Recognising and detecting patterns of village corruption in Indonesia

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Abstract: The increasing trend of village-level corruption cases in Indonesia needs to be addressed by the government. The National Strategy of Corruption Prevention (NSCP) policy couldn't improve Indonesia's corruption perception score. Corruption prevention policies have so far not targeted villages with certain characteristics. The Village Development Index (IDM), measured by the Ministry of Villages, Disadvantaged Regions, and Transmigration, should identify villages affected by corruption cases. This research uses the qualitative descriptive method. The results show that those most affected by corruption cases in Indonesia are developing villages on Java Island. Other results find the need for an analysis of fraud or fraud analytics in villages using information technology or data processing. The practical implication of the research is a basis for revising corruption prevention and detection policies and determining the target groups.
Keywords: Corruption; Detection: Village; Village Development Index

Introduction

Corruption is more widely studied at the state or regional level than on the smaller, village scale. The impact of losses from corruption is often associated with variables available at the state or local level. The occurrence of corruption in previous studies have related to economic development (Fiorino et al., 2012; Mauro, 1995; F. Yang et al., 2017), development of the quality of human resources (Adhikari, 2013; Prabowo & Cooper, 2016), perpetrator motives (Alonazi, 2020; Cressey, 1953; Prabowo & Cooper, 2016), and perpetrator profiles such as age, gender, and educational background (DS et al., 2020; Krambia-Kapardis, 2002; Sinarto & Maratno, 2018). According to Fiorino et al. (2012), Mauro (1995), and F. Yang et al. (2017), the development of a country and region is negatively proportional to its level of corruption. Meanwhile, the research of (Lewis, 2017; Prabowo et al., 2017; Prabowo & Cooper, 2016) in developing nations shows that corruption can occur at various levels of regional development. Perpetrator motivation generally falls into three categories (Fraud Triangle Theory): pressure, opportunity, and the assumption that corruption is reasonable(rationalisation) (Cressey, 1953; Skousen et al., 2009). The Fraud Triangle theory was then developed into the Diamond Fraud theory by adding the variable capability/position of the perpetrator (Wolfe & Hermanson, 2004) and re-updated into the Pentagon Fraud theory by adding arrogance variables (Marks, 2011). These previous studies cannot be used as a reference for corruption studies at the village level because of their focus on corruption in countries, regions andcompanies. The characteristics of corruption cases in villages are different than in areas such as regions and countries, due to the impacts and causes of corruption.

Previous empirical studies in villages have not focussed on the pattern and implementation of corruption detection policies, instead focussing on financial accountability (Lander & Auger, 2008; Rahmatunnisa, 2018; Salle, 2020; Sofyani & Tahar, 2021), monitoring (Iranisa, 2016, and Puspa & Prasetyo, 2020), and village fund management (Fauzanto, 2020; Madyan et al., 2020; Munir et al., 2020; Salle, 2020; Zakariya, 2020). Recognising the characteristic of corruption cases

is crucial to uncover the magnitude and impact of corruption losses on the population (DS et al., 2020; Sinarto & Maratno, 2018) and for evaluating policy implementation (Asiedu & Freeman, 2009; Mugellini et al., 2021). An evaluation of corruption prevention policies is essential to the government's vision to build Indonesia from the edge of president Joko Widodo's Nawacita program (Mahriadi et al., 2021).

