows that BUMDes can become a new economic force in rural development. BUMDes has the potential to drive economic growth in rural areas through effective resource management and utilization of local potentials. The study highlights that the village government's authority can strengthen the role of BUMDes not only as a government fund intermediary but also as a facilitator to promote rural economic activities effectively. The results of the study conducted by (Puri & Khoirunurrofik, 2021) also indicate that villages with BUMDes have a greater impact on improving the economic conditions of the rural community compared to villages without BUMDes. BUMDes, as a village enterprise, positively influences the existence of micro, small, and medium enterprises (MSMEs) and agricultural input sales kiosks (saprota).

Meanwhile, research conducted by (Zuhdiyaty & Syafitri, 2019) argues that there are five capitals needed to mobilize BUMDes: natural capital, physical capital, human capital, social capital, and financial capital. To manage and strengthen BUMDes for the improvement of community welfare, support is required from all these capitals, including financial, natural, physical, human, and social capital. The findings are in line with the research by (Bachrein, 2010), which states that the potential of village resources, both natural and human resources, has not been optimally utilized. Therefore, the presence of local village organizations plays a crucial role in supporting successful development in rural areas through the utilization of existing human and natural resources. The existence of local village institutions encourages synergy in rural development through various programs and activities.

Some international studies, such as (Steiner & Atterton, 2015) conducted in South Australia, suggest that rural enterprises can be a solution to address economic, social, and environmental challenges. Meanwhile, research by (Richer, 2017; Steiner & Teasdale, 2019) in rural areas of Austria, Poland, and Scotland indicates that rural social enterprises can mobilize ideas, resources, and support from external sources. As a result, social enterprises can represent a means to tackle challenges and promote sustainable economic development in rural areas. Rural social enterprises have the potential to enable integration in solving local issues at the village level.

The passage discusses the need for further research on the role of BUMDes as both commercial and social institutions in contributing to the overall rural development. Most existing studies have focused on specific regions and the impact of BUMDes on the rural community. However, there hasn't been comprehensive research on the aggregate level, particularly concerning the role of BUMDes in influencing the Index of Village Development (IDM). The IDM is an instrument developed by the Ministry of Village, Disadvantaged Regions, and Transmigration, reflecting the achievements of rural development and the level of self-sufficiency in Indonesian villages. It comprises three major aspects: economic, social, and ecological aspects, in line with the concept of sustainable development stated in Pasal 74 ayat 2 of the Village Law, which integrates social, economic, and ecological dimensions in development. Therefore, in order to complement and expand previous research, the author aims to conduct further research and examine the aggregate impact of BUMDes' existence as both commercial and social institutions, focusing on their business fields (social and commercial) on rural development in Indonesia. Additionally, the researcher seeks to investigate to what extent the number of managed business units can support the presence of BUMDes' business fields in contributing to rural development. In summary, the proposed research intends to explore and analyze how BUMDes, acting as both commercial and social institutions, influence rural development in Indonesia when considering their business fields (social and commercial). Furthermore, the study will examine the relationship between the number of managed business units and their contribution to rural development.

LITERATURE REVIEW

A. *The Theory of Rural Development*

Development is an effort to improve the standard of living of the community and systematically utilize various available potentials (Easton, 1985). According to Kartasmita (1996), rural development is a strategy designed to enhance the social and economic conditions of communities in specific regions. The process of rural development involves planning, implementation, and the development of human resources, natural resources, as well as physical and social infrastructure in rural areas. The goal is to



improve the quality of life of rural communities and achieve economic, social, and cultural progress. Mubyarto (1994) states that rural development is a continuous process aimed at increasing the welfare of rural communities through the development of human resources and the utilization of available natural resources.

Robert Chambers, in his book titled "Rural Development: Putting the Last First" (1983), introduced the concept of participatory theory in rural development, which emphasizes the active involvement of rural communities in all aspects of development. According to this theory, the participation of rural communities is essential in the planning, implementation, and evaluation of each rural development activity. Therefore, rural development can be seen as an effort to improve the quality of life of rural communities through the development of human resources and the utilization of natural resources in rural areas.

This theory of rural development aligns with Undang-Undang No 6 Tahun 2014 concerning Villages, which provides a new paradigm in rural development and places rural areas as a priority for development. The government views villages as a primary force in national development, harnessing the potential of resources in rural areas as the foundation for development. Through this paradigm, the government believes that initiating development from rural areas can address various social and economic issues in the region. Therefore, focusing on rural development is a government strategy to reduce inequality through economic equalization policies as part of the transformation of the national economic structure. The implication of this economic development is expected to create more job opportunities, increase income, and improve the overall welfare of the community (Sukirno, 2006).

