

# Understanding the Dynamics of Village Economic Activities and Development in a Developing Country: A Case Study in Java Island, Indonesia

## *Memahami Dinamika Kegiatan Ekonomi dan Pembangunan Desa di Negara Berkembang: Studi Kasus di Pulau Jawa, Indonesia*

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### ABSTRACT

Indonesia as a country with very diverse regional typologies needs to pay attention to the effect of typological differences on the relationship between village administration human resources, village economic activities, and village development. This study examines the relationship between village administration human resources and village economic activities with village development in five provinces located on the island of Java, namely Banten, Special Region of Yogyakarta, West Java, Central Java, and East Java. Using the 2019 Village Potential Data (PODES), a descriptive statistical analysis was carried out for around twenty-two thousand recorded villages. In general, this study shows that in terms of IDM status, East Java province has the highest success in village development as indicated by the highest number of independent villages and developed villages compared to other provinces. Several other core variables, such as village administration human resources, village economic activities, and village development have unique performances in each of the analyzed provinces.

**Keywords:** *economic development, human resources, village*



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## INTRODUCTION

A village is an independent regional unit but tends to be spatially concentrated (Li et al., 2020; Townsend, 2016). As a region that is assumed to carry out productive economic activities, a village will also tend to have the behavior to be connected with other villages or with larger regional units (e.g., regional or national economy) to maximize the ultimate goal, namely regional welfare (Duan et al., 2021; Zhang et al., 2022). Therefore, a village economic activity and the quality of development in rural areas will be very difficult to separate from the context of maximizing the achievement of quality development in broader regional units, such as districts/cities and provinces (Badaruddin et al., 2021; Qin et al., 2020). The strategic role carried out by the village in the regional development process makes the village the target of policies at almost all levels of village administration, both national, provincial, district/city to the village administration itself (Li et al., 2019a; Zhang et al., 2019). The Indonesian village administration places the village as an integral territorial unit to be involved more proportionally in any national development strategy, considering that most of the population lives in rural areas.

The effectiveness of the village development agenda can be assessed using the Development Village Index (IDM), which takes into account three dimensions of sustainable development: Social, Economic, and Environmental. The IDM categorizes villages into one of five categories, ranging from very underdeveloped to independent, based on their performance in these areas. To improve the IDM, village administration intervention in the form of policies, strategies, and funding is required at all levels, including the village administration, in order to support interventions and create a framework for sustainable development. Since 2015, the Indonesian village administration has issued regional development policy options that are more village-centered (at the smallest village administration unit level), empowering villages to manage their economic development programs under the Village Fund program.

Kyriacou et al. (2017) demonstrates that technical aspects such as planning, design, and budgeting are not the only determining factors for the success or failure of development initiatives. The quality of the village administration and its human resources also play a crucial role in determining the success or failure of development projects. Odoardi and Muratore (2019) argue that the quality of highly educated human resources is a more significant contributor to the economic productivity of an area than the availability of natural resources. Hence, it is vital to prioritize the quality of human resources in village governance. Sutiyo and Maharjan's (2013) research indicates that the capacity of the village head is a crucial determinant of success in overcoming livelihood problems. In their study, the village head of Serang, who had a higher level of education than other village heads, achieved relatively better results in overcoming livelihood problems in Serang, Kedarpan, and Sumilir.

Several studies have highlighted the impact of leaders' education on the success of development projects. However, data from the Central Statistics Agency (2019) show that the majority of village heads in five provinces in Java Island, namely Banten, Yogyakarta Special Region, West Java, Central Java, and East Java, have a high school diploma, accounting for 53.23% of the total village heads. Meanwhile, 20.58% of village heads have less than a high school education. Based on this data, it can be inferred that many village heads in these five provinces have a low level of education. As village leaders, village heads are the most influential actors in society, and their views significantly influence decision-making in the community. Nevertheless, Sutiyo and Maharjan (2013) argue that a lower neighborhood head can play a supportive role in villages with low-capacity village heads. In this regard, the lower neighborhood head plays a vital role in the development process, such as mobilizing residents, maintaining environmental security, and implementing village development programs.

Furthermore, effective village development also relies on the village's ability to manage and leverage its resources to address the various issues that arise within the community. Indonesia is one of the developing countries with development priorities in developing rural and periphery areas with low accessibility, negative migration balance, and low education levels (Li et al., 2020; Naldi et al., 2015) If the village is able to effectively leverage all available resources, it can address these various issues. One trend that has developed recently is the rise of village economic activities, where quite several villages have succeeded in optimally developing their local potential so as to have a positive economic impact on the welfare of villagers who are the main economic actors in supporting these economic activities (Anderson & Lent, 2019; Merrell et al., 2021). Several previous studies have shown that human resources utilization and village economic activities are driven by the successful implementation of the village fund program (Arifin et al., 2020; Kania et al., 2021). Moreover, research has indicated that

promoting economic activities within the village, through the development of village-owned enterprises and unit cooperatives, the provision of basic facilities, and the availability of credit facilities for the community, can play a significant role in enhancing village development and improving the welfare of the community (Y. Li et al., 2019b; Nugraheni et al., 2018; Qian et al., 2022; Srirejeki, 2018).

Furthermore, it is crucial to determine which economic activities can drive a village towards achieving the status of a "developed" or "independent" village. This is significant because policies that focus on leveraging the economic potential of the village (as well as empowering the human resources of the village administration) must be tailored to the unique characteristics and specific typology of the region in which the village is situated. As a country that has a very diverse regional typology, based on geographical location, resource ownership, availability of basic infrastructure, and access to economic and social centers, it is necessary to pay attention to the influence of these different typologies on relations between village economic potential and village administration human resources (Stanny, et al., 2021).

One of the typologies of villages that can affect village development is the occurrence of natural disasters. It is known that natural disasters can cause physical and socio-economic damage (De Haen & Hemrich, 2007). The impact of natural disasters varies for each region and individual due to differences in their exposure and vulnerability to natural disasters (Aurori et al., 2015). However, De Haen & Hemrich (2007) mentioned that regions with low economic levels and poor communities tend to have higher vulnerability to natural disasters, thus the occurrence of disasters can have an impact on their socio-economic conditions. Therefore, the occurrence of natural disasters needs to be considered in assessing the success of village development. In addition, the location of the village or the distance between regions can also affect village development. The difficulty of accessibility in rural communities can impede economic activities in the villages. Most rural residents are involved in economic activities (farming, trading, etc.) that require better accessibility and efficient transportation infrastructure for high productivity (Olawole et al., 2010). Improving accessibility between regions through transportation system improvements in rural Nigeria has been proven to increase socio-economic activities in the study area, thus improving the welfare of the local community (Iro & Sylvanus, 2021).