Implementation of the National Strategy for Corruption Prevention (NSCP), stated in Presidential Decree Number 54/2018, has not created a constant uptrend in Indonesia's Corruption Perception Index (CPI) orAnti-Corruption Behavior Index (IPAK) scores during the 2015-2021 period. The CPI's score was 37 points in 2020, down three points compared to 2019, when it reached its highest score of 40 points. This indicates three things. Firstly, corrupt practices still occur systemically, abetted by an anti-corruption institution that has not touched on a prevention program (Vrushi, 2020). Secondly, the state has not been able to simplify public services (Suyatmiko, 2021). And thirdly, public perception and expert perception of anti-corruption policy remain static (Susilo et al., 2019; Vrushi, 2020). In addition to a loss in money or assets, corruption can also reduce public trust in the government (Krah & Mertens, 2020; Morris & Klesner, 2010). The CPI, which tended to stagnate during the 2015-2021 period, is also followed by other indicators, namely the Anti-Corruption Behavior Index (IPAK). The Integrity Assessment Survey (SPI) updated by the Corruption Eradication Commission (KPK) is the only measurement in which the score has seen an increase, as seen in Figure 1.
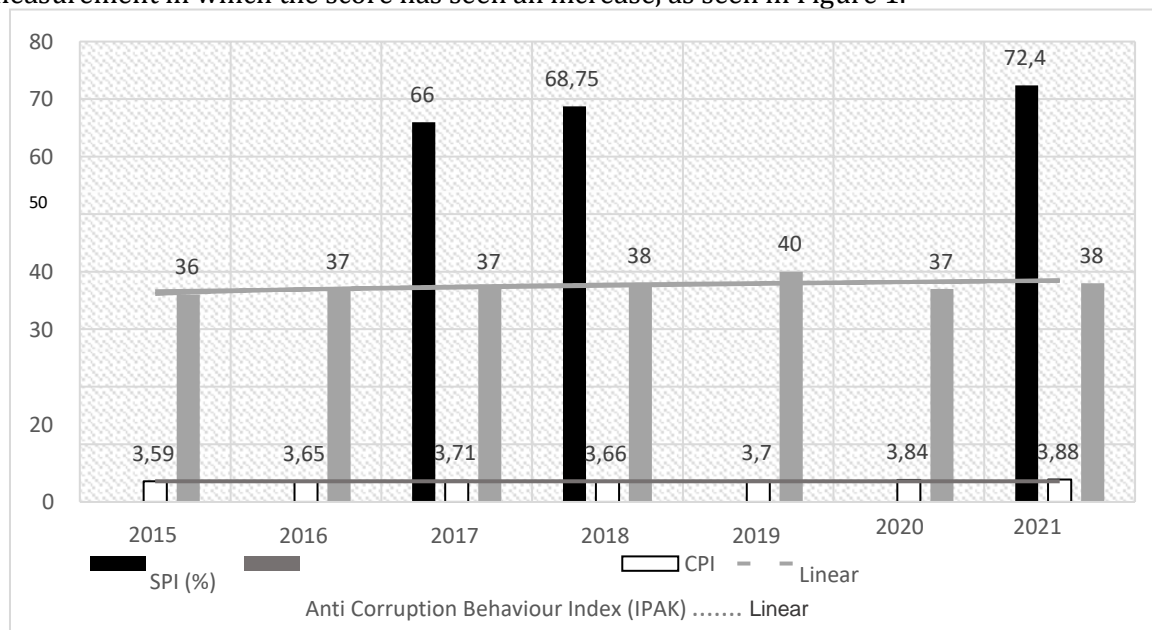

Figure 1. Corruption Perceptions Index, Integrity Assessment Survey, and Anti-Corruption Behavior Index in Indonesia 2015-2021 (Source: Analysis from BPS, 2019, 2020, 2021, KPK, 2021, dan World Bank, 2021)

Corruption prevention practices in villages are constrained by accessibility, geography, and an uneven education and socialization of anti-corruption culture. According to the Central Board of Statistics (2021), it is more difficult for rural communities to get information about prevention policies, causing the IPAK score of rural communities to remain below urban communities in the 2012-2021 period. The difference in IPAK scores between urban and rural areas was the highest in 2019: 0.37 (Urban IPAK 3.86 while Rural IPAK 3.49). A comparison between the Rural IPAK Score and the Urban IPAK during 2012-2021 is presented in Figure 2.