One of the approaches to rural development is the endogenous rural development approach, which is a "bottom-up" paradigm. This approach emerged in the mid-1970s in Europe, North America, and Japan (Yamamoto, 2007). Endogenous development is a regional approach that emphasizes economic growth and structural change driven by local communities and the utilization of local potentials in development, with the aim of improving the standard of living of the local population. This approach integrates social aspects with economic aspects in the development process. In endogenous development, investments made by the government and the private sector are not only aimed at increasing the productivity and competitiveness of businesses but also at improving the lives of the local community (Massey, 1995; Arecona, 1995 in Barquero, 2015). This approach recognizes the importance of involving and considering the needs and potentials of the local community in development, so that development efforts can be more in line with local conditions and needs. The endogenous development approach in rural development is based on the assumption that the resources of a region (natural, human, cultural) are key to sustainable development (Lowe et al., 1998).

The theory of endogenous development aligns with the current spirit of rural development, which envisions creating autonomous villages capable of managing their governance and community. In this concept, villages are no longer just subjects of central or regional government programs but become subjects with the authority to design, initiate, and determine the direction of village development. The aim is to create welfare and economic self-reliance for rural communities. By empowering villages in managing development, it is hoped that they can better respond to local needs and potentials. Villages become more proactive in designing development programs that suit their own characteristics and needs. Consequently, villages are expected to achieve a higher level of well-being and create conditions where rural communities can be economically self-reliant.

B. The Village-Owned Enterprise Program (BUMDes)

The significant government intervention in village management has implications for hindering the ability of rural communities to create and innovate. As a result, there is a market failure in the role of the village economy. Ineffective institutional systems and economic mechanisms lead to the dependency of villages on government assistance (Pusdatin KDPDPTT, 2019). The enactment of the Village Law Number 6 of 2014 brings new hope for villages to manage their own economic activities, one of which is through the establishment of village enterprises or business entities. In essence, the establishment of these enterprises, known as BUMDes, is based on the needs and potentials of rural areas with the aim of strengthening the rural economy and improving the well-being of the community.

BUMDes, as village business institutions, is mandated in the Undang-Undang Desa No. 6 tahun 2014 and established through the Ministerial Regulation of the Village, Permendes No 4 tahun 2015. These policies provide a legal framework for BUMDes as village economic institutions to manage and maximize the potential of the village to enhance the welfare and economic self-reliance of the village community (Prabowo, 2014; Srijekiki, 2018; Kania et al., 2021). BUMDes is established as a village institution with the aim of conducting various productive businesses according to the village's potential to increase village income and become a driving force for the production of economically valuable products, thus promoting the well-being of the rural community.



Through BUMDes, rural communities are encouraged to manage their economy independently. In order to fulfill the mandate of the Village Law and to improve the economy and strengthen the role of the community, the existence of an economic entity in the village is needed to regulate and facilitate access to the distribution and management of village potentials. Proper management of these potentials can be a tool to achieve village self-reliance. One way to achieve this is through the presence of an economic institution operating at the village level known as the Village-Owned Enterprises or BUMDes. Therefore, BUMDes serves as a pillar of rural economic activities, functioning as a commercial institution aiming to generate economic benefits, such as profits for the village, by providing local resources in the form of goods or services. It also serves as a social institution aiming to help address various socio-economic issues in the village (Pusdatin KDPDPT, 2019).

In general, BUMDes provides two main benefits, namely commercial services and public services (Kemendes PDTT, 2019).

- As a commercial entity, BUMDes is expected to create a broader space for the community to generate new job opportunities in the rural areas, thus increasing their income.
- As a social entity or public service provider, BUMDes aims to meet the needs of the community through its contributions in the social service sector.

As a village economic entity, which plays a role in providing both social and commercial/economic benefits, BUMDes can develop various types of businesses or diversify rural economic units. The business sectors that can be developed by BUMDes, as outlined in Ministerial Regulation Number 4 of 2015, include:

- Village businesses with the primary purpose of providing public/social services to the community while also gaining economic benefits. Examples of such social businesses are the provision of clean water systems, community granaries, village electricity, and other appropriate local resources and technologies intended to provide social benefits to the village residents.
- Village businesses with the primary aim of achieving commercial/economic benefits, aiming to increase village income and boost the local economy. Some of the business sectors that focus on economic benefits include renting businesses, brokering, trading, financial businesses, and cooperative ventures.

By developing these business sectors, BUMDes can contribute to the overall development of the village economy and the well-being of its residents. It serves as a vital institution in promoting social and economic growth, supporting the community's needs, and fostering sustainable development in rural areas.