This study aims to explain the relationship between village administration human resources and village economic activities with village development in five provinces on the island of Java, namely Banten, Special Region of Yogyakarta, West Java, Central Java, and East Java by utilizing Village Potential Data (PODES) in 2019. The importance of this research will be closely related to the effective use of human resources in village administration and village economic activities in supporting the success of village development. Mapping the relationship between village administration human resources and village economic activities with successful development in the village that considers the different typologies of villages in each province is expected to provide a deeper picture of the characteristics and uniqueness of village development policies in Indonesia.

## **METHODS**

This study's data source is the Village Potential (Podes) data in 2019. The Podes data contains all regional data at the lowest level of village administration in Indonesia, namely villages/*kelurahans*. The researchers of this study examined 22,471 villages across five provinces situated on the island of Java, namely Banten, Yogyakarta Special Region, West Java, Central Java, and East Java. To minimize any potential distractions arising from the COVID-19 pandemic, the study utilized data from 2019, and the researchers assumed that the study pertained to normal conditions.

The study utilized a descriptive analysis research method, which is a statistical approach that summarizes information and aims to provide a description of the studied sample. (Thompson, 2009). Using this method, researchers initially performed data management and preparation such as removing irrelevant or duplicated data and formatting the data. Subsequently, the data was visualized to facilitate analysis and interpretation before generating the desired conclusions (Proskin et al., 2007).

This study will focus on three main variables, namely village administration human resources, village economic activities, and village development. The dynamics of village administration human resources will be approached with several variables, namely the education level of the village head which is used to assess the quality of human resources owned by the village administration, then the number of village administration officials (village secretariat and technical implementers) and the number of village

territorial implementers (head of hamlet, head of RT, head of RW, etc.) which is used to assess the number of human resources owned by the village administration. Meanwhile, village economic activities will be measured using the number of Village Owned Enterprises (BUMDesa). In addition, the economic activities of rural communities will also be approached by considering transaction activities in the real and financial sectors. Transactions in the real sector by rural communities will be measured by the number of markets owned by the village, while transactions in the financial sector will be measured by the presence of banks, rural banks, and cooperatives in the village. As the last variable, the village development will be measured by utilizing Indeks Desa Membangun (IDM) developed by the Ministry of Village, Development of Disadvantaged Regions and Transmigration, Republic of Indonesia. IDM is a composite index formed based on three indices, namely the social resilience index, the economic resilience index, and the ecological/environmental resilience index.

This study also considers the role of two types of village typologies, namely (i) the characteristics of the village's disaster potential which are represented by the number of natural disasters experienced by the village in the last year, and (ii) the spatial factor represented by the distance between the village administration office and the sub-district village administration office.

## **THEORETICAL FRAMEWORK**

Rural development has emerged as a distinctive field of study and research practice in recent decades (Lowe et al., 2019). This fact was initiated by the emergence of ideas about the principle of "New Strategy" in development planning policies by the World Bank or other world institutions as a result of the search for alternatives to the previous approach, which tended to be more centered on development planning at the national and sectoral levels (Gehring et al., 2022; Harriss, 1982).

Certain geographical conditions generally characterize rural areas (Kraemer et al., 2020); however, rural areas have a much broader meaning than just the term 'spatial' or regionalism (Bosworth, 2012; Rickabaugh, 2020). Discussions on villages will cover cross-sectoral matters, including economic, social, cultural to political. Rural activities often discuss the role of networks, linkages, flows, and mobilization of resources to outputs, all of which are accommodated in a 'live' system (Ohe, 2019; Zanello et al., 2020). Concerning the development of an economic activity, rural areas present challenges related to the relatively small distribution of consumers, limited human resources, physical, technical, and capital infrastructure barriers, and distance from basic service centers (Schouten et al., 2012; (Zhu et al., 2020).

Regulation of the Minister of Villages, Development of Disadvantaged Regions, and Transmigration No. 2 of 2016 is on the Village Development Index. This index is a composite index consisting of three different indices: Social Resilience Index (IKS), Economic Resilience Index (IKE), and Village Ecological Resilience Index (IKL). According to the regulation, an advanced and independent village can be formed if the village has a sustainable development framework to maintain the potential of village resources and the welfare of the village community. Sustainable development in the village is a concrete step towards encouraging development, which could improve the quality of life of people in underdeveloped villages.

Rural development has the potential to be a source of economic growth and improve the standard of living in rural areas (Daldjoeni et al., 2014). To achieve this, it is essential to accelerate economic activity by developing economic resources in rural areas, providing basic needs, optimizing services, and creating an environment that can support the process of increasing community welfare (Adams, 2019). In addition, financial development has been found to have a positive effect on the income and consumption level of rural residents (Ding et al., 2011; Cui & Sun, 2012). Srirejeki, (2018) suggests that the establishment of BUMDes can also contribute to rural development by promoting rural economic activities. Other factors, Village Unit Cooperatives (KUD) can also help increase economic activity and improve community income by marketing local products (Simaremare, 2019).

It is important to note that rural areas have complex characteristics, and development policies in a village must be based on the village's unique conditions. Therefore, the 'one size fits all' policy is difficult to implement in various types of rural development. Conducting extensive research on village types is crucial to scientifically distinguish the characteristics of different rural areas (Weifeng & Li, 2020). Leadership is a crucial factor in the successful implementation of rural development programs, and adequate and quality human resources in village administration are essential for creating quality

development results (Uphoff et al, 198). However, it should be noted that good skills do not always produce a good performance, and the capacity required for an individual to be an effective leader may differ depending on the location, other actors, and the complexity of the problems they wish to solve (Bebbington et al., 2006 ; Sutiyo & Maharjan, 2013).