The implementation of Village Law (Law number 6/2014) had an impact on the acknowledg-ment of village government as a government unit (having territory and authority). Because the village has its authority, every policy formulated by the state or regional government, including corruption prevention and detection policies, must not marginalise community participation in rural areas and must contain equality, equity, and adequacy.
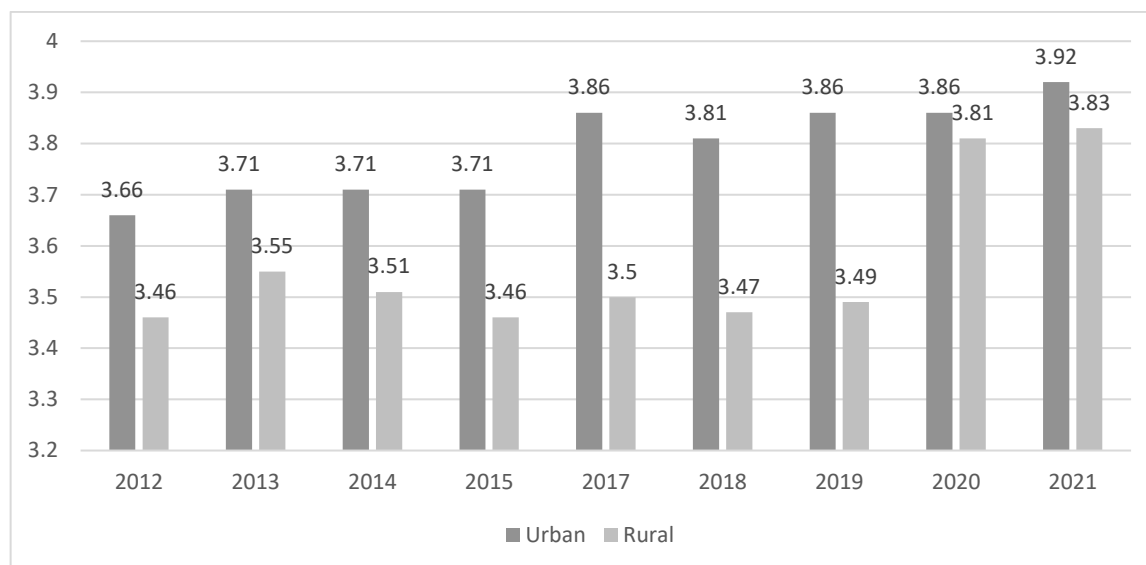
Figure 2. Anti-Corruption Behavior Index in Urban and Rural Areas (**Source:** Central Board of Statistics, 2021)

Methods

This research uses a descriptive (qualitative) approach. This method presents a specific picture of the situation, social arrangement, or relationship, starting with the problem or question (how and who), then a detailed depiction of the problem and question is carried out (Neuman, 2019). The next step is analysing and integrating secondary data with the previous literature review. By integrating the findings and viewpoints of various empirical findings, the review literature can answer research questions better than the results of a single study (Snyder, 2019). The research questions are: (1) What is behind the emergence of corruption in "the village"? (2) What are the patterns and characteristics of villages affected by corruption cases? and (3) How can one detect fraud at the village level?

Research data was collected using the Text Mining Method. According to (Feldman & Sanger, 2006), Text Mining is a process of extracting text information from various documents using analytical tools followed by categorisation of the data. The data categorised in this study is secondary data on village corruption cases from 2015-2021, taken from various forms of online media. It was then verified and revalidated using keyword searches on trusted online media pages and had found to have contributors from throughout Indonesia. The validating websites used in this research are detik.com, rri.co.id, antaranews.com, and kompas.com. The next step was identifying the name of the village, then matching it to the level of the Village Development Index (IDM). Data analysis and visualisation used Tableau software/tools and then integrated with the results of previous studies. Chart visualisation allows analysts to recognise trends, places/locations, and patterns, and identify variable relationships quickly and optimally (Murphy, 2013).