C. The Village Development Indicators

Various priority programs have been established by the government to support development and achieve the well-being and economic independence of rural communities. However, the success of these programs is sometimes challenging to measure accurately, partly due to inadequate measurement instruments. To address this, the government, through the Ministry of Villages, Disadvantaged Regions, and Transmigration (Kemendes, PDTT), calculates the level of village development using an instrument known as the "Indeks Desa Membangun" (IDM) or Village Development Index. IDM is designed using various indicators developed based on the concept that achieving a self-reliant village requires a framework of sustainable development that considers various aspects of life, including social, economic, and ecological aspects.

IDM is designed as a comprehensive instrument to measure the level of village development, taking into account social, economic, and ecological aspects. By using these indicators, IDM provides an overview of the extent to which a village has achieved self-reliance and well-being through sustainable development. The use of IDM as a measurement instrument guides the government and relevant stakeholders in planning and implementing more effective village development programs that align with the community's needs. Moreover, IDM can also be used as an evaluation tool to assess the progress of village development over time and identify areas that require more attention to enhance the well-being and economic independence of rural communities. IDM is a composite index consisting of the Social Resilience Index (Indeks Ketahanan Sosial - IKS), Economic Resilience Index (Indeks Ketahanan Ekonomi - IKE), and Environmental Resilience Index (Indeks Ketahanan Lingkungan - IKL). IDM comprises 22 dimensions and 54 indicators.

Based on the assessment of each indicator in the IDM, the village will be classified into five categories: very underdeveloped village, underdeveloped village, developing village, advanced village, and self-reliant village. The classification of village status in IDM provides a clear picture of a village's position in its development journey. This helps the government identify villages that require greater priority and intervention, as well as villages that can serve as examples or inspirations for others in achieving economic independence and community well-being.



D. PeThe Role of Village-Owned Enterprises (BUMDes) in Village Development

According to Gerard McElwee, a professor from York St John University who studies rural issues, in his research on rural development programs in several countries, he stated that the main constraint in rural development is the limited access to authority. He believes that in the development process, villages should not only be the object of development but should also become subjects with the authority to manage and determine strategies for utilizing the village's wealth and potential, as well as setting the direction for village development to achieve well-being and economic independence for the rural community.

Considering this issue, the presence of the Village-Owned Enterprises (BUMDes) brings new hope and enthusiasm to villages in promoting self-governance and community life. BUMDes is expected to be the main driver of economic development and welfare improvement for the village population. Local economic development is a participatory process where the local community from various sectors collaborates to stimulate local commercial activities for creating a strong and sustainable economy (Trousdale, 2003).

BUMDes, or Village-Owned Enterprises, is a village-level business institution that plays two roles and functions. As a social institution, BUMDes is responsible for improving the social welfare of the village community. On the other hand, as a commercial institution, BUMDes is tasked with developing the village's economy. In its role as a commercial institution, BUMDes is expected to create new sources of income for the village community by managing various productive businesses. The combination of these two roles makes BUMDes a crucial institution in village development. By playing a dual role as a social and commercial institution, BUMDes can help enhance the social and economic well-being of the village community and accelerate overall village development.

In the context of village development, the level of self-reliance achieved by a village through the presence of BUMDes serves as an indicator of development achievement. When villages have strong and well-functioning BUMDes, they are more likely to have greater control over their resources, decision-making processes, and overall development trajectory, leading to increased well-being and economic independence for the local community.

RESEARCH METHODOLOGY

A. Conceptual Framework

Based on the theories and previous research discussed, BUMDes, as a pillar of rural economic development, serves both social and commercial functions. As an institution that aims to provide social and commercial benefits, BUMDes can develop various business units based on the potential of the village. This research aims to examine how the business sectors operated by the Village-Owned Enterprises (BUMDes) influence the level of village development, measured by the Village Development Index (IDM) score.

The Village Development Index (IDM) score can improve depending on the village's ability to manage and utilize its potentials for achieving economic, social, and environmental self-reliance. The IDM provides a comprehensive assessment of various dimensions and indicators of development, reflecting the village's progress towards achieving sustainability and well-being. By focusing on different business sectors that align with the village's potential, BUMDes can play a vital role in promoting local economic growth, creating job opportunities, and enhancing the overall welfare of the community. Additionally, BUMDes can address social needs through initiatives that improve the quality of life for the villagers.

Ultimately, the success of BUMDes and its impact on the village's development will be measured by its ability to effectively utilize local resources, empower the community, and contribute to sustainable and inclusive growth. Through BUMDes, villages have the potential to become self-reliant and thrive economically, socially, and environmentally.