## RESULTS AND DISCUSSION

The characteristics of each variable in this study are presented in the following table:

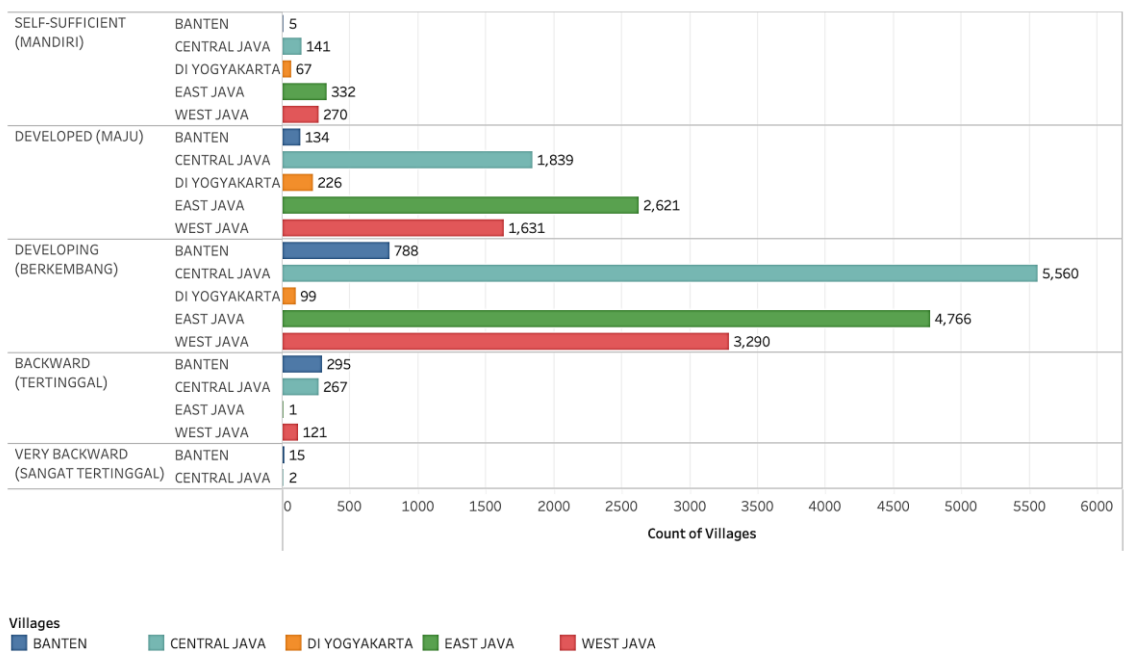
**Table 1.** Descriptive Statistics of the variance, minimum (min), and maximum (max) values of raw data on each variable

	<b>Variable</b>	<b>Mean</b>	<b>Variance</b>	<b>Min</b>	<b>Max</b>
<b>Village Development</b>	Indeks Desa Membangun	0.691	0.004	0.383	0.998
<b>Village Administration Human Resources</b>	Educational Level of Village Heads*	4.758	4.463	1	9
	Number of Village Administration Officials	6.795	7.030	0	66
	Number of Village Territorial Implementers	33.543	621.654	0	901
<b>Village Economic Activities</b>	Village Original Income (Million Rupiah)	183.736	406304	0	9997
	Number of Markets	0.159	0.278	0	34
	Number of Village Administration Commercial Banks	0.179	0.394	0	17
	Number of Private Commercial Banks	0.066	0.193	0	15
	Number of Village Unit Cooperatives	0.0726	0.161	0	37
	Number of Village-Owned Enterprises	0.888	0.626	0	9
<b>Typologies</b>	Number of Natural Disasters	0.531	1.728	0	20
	Distance from the Village Office to the Sub-District Office (Kilometers)	4.986	429.248	1	118

Note: \*) 1: Never attended school; 2: Did not finish elementary school; 3: Graduated elementary school; 4: Junior High School; 5: High school; 6: Academy/Diploma III; 7: Diploma IV/ Undergraduate; 8: Graduate; 9: Postgraduate.

The present study displays the characteristics of each variable in Table 1. According to the table, the village development variable, represented by the Village Development Index, ranges from a minimum value of 0.383 (indicating a highly underdeveloped village) to a maximum value of 0.998 (indicating a self-reliant village) in each village across five provinces in Java Island. Furthermore, the village administration human resources variable indicates that the highest level of education attained by village heads is postgraduate, while the lowest is no schooling. In addition, the number of village administration officials and territorial officials reaches the highest value of 66 and 901, respectively. As for the economics activities variable, the highest revenue earned by a village is 9997 million rupiahs. In addition, the majority of markets in rural areas (rill sector) are found to be 34. Furthermore, the number of village administration and private banks in each village reaches the highest values of 15 and 37, respectively. Moreover, the number of village cooperative units and village-owned enterprises (BUMDes) reach the highest values of 37 and 9, respectively. On the other hand, each activity variable exhibits a minimum value of 0. Additionally, the highest number of disaster occurrences in a village in this study is 20, while the farthest distance from the village head office to the sub-district office is 118 kilometers.

Since 2018 the Indonesian village administration has developed an instrument to measure the success of developing rural areas that have been relatively lagging compared to urban areas. Indeks Desa Membangun (IDM) is one of the indexes that helps the village administration to assess the extent to which the village is growing and developing. In general, the IDM of 5 provinces on the island of Java can be presented in the following figure.



**Figure 1.** Status of IDM in Five Provinces on Java Island

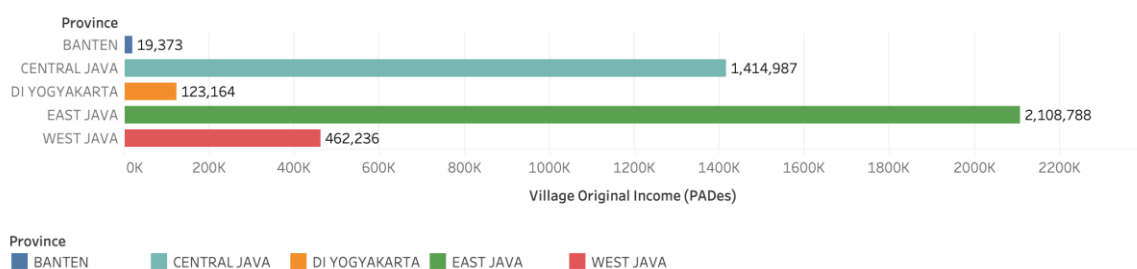
Figure 1 compares the status of the village index divided between provinces on the island of Java. In general, villages on the island of Java are clustered around villages with developed and developing statuses; however, the Banten and Central Java provinces still leave villages with very underdeveloped statuses. The good news is that villages with self-sufficient status are starting to be found on the island of Java, especially in the province of East Java, with several villages classified as separate 332 villages, followed by West Java Province as many as 270. Central Java and DI Yogyakarta are next in line, with 141 villages and 67 villages. As for Banten, 5 villages were found to have a self-sufficient status.