Results and Discussion

Rising Cases of Corruption in Villages

The increasing trend in the state budget for village funds from 2015-2021 was followed by increasing money losses caused by corruption. The implementation of village fund disbursement in 2015-2020 had two challenges: the inefficiency of mandatory spending, and a lack of efforts to improve policies by the government (Parliamentary Budget Study Center, 2020). The loss caused by village-level corruption has been calculated to be an average of 0.05% compared to its distribution per year. Although not significant, this condition needs to be considered by the government, especially concerning the prevention and detection of corruption programs. A graph of the loss caused by the corruption of the Village Fund from 2015-2020 is presented in Figure 3.
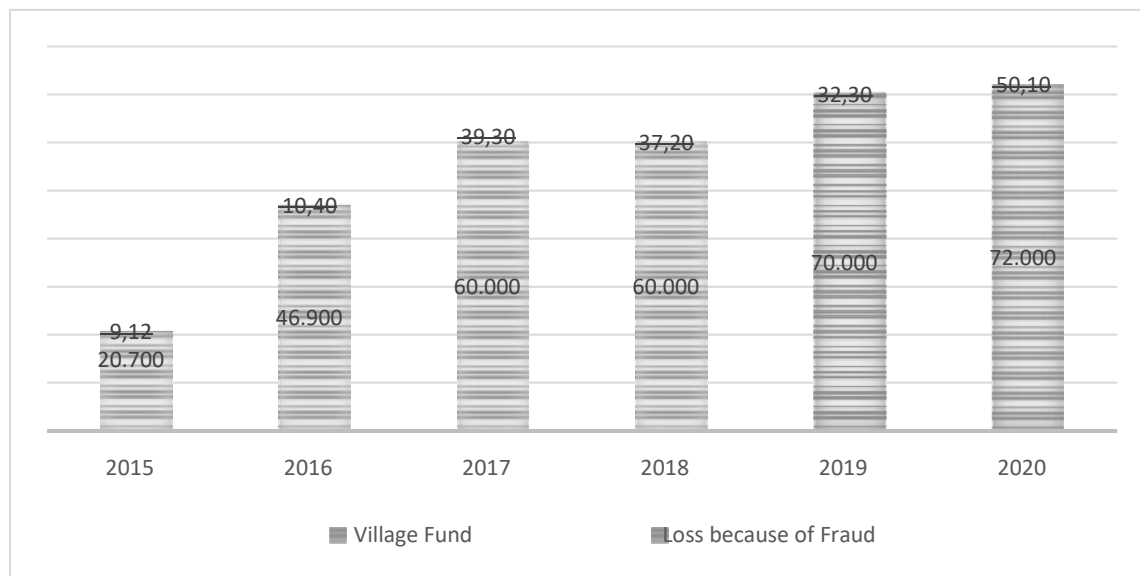
Figure 3. Budget of Village Fund and Amount of Loss Caused by Corruption in the 2015-2020 period (**Source:** DJPK and ICW, 2016, 2017, 2018, 2019, 2021**)**

The increase in the number of fund transfers to the village and the increase in corruption cases are two aspects that complement one another. The village fund policy is part of the fiscal decentralisation policy realized by the government in 2015. According to Chavis (2010) and Kristiansen et al. (2009), the fiscal decentralisation policy will increase the risk of corruption in the regions. This condition occurs due to differences in the capacity of the apparatus and infrastructure at lower levels (Hazaea et al., 2022; Mugellini et al., 2021), the ineffectiveness of monitoring/supervising (Kartika & Arief, 2021; Madyan et al., 2020; Taqi et al., 2021), and the existence of bribery (Fisman & Svensson, 2007; Mugellini et al., 2021). It is necessary to know that corruption in Indonesian villages occurred before the existence of village funds, namely in the Sub-district/Kecamatan Development Project program/KDP in the period from 1998- 2007 (Olken, 2007), and the National Program of Rural Independent Community Empowerment (PNPM Mandiri) in the period from 2007-2014 (Isdianto, 2022). This condition shows that government programs targeting villages are always at risk of corruption.

Although the number of losses is small compared to the distribution, the increase in corruption cases in villages needs to be evaluated, related to the causal factors and detection strategies/policies implemented by the government through law enforcement. According to the Indonesian Corruption Watch/ICW (2016-2021), the trend of investigating corruption cases in the village government sector is higher than in other sectors (see Figure 4). According to Mustofa (2020) and Lamusu et al. (2021), the lack of competence and the low educational background of the corruption investigation apparatus causes an increase in corruption cases in villages. This condition is an inherent factor in village government. Even so, corruption in village government can occur without relating it to a certain profile or educational background because there are always two motivations for corruption: need or greed. Two things need to be improved by the government, namely: (1) corruption prevention and detection strategies (Mustofa, 2020), and (2) financial accountability assurance strategies in villages (Herdiyana, 2019; Mustofa, 2020 & Salle, 2020).