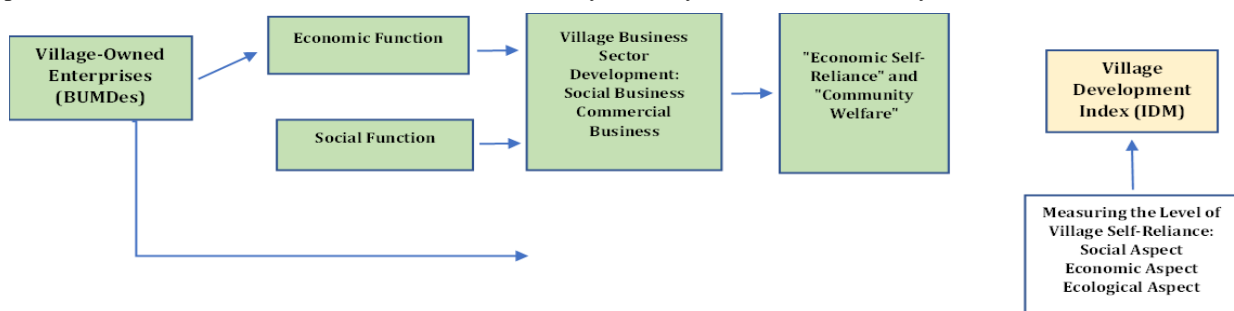


Figure 1. Conceptual Framework



B. Data Collection Method

The data used in this research is quantitative and consists of secondary data, specifically cross-sectional data. It includes information on the presence of Badan Usaha Milik Desa (BUMDes) in villages throughout Indonesia up to the year 2019 and the values of the Indeks Desa Membangun (IDM) from villages in Indonesia for the year 2021. The data sources are the Ministry of Villages, Development of Disadvantaged Regions, and Transmigration (Kementerian Desa Pembangunan Daerah Tertinggal dan Transmigrasi) for IDM values, and the village characteristics data from Potensi Desa (PODES) sourced from the Central Statistics Agency (Badan Pusat Statistik). The research sample includes all villages in Indonesia that have active BUMDes..

C. Data Analysis Method

1) Propensity Score Matching (PSM)

To estimate the impact of the existence of BUMDes' business fields on rural development levels, this research employs the Propensity Score Matching (PSM) method and Ordinary Least Squares (OLS) regression. The Propensity Score Matching method is used to identify differences in the development levels of villages where BUMDes operates both social and commercial businesses or only one of them. Furthermore, a multiple regression analysis (OLS) with robust standard error is conducted to examine the interaction between these business fields and the number of businesses managed by BUMDes.

According to Rosenbaum & Rubin (1983), Propensity Score Matching is a method that identifies the probability of a variable receiving treatment or intervention based on its characteristics before the intervention is given. Its purpose is to perform random sample selection and reduce bias in observational data (Pan & Bai, 2018). This matching method is commonly used in policy impact evaluations. Although the matching method significantly reduces bias, it cannot eliminate it entirely (Heckman et al., 1997). In this study, the PSM model used has the following equation:

$$ATT = E(\Delta | P(X), D=1) = E(Y1 | P(X), D=1) - E(Y0 | P(X), D=0)$$

The ATT (Average Treatment on Treated) represents the average impact of the existence of BUMDes' business fields on the level of village development (IDM score). The variable D is a dummy variable indicating two different groups: the treatment group (D=1) and the control group (D=0). X represents observed covariate characteristics. The equation above illustrates the probability that an individual will belong to the treatment group based on their covariate characteristics.

According to Khandker, Koolwal & Samad (2010), the steps taken using the PSM method are as follows: the first step is to estimate a model to find the propensity score, which is used to form a control group with similar characteristics to the treatment group. This propensity score is obtained through a probit or logit model. The logit or probit model is obtained by regressing the treatment variable with the available covariate variables in the data. By using this propensity score, a control group can be formed and compared with the treatment group in a counterfactual manner.

The next step is to perform matching analysis on the obtained propensity scores. In this step, the propensity scores are used to match the data between the treatment and control groups. Matching aims to produce a common support area, which is the area between the treatment and control groups where their characteristics are similar. The common support area shows the extent of data overlap between the treatment and control groups. Thus, the resulting common support area will filter out irrelevant or off-support data from the analysis, considering only data with similar characteristics between the treatment and control groups. Several matching methods can be used to find propensity scores, including Nearest Neighbor (NN), Radius Caliper, Stratification and Interval, and Kernel Matching. Each method has a trade-off between bias and variance that can affect estimation results, and there is no universally superior method over the others (Caliendo & Kopeinig, 2005). In this study, the matching technique used is Kernel Matching. The Kernel Matching method aims to maximize precision while maintaining sample size without worsening bias (by giving higher weights to better matches). Kernel matching is suitable for calculating the Average Treatment Effect on the Treated (ATT) (Garrido et al., 2014).