Based on Figure 1, it can also be seen that East Java still leads the number of villages classified as developed, with a total of 2,621 villages. Then in second place is Central Java province with 1,839 villages, followed by West Java province in third place with 1,631 villages. The rests are DI Yogyakarta and Banten Provinces, with 226 and 134, respectively.

For villages with developing states, it can be seen that the province of Central Java leads the way, with 5,560 villages classified as developing. Meanwhile, East Java province is in second place, with 4,766 villages classified as developing. Villages followed them in West Java province, consisting of 3,290 villages. Interestingly, Banten province beat DI Yogyakarta province for this developing village category with 788 and 99 villages, respectively.

Finally, the status of villages with very backward conditions is seen in only two provinces, namely in Banten province and Central Java province, with the total number of villages in this category, is 17 villages, with details of 15 villages located in Banten province and two villages in Central Java province.

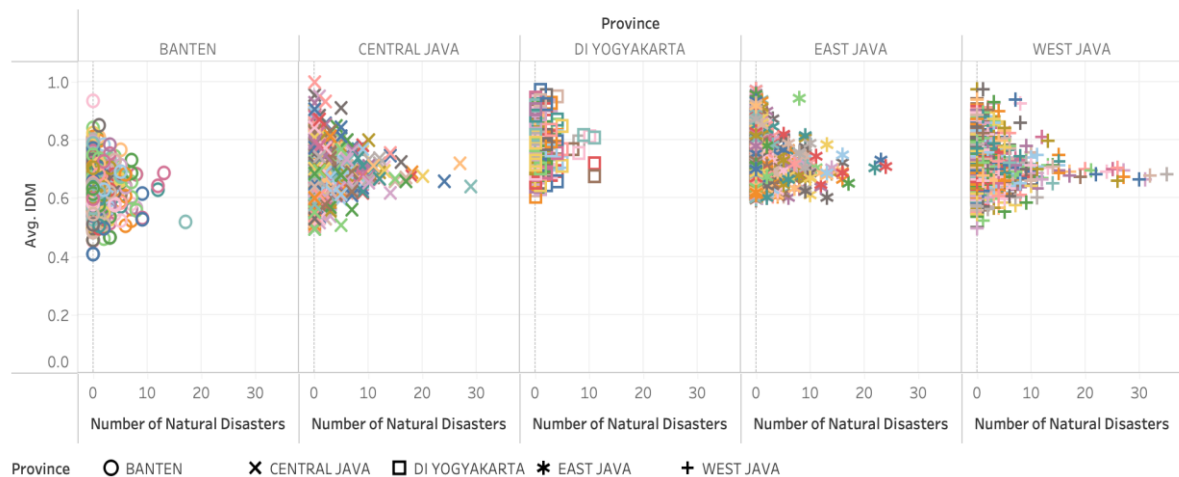
Apart from IDM, the success of village development is seen through original village income (PADes), which is a representation of receipts from various village administration efforts to raise funds for village needs in financing routine/development activities. A comparison of PADes in five provinces on the island of Java can be presented in the following figure.



**Figure 2.** Total Village Original Income in Five Provinces on Java Island (in Million Rupiah)

Figure 2 compares the total Village Original Income in five Java Island provinces. East Java's province with the highest PAdes value reaches 2.11 trillion Rupiah. Central Java Province is ranked second, with PAdes value of 1.41 trillion Rupiah. Meanwhile, West Java Province, with a total Village PAdes of 462.24 billion Rupiah, is the third largest. The two provinces with the lowest scores in terms of Village Original Income are DI Yogyakarta and Banten, with recorded total PAdes of only 123.16 billion Rupiah and 19.37 billion Rupiah, respectively.

Indonesia is an archipelagic country traversed by the Pacific Circum, the Pacific Ring of Fire. Indonesia is a region of the Alpide belt, namely the seismic belt formed by the meeting of the Eurasian plate, the Indian plate, and the Australian plate. Therefore, the disaster factor is one of the typologies that more or less influence the success of development in rural areas. In detail, the distribution pattern of disaster data and the amount of IDM can be presented in the following figure.



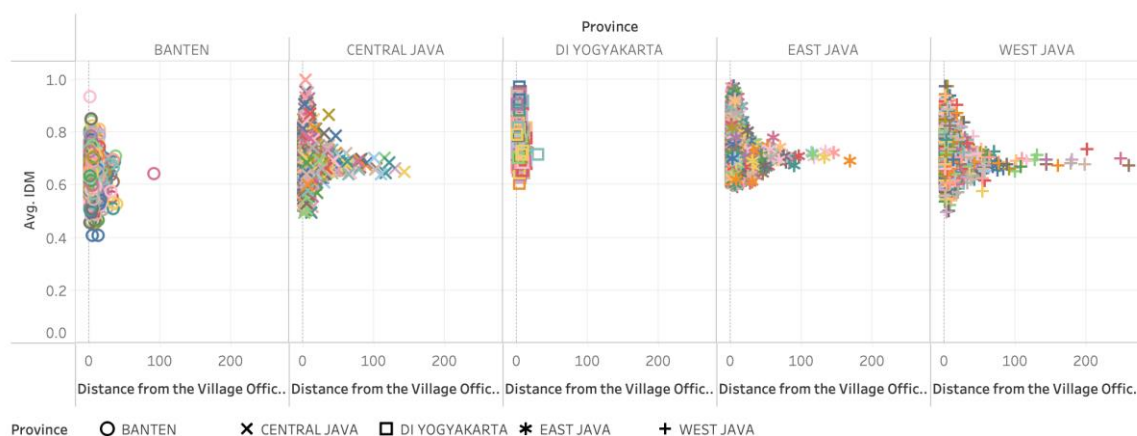
**Figure 3.** Distribution Pattern of Number of Natural Disasters with Average IDM

Based on Figure 3 above, information can be drawn that the effect of the number of natural disasters on the IDM has almost the same conditions for each province. Generally, the average IDM owned by each province spreads at a high point and does not show any inequality compared to every other area. In addition, each region has a low number of natural disasters; the majority experienced no more than 20 natural disasters. Even so, the Provinces of West Java, Central Java, and East Java have several villages that have experienced natural disasters more than 20 times.