Currently, the enforcement of village corruption cases in Indonesia is due to various factors: the lack of relevant and competent evidence of wanted/escaped perpetrators, and the delayed auditing process for reporting and calculating financial losses (Lamusu et al., 2021; Surya, 2018). The investigation of cases in villages requires information from the community or audit reports. However, law enforcement (police or prosecutors) requires a minimum of two pieces of evidence sufficient enough to initiate an investigation and establish a suspect. This evidence can be in the form of witness statements, expert statements, letters, instructions, and statements of the defendant (Criminal Procedure Code / KUHAP). According to Surya, (2018), convoluted witness testimonies and permissive culture (reluctance of rulers/relatives) make it difficult for police investigators to

determine suspects. With so many villages in Indonesia, immediately investigating reports of corruption is a tough challenge for law enforcement. Village officials, the Village Consultative Body (BPD), and Internal Government Supervisory Apparatus/APIP also need to increase their vigilance and early detection capabilities of corruption in the villages. Corruption at various levels needs to be recognised then identified, as do the conditions behind its occurrence and the factors that cause it (Cressey, 1953; Krambia‑Kapardis, 2002; Prabowo & Cooper, 2016).
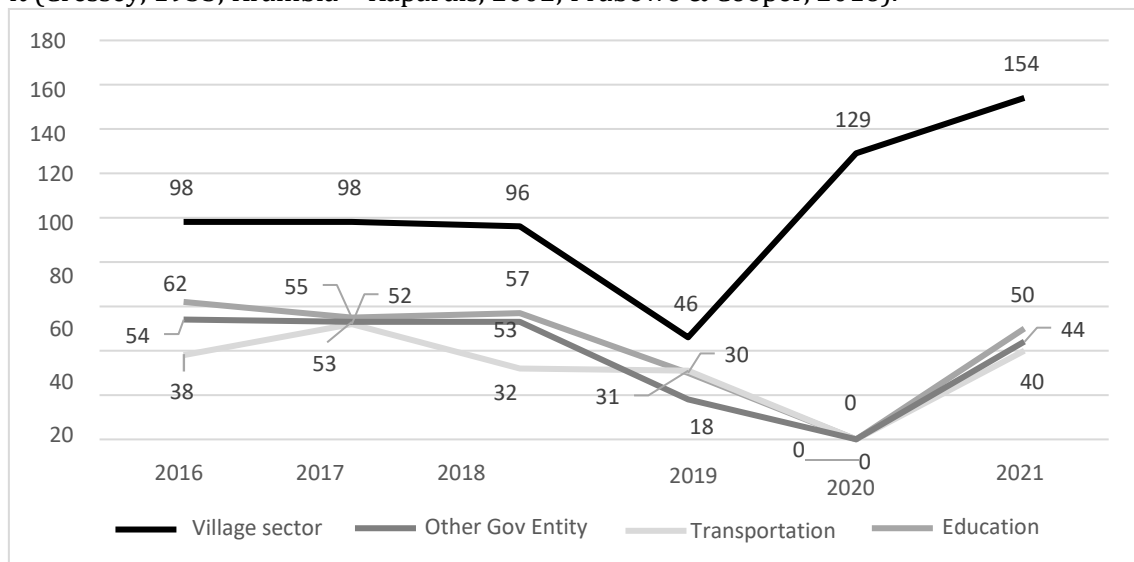

Figure 4. Comparison of the Number of Corruption Cases per Sector in Indonesia 2016-2020 (**Source**: ICW (2016, 2017, 2018, 2019, 2021))

Identification of Village Development Status Affected by Corruption Cases

To recognise village sector corruption, it is necessary to first know the mechanism for disbursing village funds. The next step is formulating a criterion to scale the corruption case and then identify its patterns. Differing from previous research that used indicators such as human resource development or economic growth, this study will use the status of village development developed by the Ministry of Villages, Development of Disadvantaged Regions, and Transmigration Regions, namely the village development index/IDM.