2) Regresi OLS

Additionally, to examine the influence of the interaction between business fields and the number of businesses, a regression model is used with the following mathematical equation:



$$IDM_i = \beta_0 + \beta_1 BU_i + \beta_2 (BU*JU)_i + \beta_3 Z_i + \epsilon_i$$

Where IDM_i represents the Village Development Index (IDM) score of a village i ; the independent variables include: (1) BU_i , which is a dummy variable representing the presence of Village-Owned Enterprises (BUMDes) business sectors in Village i (1 if BUMDes has both social and commercial business sectors, 0 if BUMDes has only one social/commercial business sector); (2) $(BU*JU)_i$, which is an interaction variable between the Business Sector and the Number of Businesses managed by BUMDes in Village i ; (3) variable Z is a set of control variables; (4) β represents the coefficients for each variable, and ϵ_i represents the error term.

Through this regression model, the research aims to understand the impact of BUMDes' Business sector and the interaction with the number of businesses on the village development. The results will provide valuable insights into how BUMDes can effectively contribute to the socio-economic growth and welfare of rural communities.

The research model aims to examine the influence of the presence of business sectors managed by Village-Owned Enterprises (BUMDes), supported by the number of businesses operated, on the level of village development, as measured by the IDM score. To ensure the appropriateness of the model used, the researchers conducted a Robustness Test by simulating the addition of control variables one by one into the research model. The estimation of the model in this study was conducted using the Stata MP 17.0 computer program.

RESULT AND DISCUSSION

A. The Estimation Result of Propensity Score Matching (PSM)

The use of the Propensity Score Matching (PSM) method in this research is to test whether there is a difference in the level of village development between villages that have Village-Owned Enterprises (BUMDes) with social and commercial businesses (treatment group) compared to villages that only operate in one business sector (control group). By employing the PSM model, this study will divide the treatment group into three subgroups, as illustrated in Figure 4.5 below:

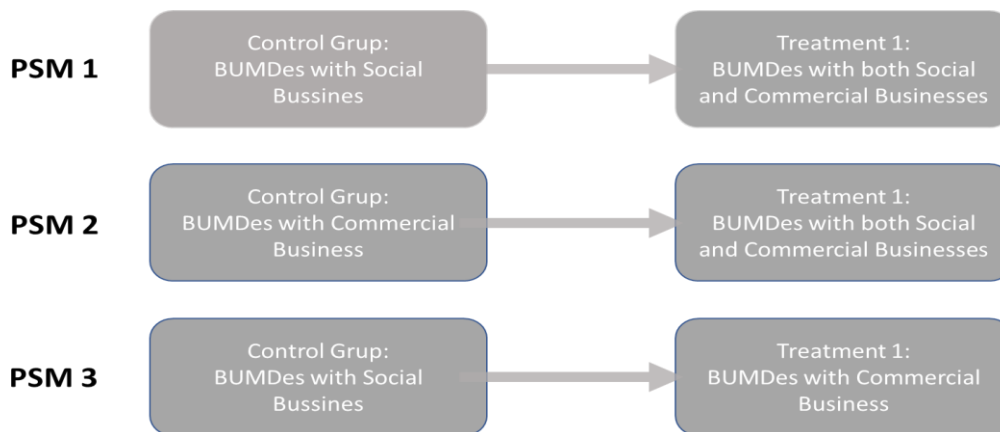


Figure 2. Model Propensity Score Matching

In this study, by dividing the treatment group into three categories, the research aims to analyze the differences between the types of businesses operated by Village-Owned Enterprises (BUMDes) and their impact on village development. At this stage, it is known that the number of villages with BUMDes engaging in both social and commercial businesses is 16,718, while villages with BUMDes operating solely in the commercial sector amount to 29,974, and villages with BUMDes engaged only in social businesses amount to 2,318.

The initial step in the PSM method is to estimate a model to find propensity scores that will form the counterfactual. In the evaluation process, two groups are needed for comparison: the treatment group consisting of villages with BUMDes engaged in



both social and commercial businesses, and the control group consisting of villages with BUMDes involved in only one business sector. In the PSM method, the control group is obtained by ensuring similarity in characteristics with the treatment group. This similarity in characteristics is achieved through a logit model that links the independent variable that represents the treatment with its covariate variables. This model is used solely to find the similarity in data characteristics to calculate the propensity scores.

The next step in the PSM method is to compare the propensity scores generated from the logit regression between the treatment and control groups using the appropriate and suitable procedure or method. In this study, the procedure used is "psmatch2," and the applied method is Kernel Matching. Through this testing, an area of common support between the treatment and control groups will be identified, ensuring that the data distribution in the intervention group does not overlap with that of the control group. The purpose of this common support area is to filter out data that falls outside of it, resulting in a balanced data distribution between the intervention and control groups as shown in the attached table of the common area of support.