Apart from that, based on the picture above, it can be seen that the conditions that occur in East Java and West Java have their uniqueness, whereas, in East Java Province, the conditions are almost similar to conditions in the DI Yogyakarta and Central Java Provinces. However, some distributions of data show the state of the relationship between the two variables positively; namely, some villages have a large number of natural disaster events but have high IDM. Then, in West Java Province, the data distribution is very spread and does not show a certain pattern. It means many villages have many natural disasters but fairly high IDM, and vice versa. However, although the data spreads at several points, certain points show the majority of the position of villages in West Java. At this point, it shows that most villages in West Java have a small number of IDM and a small number of natural disasters.

The next typology is represented by the distance from the village administration office and the sub-district village administration office in kilometers. Distance is an important variable that needs to be considered considering that road infrastructure in rural Indonesia is still a fundamental problem that needs to be improved.



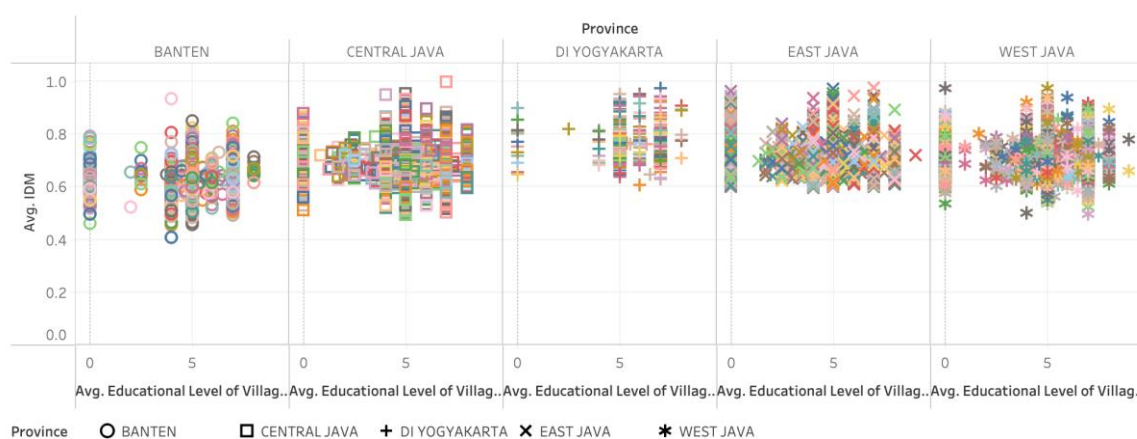


**Figure 4.** Distribution Pattern of Distance from the Village Office to the Sub-District Office with IDM

Easy accessibility for residents from the village office to the sub-district office means the community will get services for their needs or businesses, which is then expected to influence the value of IDM. The distance from the village office to the sub-district office is calculated in kilometers, indicating how far the majority of the population must travel when they want to move from the village office to the sub-district office. In general, the closer the distance from the village office to the sub-district office, the easier the mobility of the population.

Figure 4 compares the distance pattern from the village office to the sub-district office with the IDM value. It can be seen that all villages in the five provinces on the island of Java have the same pattern. The distance from the village office to the sub-district office is fairly close, and the IDM value seems to move from the bottom up, which means it has increased. With a fixed distance from the village office to the sub-district office, there is an increase in the average IDM score in villages in five provinces of Java Island. Thus, it can be concluded that the distance from the village office to the sub-district office has a relationship with the IDM score.

Furthermore, the next description will discuss the condition of village administration human resources represented by the education level of the village head which is used to assess the quality of human resources owned by the village administration, then the number of village administration officials (village secretariat and technical implementers) and the number of village territorial implementers (head of hamlet, head of RT, head of RW, etc.) which is used to assess the quantity of human resources owned by the village administration.

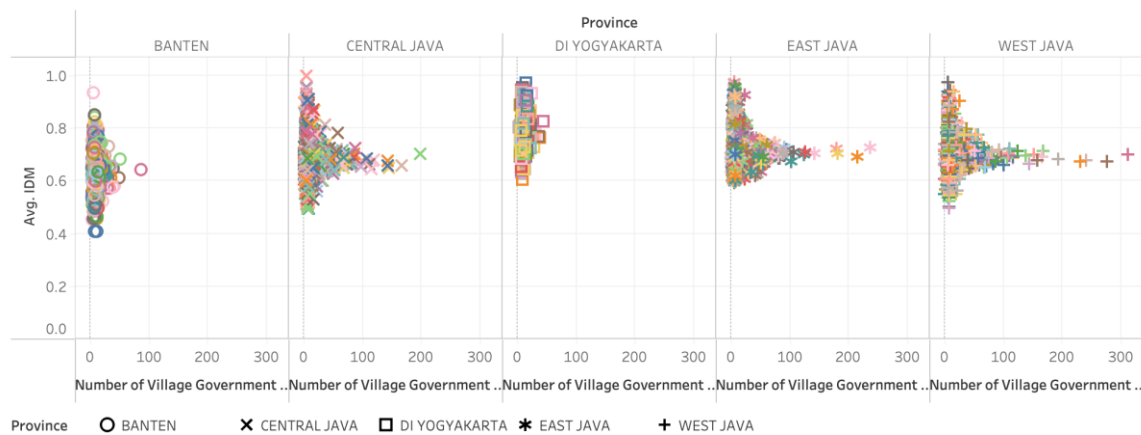


**Figure 5.** Distribution Pattern of the Educational Level of Village Heads with IDM

Figure 5 shows the pattern of distribution of the educational level of village heads with IDM. Figure 5 illustrates that the pattern formed in the five provinces is relatively the same, namely converging in the middle and then rising upwards. This pattern indicates that village heads with upper secondary education can increase the village's IDM scores. However, not a few village heads with less education have