The mechanism for disbursing Village Funds is carried out in stages by the Central Government (APBN) to the regency/city (APBD) and then proceeds to the village (APBDes). There are two stages of distribution: Phase 1 distributes 60% of the fund allocation per village as early as March and no later than July, and Phase 2 distributes the rest of the fund (40%) as early as August. Village Funds are disbursed from the State General Cash Account (RKUN) to the Regional General Cash Account (RKUD) by the Minister of Finance through the Office of State Treasury Services (KPPN). The distribution of Village Funds from RKUD to the Village Cash Account (RKD) is conducted by the Regional General Treasurer (BUD) with regional budget mechanisms/APBD (Ministry of Finance, 2017). The mechanism requires three things from the village government. First, it needs information regarding Village Regulation on the Village Revenue and Expenditure Budget (APB Desa). Secondly, it needs reporting on the realisation of the use of village funds in the previous period (LPj Desa). Lastly, it needs a report on the absorption of the Village Fund phase 1 of at least 50%. This village fund distribution mechanism uses a budget, treasury, and accounts reporting system at the Ministry of Finance for the scope of the state and district/city governments, integrated with information technology. The village fund distribution scheme showed in Figure 5.

Financial mechanisms at the village level have not been illustrated in the flow of the distribution in Figure 5. According to the distribution mechanism, village officials require only two main instruments every year: the budget (APBDes) and the report on the use of village funds (LPj Desa). Because the transfer fund rules only require the existence of the Village LPj, the quality of this report is a subject that needs to be tested and evaluated. According to Madyan et al. (2020) and Sulasdiono & Kartika (2021), the official regional Inspectorate/ APIP in districts/cities felt

overloaded because of the obligation to audit and evaluate the Village LPj. This overload reflects the increasing number of audited objects outside the regional apparatus work unit (SKPD), the lack of competent inspection skills, the limited time allocation, and the low budget. With these conditions, supervisors at APIP need to prioritise villages with certain characteristics so that the quality of their reports is better maintained.
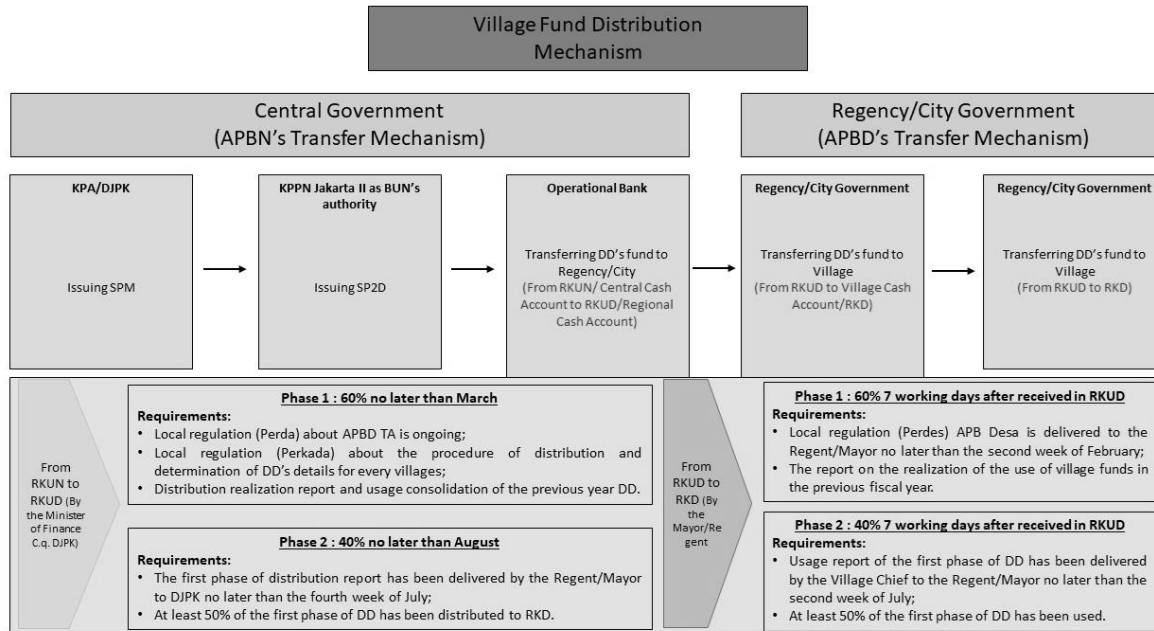