Table 1. The Area Common of Support

Treatment Assignment	PSM 1		PSM 2		PSM 3	
	Off support	On support	Off support	On support	Off support	On support
Untreated	0	2318	0	29974	0	2318
Treated	19	16699	1	16717	2	29972
Total	19	19017	1	46692	2	32290
Observation	19036		46693		32292	

After matching the propensity scores between the data in the treatment group and the data in the control group for each model, the PSM method will yield the Average Treatment Effect on Treated (ATT) values on the overall Village Development Index (IDM) score as well as on each indicator observed from the Social Resilience Index (IKS) and the Economic Resilience Index (IKE). Table 4.4 below shows the outcome differences between the treatment group and the control group after matching with psmatch2 using the Kernel Matching method with an Epachnikov bandwidth of 0.06:

Table 2. The Average Treatment Effect on Treated (ATT)

Variabel	Sample	Treated	Controls	Diff	S.E.	T-stat
PSM MODEL 1						
IDM	Unmatched	0,702	0,660	0,0412	0,00186	22,15
	ATT	0,702	0,667	0,0342	0,00204	16,74
IKS	Unmatched	0,784	0,739	0,0449	0,00181	24,74
	ATT	0,784	0,750	0,0346	0,00221	15,70
IKE	Unmatched	0,625	0,559	0,0655	0,00294	22,26
	ATT	0,624	0,577	0,0477	0,00330	14,46
PSM MODEL 2						
IDM	Unmatched	0,702	0,658	0,0436	0,00081	54,12
	ATT	0,702	0,668	0,0338	0,00082	41,41
IKS	Unmatched	0,784	0,742	0,0424	0,00082	51,63
	ATT	0,784	0,751	0,0334	0,00081	41,15
IKE	Unmatched	0,625	0,560	0,0643	0,00127	50,48
	ATT	0,625	0,576	0,0483	0,00129	37,43
PSM MODEL 3						
IDM	Unmatched	0,658	0,660	-0,0024	0,00181	-1,31
	ATT	0,658	0,660	-0,0024	0,00193	-1,27
IKS	Unmatched	0,742	0,739	0,003	0,00191	1,31
	ATT	0,742	0,739	0,003	0,00211	1,26
IKE	Unmatched	0,560	0,559	0,0013	0,00287	0,44
	ATT	0,560	0,558	0,0018	0,00313	0,57



Based on the estimated ATT of the PSM model 1 (Village-Owned Enterprises with social and commercial businesses vs. Village-Owned Enterprises with social businesses only), it is evident that the presence of Village-Owned Enterprises with social and commercial businesses has an impact on the overall Village Development Index (IDM) with a difference of 0.0412 before matching. However, after matching, the difference decreases to 0.0342. Similarly, the impact of the presence of Village-Owned Enterprises with social and commercial businesses on the Social Resilience Index (IKS) is initially 0.0449, but after matching, the difference reduces to 0.0346. Regarding the Economic Resilience Index (IKE), the initial difference is 0.0655, which decreases to 0.0477 after matching. It can be observed that after matching, the difference in values decreases, and the t-value or T-stat for each indicator shows a value greater than the critical t-table value of 1.96. This indicates that statistically, the presence of Village-Owned Enterprises with both social and commercial businesses has a significant correlation with changes in the values of IKS, IKE, and overall IDM. Furthermore, it can be interpreted that the level of village development in villages with Village-Owned Enterprises engaged in both social and commercial businesses differs significantly from villages with Village-Owned Enterprises involved only in social businesses. The results suggest that the presence of BUMDes with social and commercial business activities has a noteworthy impact on the socio-economic resilience and overall development of the villages compared to those with BUMDes operating solely in social businesses.

In the second PSM model (Village-Owned Enterprises with social-commercial businesses vs. Village-Owned Enterprises with commercial businesses only), similar to the first model, it is observed that after matching, the difference (effect size) in each indicator decreases. The impact of the presence of social-commercial BUMDes on the Village Development Index (IDM) initially shows a difference of 0.0436, which decreases to 0.0338 after matching. The impact of the presence of social-commercial BUMDes on the Social Resilience Index (IKS) before matching is 0.034, which reduces to 0.0334 after matching. Lastly, the impact of the presence of social-commercial BUMDes on the Economic Resilience Index (IKE) shows an initial difference of 0.0643, which decreases to 0.0483 after matching.