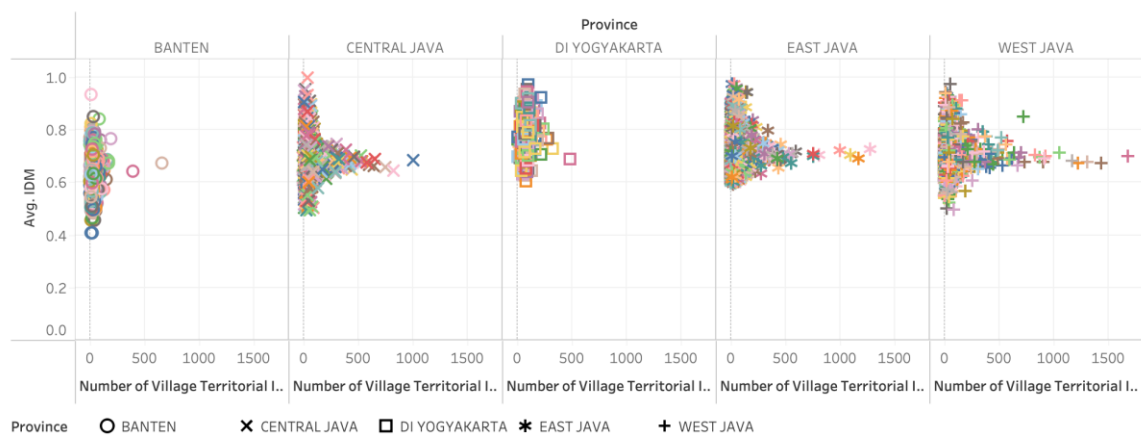
relatively high IDM scores. This statement is supported by data from the province of Central Java, where village heads have low education, but the IDM in the village is relatively high. On the other hand, many villages in the five provinces are led by village heads who are highly educated, but the level of IDM obtained is low.



**Figure 6.** Distribution Pattern of the Number of Village Administration Officials with IDM

Through the illustration in Figure 6, it can be seen that the distribution pattern of the number of village administration officials in 5 provinces on Java Island tends to be the same, where most villages have a number of village administration officials of less than 100. Meanwhile, some villages have several village administration officials of more than 100 which are spread only in the provinces of West Java, Central Java, and East Java. For the province of Banten, most villages have some village administration officials less than 50, but the IDM scores of these villages are not bad enough. It is proven by the IDM value, which ranges from 0.5 to nearly 1. While in the province of DI Yogyakarta, most villages have a pretty good IDM value, although the number of village administration officials owned ranges from 0-50.

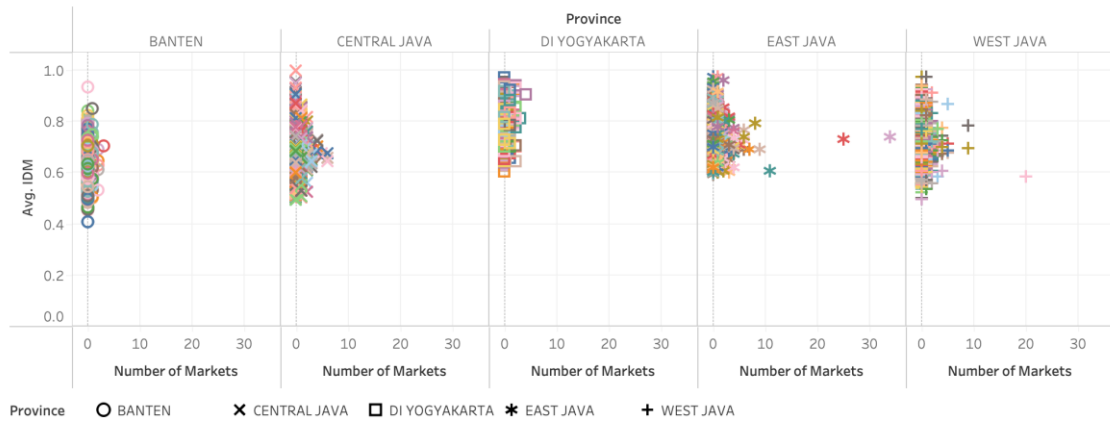
While the provinces of West Java, Central Java, and East Java, most villages have several village administration officials between 0-100. However, the IDM value of these villages is close to 1. There are several villages in the three provinces whose number of village administration officials exceeds 100, but the IDM value of these villages is lower than villages with less than 100 village officials. Many village administration officials owned by a village have not been able to increase the value of the village's IDM significantly, or in other words, the number of village administration officials does not have a strong relationship with IDM.



**Figure 7.** Distribution Pattern of the Number of Village Territorial Implementers with IDM

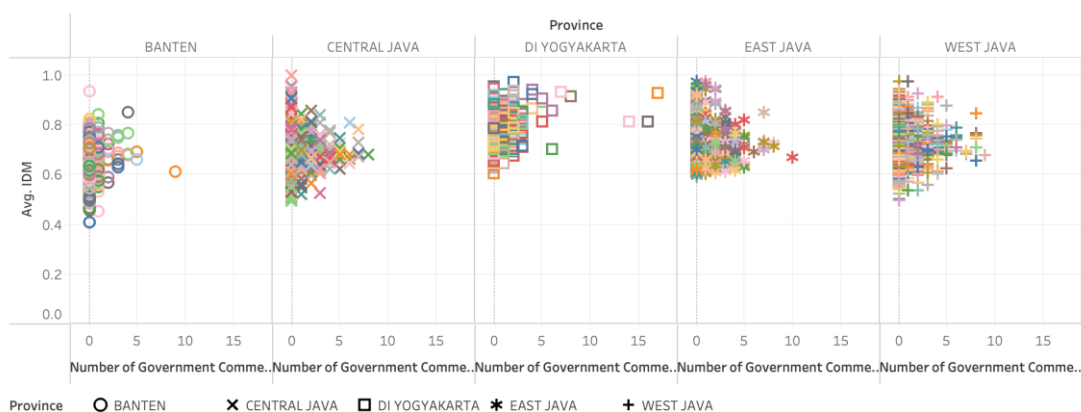
Apart from the village administration officials, the village territorial implementers also play an important role in implementing economic activities in a village. The village territorial implementers, in this case, consist of the head of the hamlet, the head of the RT, the head of the RW, etc. The existence of village

territorial implementers is needed in supporting the process of preparing and implementing planned programs to improve village welfare. From Figure 7, it is found that the majority of the number of village territorial implementers in the five provinces on the island of Java is between 0-500. Meanwhile, for the provinces of Banten and Yogyakarta, the village territorial implementers range from approximately 0-250. There are a few villages in Banten province where the number of village territorial implementers is quite large, namely between 500-1000, but the IDM of these villages is still far from 1.