Similar to the first model, the t-value or T-stat for each indicator in the second model is greater than the t-table value (1.96), indicating that statistically, the presence of Village-Owned Enterprises with social and commercial businesses has a significant correlation with changes in the values of IKS, IKE, and the overall IDM. These changes reflect the level of village development and self-reliance. Furthermore, it can be interpreted that the level of village development in villages with Village-Owned Enterprises engaged in both social and commercial businesses significantly differs from villages that have Village-Owned Enterprises involved only in commercial businesses. This implies that the combined social and commercial business activities of BUMDes have a notable impact on the overall development of the villages compared to BUMDes that focus solely on commercial businesses.

In the third PSM model (Village-Owned Enterprises with commercial businesses vs. Village-Owned Enterprises with social businesses), it can be observed that both before and after matching, the t-value or T-stat for each indicator is smaller than the t-table value (1.96). This indicates that statistically, the presence of Village-Owned Enterprises with only one business sector has an insignificant correlation with changes in the Village Development Index (IDM), which represents the level of village development, as well as the Social Resilience Index (IKS) and Economic Resilience Index (IKE) indicators. These findings also suggest that Village-Owned Enterprises with either commercial or social businesses alone have relatively similar effects on village development. In other words, there is no significant difference in the impact on village development between Village-Owned Enterprises that are solely focused on commercial activities and those focused on social activities.

The research results indicate that there are differences between the treatment and control areas, particularly in PSM model 1 and PSM model 2. The variables used as covariates in this study include village characteristics, which are also part of the 52 composite indicators of village development. This suggests that the presence of social and commercial business sectors managed by Village-Owned Enterprises (BUMDes) has a relatively more statistically significant impact on the Village Development Index (IDM) score compared to villages that have BUMDes with only one business sector. Therefore, proper management of BUMDes programs has the potential to support broader government programs related to village development. This indicates that through the existence of BUMDes and the development of social and commercial business sectors, synergies can be created between local economic development efforts and broader sustainable development goals, particularly in social and economic aspects.

However, on the other hand, when looking at the overall presence of business sectors managed by BUMDes, most of the villages with BUMDes have only one business sector, particularly in the commercial sector. This condition indicates that, overall, many villages still have BUMDes management that is not maximally functioning and not fully aligned with the intended function and role



of BUMDes. In summary, the research findings highlight the significant impact of BUMDes with both social and commercial business sectors on village development. This emphasizes the potential benefits of proper BUMDes management in supporting broader sustainable development goals. However, it also indicates that there is still room for improvement in the management of BUMDes in many villages, as most of them have only one business sector, particularly in the commercial sector, suggesting that BUMDes' full potential may not be fully realized in these areas.

B. Interaksi Bidang Usaha BUMDes dan Jumlah Usaha

In this study, the researchers also want to further examine the impact of the interaction between the presence of business sectors operated by Village-Owned Enterprises (BUMDes) and the number of businesses managed on the level of village development. This testing is conducted using Ordinary Least Squares (OLS) regression and robustness tests. The results of the regression are as follows:

Table 3. The Regression Results with Interaction Variables

Variabel	(1)	(2)	(3)	(4)
	PSM 1	PSM 2	OLS	OLS Control
Dependent Variable: IDM				
D BUMDes social-commercial	0.0695*** (0.0045)	0.0207*** (0.0016)	0.0305*** (0.00156)	0.0223*** (0.00136)
D BUMDes social-commercial * Number of Businesses	-0.0408*** (0.0026)	-0.0018*** (0.0004)	-0.00218*** (0.000421)	-0.00143*** (0.000363)
Constant	0.6022*** (0.0043)	0.6509*** (0.0009)	0.641*** (0.000890)	0.497*** (0.00385)
Control Variable	Yes	Yes	No	Yes
Observations	19,017	46,692	49,010	49,010
R-squared	0.1218	0.0826	0.091	0.245
Dependent Variable: IKS				
D BUMDes social-commercial	0.0586*** (0.0047)	0.0248*** (0.0015)	0.0347*** (0.00155)	0.0271*** (0.00139)
D BUMDes social-commercial * Number of Businesses	-0.0301*** (0.0028)	-0.0025*** (0.0004)	-0.00315*** (0.000422)	-0.00243*** (0.000374)
Constant	0.7006*** (0.0045)	0.7345*** (0.0009)	0.725*** (0.000934)	0.580*** (0.00409)
Control Variable	Yes	Yes	No	Yes
Observations	19,017	46,692	49,010	49,010
R-squared	0.0916	0.0718	0.079	0.203
Dependent Variable: IKE				
D BUMDes social-commercial	0.0833*** (0.0072)	0.0307*** (0.0024)	0.0479*** (0.00237)	0.0338*** (0.00203)
D BUMDes social-commercial * Number of Businesses	-0.0472*** (0.0044)	-0.0028*** (0.0006)	-0.00375*** (0.000614)	-0.00248*** (0.000524)
Constant	0.4994*** (0.0069)	0.5521*** (0.0014)	0.535*** (0.00133)	0.309*** (0.00577)
Control Variable	Yes	Yes	No	Yes
Observations	19,017	46,692	49,010	49,010
R-squared	0.0870	0.0660	0.079	0.203