**Figure 8.** Distribution Pattern of the Number of Markets with IDM

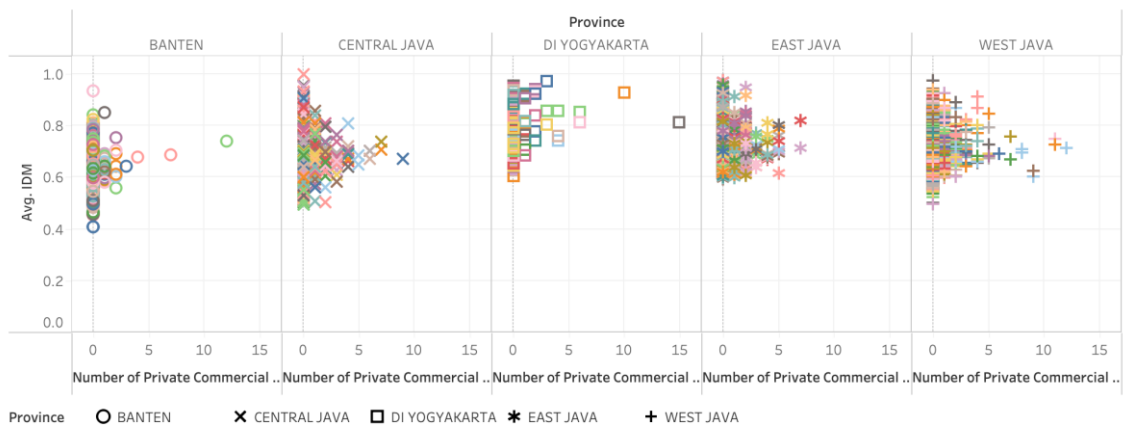
Figure 8 shows the distribution pattern of data on the number of economic facilities and infrastructure (markets with permanent buildings to the IDM value). Figure 8 illustrates that the average distribution of data in the five provinces forms a relatively similar pattern, namely gathering around the horizontal axis. This pattern shows that a large number of markets does not necessarily have a relationship with the increase in the value of IDM in villages on the island of Java. However, the data distribution in East Java and West Java provinces looks more extreme than in other provinces. This phenomenon can be seen from the data that is quite scattered, far from other data. In East Java province, for example, several villages have quite a large number of markets, but the IDM is moderate compared to other villages. This pattern is also seen in West Java province, where some villages have a fairly large number of markets even though IDM is relatively smaller than other villages. Similar data distribution patterns are seen for the provinces of Banten, Yogyakarta, and Central Java, although the distribution of data in Central Java is more varied compared to other provinces.



**Figure 9.** Distribution Pattern of the Number of Village Administration Commercial Banks on IDM

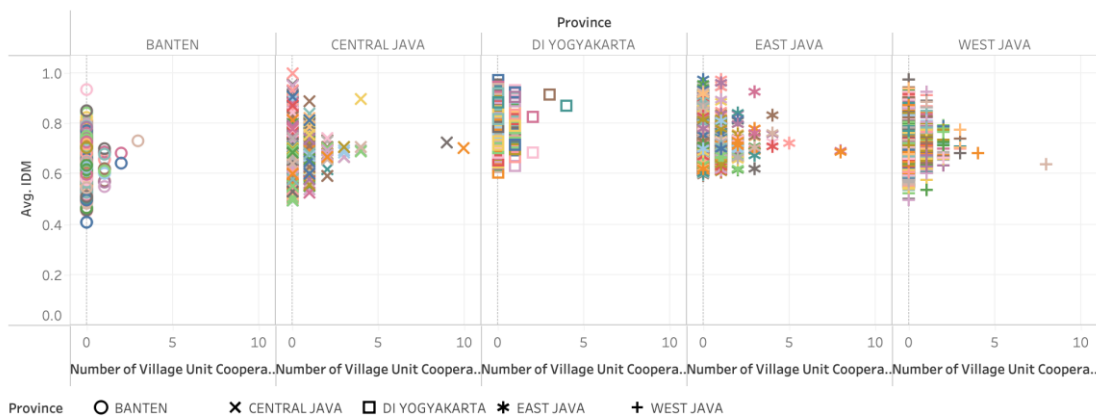
Figure 9 illustrates the data distribution between the number of village administration commercial banks and IDM in villages on the island of Java. The four provinces, namely Banten, Yogyakarta, West Java, and East Java have the same pattern; most are bottom-up, and some are top-down. This phenomenon shows that the relationship between the number of minimarkets and IDM differs in each village. Another tendency is provided by the Yogyakarta Province, where the data is relatively moving from top to

bottom; in other words, the existence of village administration commercial banks in villages spread across the province provides a fairly significant portion of the increase in the value of IDM.



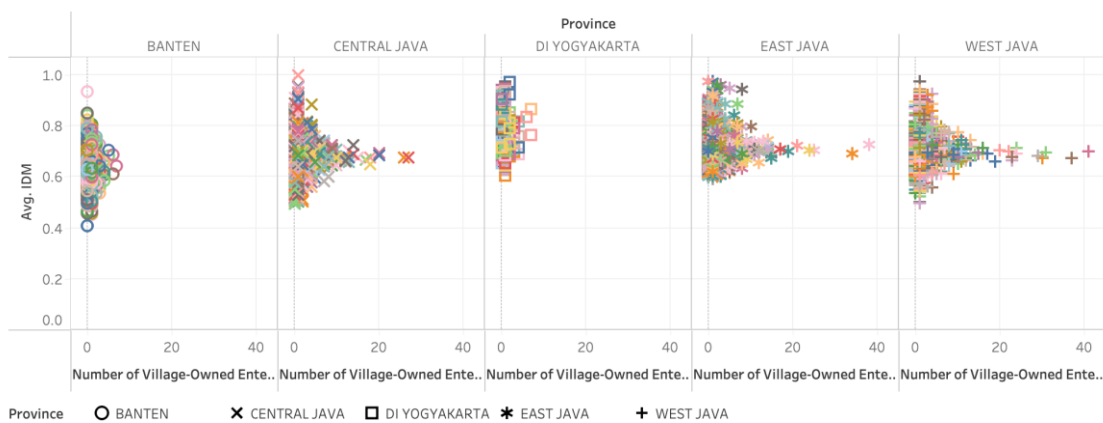
**Figure 10.** Distribution Pattern of the Number of Private Commercial Banks to IDM

Figure 10 illustrates the relationship between the data distribution between the number of private commercial banks and IDM. Overall, the pattern of the two variables is relatively the same in the five provinces, where the number of private commercial banks does not have a strong relationship with the IDM value.



**Figure 11.** Distribution Pattern of the Number of Village Unit Cooperatives (KUD) to IDM

The relationship between village unit cooperatives (KUD) and IDM values spread across villages on the island of Java is illustrated in Figure 11. In general, the number of KUD in each village is not large, but the IDM values in each village are relatively scattered. The data implies that the existence of KUD in the village is not closely related to the IDM value of the village.



**Figure 12.** Distribution Pattern of the Number of Village-Owned Enterprises (BUMDes) to IDM

The distribution pattern of Village-Owned Enterprises (BUMDes) and IDM data in villages spread across the island of Java can be followed through Figure 12. Generally, the three provinces, namely West Java, Central Java, and East Java, are relatively identical, where data distribution gathers in the middle of the vertical axis and then spreads to the right. However, some villages experience high IDM with high BUMDes numbers while some others have High IDM but fewer BUMDes numbers. For example, in West Java, Central Java, and East Java provinces, several villages have some BUMDes, but the IDM value is not higher than villages with a limited number of BUMDes. On the other hand, Banten and Yogyakarta provinces have a different pattern from the other three provinces, where the data is scattered and gathered around the vertical axis, meaning that the presence of BUMDes in these provinces is not related to the IDM value. The low number of BUMDes in these provinces does not mean that the village has a low IDM value.

## CONCLUSION

Based on the results of the 2019 Podes data mapping, it can be concluded that East Java Province has the highest development success as indicated by the acquisition of IDM results, the number of independent and advanced villages compared to other provinces, and the largest PADes acquisition.

Nonetheless, as this study aimed to look at the characteristics of each variable in each area studied, it was found that each variable is specific for each province but tends to have similar conditions. As is the case with the relationship between village administration human resources and village development. The relationship between village head education and IDM level is almost the same in each province, with village heads with higher education having a greater chance of improving their IDM. In this case, East Java Province has a number of village heads with better levels of education and IDM than other provinces. This certainly supports the findings in several studies by Odoardi & Muratore, (2019) and Kyriacou et al., (2017) that the level of education, skill, or human resource capacity of the village administration has a close relationship with the success of village development. Thus, to support the increase in the achievement of IDM, it is necessary to pay attention to the quality of the village head's human resources, because by looking at the existing conditions, to date there are still many villages led by village heads who have a low level of education.

On the other hand, the distribution of data between the number of village officials and IDM is inversely proportional between villages. In the sense that a large number of village administration officials can help achieve a higher IDM for several villages. On the other hand, several villages that have many village administration officials have a lower IDM than other villages. However, because the indicators measured are not the same as the village head, it cannot be concluded that this is influenced by the quality of human resources. Allegedly, these conditions are influenced by other factors beyond the things considered.

Then on the aspect of village economic activity, this study found that for activities in the financial sector, the distribution of data between IDM and state banks and private banks has a relatively similar pattern. No matter how many banks are owned, it is not certain that the village has a high IDM either. Nonetheless, a positive distribution occurred in Yogyakarta Province, where the more banks the higher the IDM. This condition is certainly in line with research conducted by Ding et al., (2011) that more inclusive formal financial institutions can have an impact on improving the economy in an area. The difference in these results indicates that even though the instruments used in the development are the same, it is possible to obtain different results.

Looking at economic activity in the real sector, represented by the number of markets, it shows that provinces that have a low number of markets do not necessarily have a low IDM. weak. It is true that Banten Province has a relatively limited number of markets, and several of its villages compete with villages in other provinces, in terms of IDM value. In contrast, the Provinces of East Java and West Java have several villages with large markets, but the number of markets is not related to a high IDM level.

In addition, based on the distribution of data, BUMDes is a magnet for increasing PADes and IDM. As explained by Srijekki (2018) that BUMDes can improve the economy of a region. However, this fact can only be generalized to several villages because the presence of BUMDes has a different impact on each village, especially in Banten Province and the Special Region of Yogyakarta. For this reason, it is necessary to optimize BUMDes for the two regions so that they can encourage development in rural areas. In addition, regarding the relationship between village unit cooperatives (KUD) and IDM values,

it shows that in general, the number of KUDs in each village is not large, but the IDM values in each village are relatively spread out ((Simaremare, 2019).

In addition to trying to understand the relationship between economic activity and IDM, this study also considers natural disaster conditions which are disruptive to village economic activities. Based on the results of the data distribution, it is known that villages that have a high intensity of natural disasters are associated with a low IDM. As we all know, Indonesia is an archipelagic country with diverse landscapes that are even included in the ring of fire. For this reason, it is necessary to pay attention to mitigation efforts and the funding system in responding to disaster cases in villages, as explained in According to De Haen & Hemrich (2007), areas with low levels of economic development are vulnerable to the impacts of natural disasters. In addition, the location of a village in relation to economic and village administration centers is related to the achievement of the Village Development Index (IDM). Villages that are located closer to the district center are known to have better accessibility. As explained by Iro and Slyvanus (2021), easy accessibility can enhance the socio-economic activities of communities and therefore is expected to promote the development of a region.

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