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1



Table 3 shows the results of the interaction between Village-Owned Enterprises (BUMDes) with both social and commercial business sectors and BUMDes that have only one business sector (1), Dummy BUMDes with social and commercial vs. BUMDes with only social (2), Dummy BUMDes with social and commercial vs. BUMDes with only commercial (3), Dummy BUMDes with social and commercial vs. BUMDes with only one business sector (social or commercial) without control variables (4), and Dummy BUMDes with social and commercial vs. BUMDes with only one business sector (social or commercial) with control variables, which are village characteristics. Overall, the research results for each outcome variable show a significant positive correlation with the presence of Village-Owned Enterprises (BUMDes) that have both social and commercial business sectors at a significance level of 1%. However, after considering the interaction between business sectors and the number of businesses managed by BUMDes, the average effectiveness of the impact of BUMDes business sectors actually decreases.

Looking at Table 3, for part (4), the coefficient value has a slope of 0.0223, indicating that the presence of BUMDes with both social and commercial business sectors will increase the Village Development Index (IDM) score by an average of 2.23% compared to BUMDes with only one business sector. However, after interaction with the number of businesses, the effectiveness of the presence of BUMDes on the overall village development level decreases by -0.00143, meaning that adding 1 unit of BUMDes business will reduce the effectiveness of its impact on the overall village development by 0.19%. As for the Social Resilience Index and Economic Resilience Index, the presence of BUMDes with both social and commercial business sectors will increase the village development level for each indicator by 0.271 and 0.0338, respectively. However, an increase in the number of businesses will decrease the effectiveness of the presence of BUMDes on both the Social Resilience Index (IKS) and Economic Resilience Index (IKE).

The findings of this study indicate that having too many businesses under the management of BUMDes can lead to potential issues. When BUMDes handles too many business sectors, it may lack focus on a specific potential of the village, which can hinder the development of adequate skills and expertise in each business. Additionally, limited resources, including labor, capital, and infrastructure, may become constrained and challenging to optimize when managing multiple types of businesses.

This aligns with the research presented by Amirya (2019), stating that the income stability of BUMDes is not always favorable, and the more BUMDes businesses grow, the more problems may arise, such as issues with capital return (loan funds) and the lack of educated, trained, and professional resources to support business diversification. Furthermore, another study conducted by Zuhdiyati & Syafitri (2019) suggests that to effectively manage and strengthen the role of BUMDes, five types of capital need to be optimized: natural capital, physical capital, human capital, social capital, and financial capital. Managing too many business types can also increase the risk of failure for BUMDes. If one business sector fails, it can have an impact on other businesses and the overall financial stability of BUMDes. Therefore, it is recommended that BUMDes carefully select a few business sectors that have the potential for profitability and can be optimized with the available resources, considering the needs and potentials of the specific village. By doing so, BUMDes can enhance their efficiency and effectiveness in contributing to the development and welfare of the community.

CONCLUSION AND RECOMMENDATION

The results of this research conclude that the presence of Village-Owned Enterprises (BUMDes) that operate both social and commercial businesses has a significant impact on the level of village development measured by the Index of Village Development (IDM), compared to BUMDes that focus only on one business field, particularly in the indices of social resilience (IKE) and economic resilience (IKE). These findings support the role and function of BUMDes as a village economic institution that should simultaneously carry out both social and commercial functions. Additionally, the study also indicates that an increase in the number of businesses managed by BUMDes may decrease the effectiveness of their impact on the level of village development. This suggests that if BUMDes manages too many businesses, available resources such as labor, capital, and infrastructure may become limited and difficult to optimize, hindering effective business development. Therefore, it is crucial for BUMDes to consider the number of businesses they can manage effectively and efficiently, in line with the available resources and management capabilities.

The implementation of BUMDes programs has yielded positive results for village development. However, the government and the Ministry of Villages, Disadvantaged Regions, and Transmigration need to establish further policies, especially regarding the determination of business fields (commercial and social) that can be operated by BUMDes. These policies should align with the available resources in the village. Based on the findings of this study, it would be better for BUMDes to have an obligation to operate



both social and commercial business fields, considering their role not only in gaining profits but also in providing social services. Additionally, the government and the Village Government need to collaborate in setting further policies, especially in defining limits for the management of the number of businesses by BUMDes in each village, so that villages can maximize their potential in line with their available resources effectively.

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