Figure 5. Village Fund Disbursement Mechanism (**Source**: Ministry of Finance, 2017)

This study compares corruption cases in villages with the performance parameters of the Ministry of Villages, Development of Disadvantaged Regions, and Transmigration, namely the Village Development Index (IDM). IDM is a Composite Index formed based on three indices, namely the Social Resilience Index (IKS), the Economic Resilience Index (IKE), and the ecological/Environmental Resilience Index (IKL) (Directorate General of RCDE, 2017). The index captures the development of village independence based on the implementation of Law Number 6 of 2014 concerning Villages with the support of village officials and village assistants. This indicator compares the accuracy of interventions in policy with the correlation of appropriate development interventions from the government. It also follows community participation, which correlates with the characteristics of rural areas: typology and social capital.
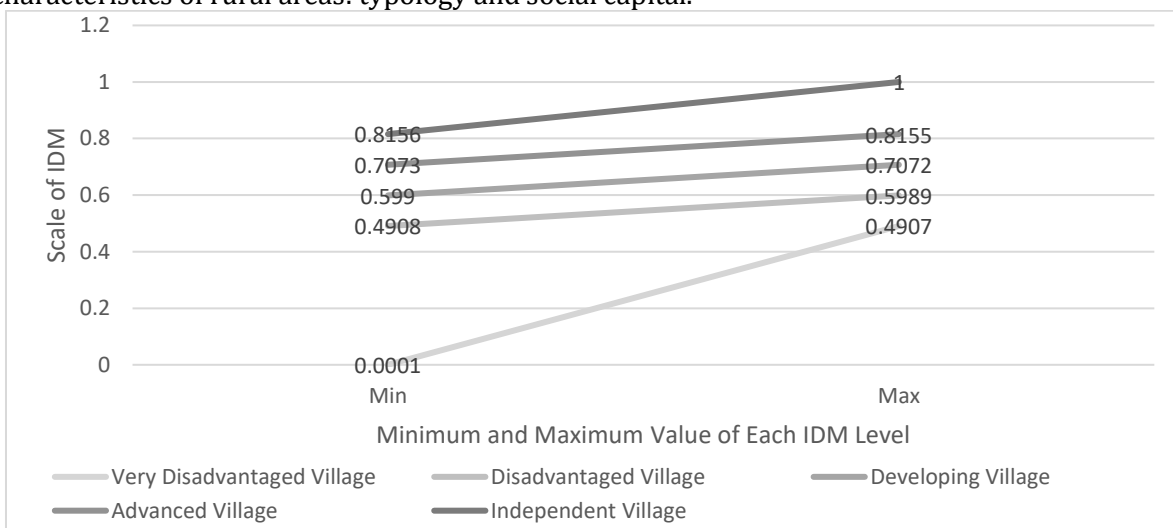

Figure 6. Five Village Development Level's Scale/Thresholds
(SourceData visualisation by the author using Microsoft Excell)

There are five IDM statuses for village classification in five different scales/ thresholds. First, the very Disadvantaged Villages scale is IDM ≤ 0.4907. Second, the Disadvantaged Villages scale is 0.4907 < IDM ≤ 0.5989. Third, the Developing Villages scale is 0.5989 < IDM ≤ 0.7072. Fourth, the Advanced Village scale is 0.7072 < IDM ≤ 0.8155. And fifth, the Independent Village scale is IDM > 0.8155. The scale of five Village Development levels is presented in Figure 6.

The classification of village status aims to determine the development and recommendations of policy interventions to be executed. Approaches and interventions to disadvantaged villages will differ concerning the level of policy affirmation when compared to the status of developing, developed, or independent villages. This index is updated annually to measure the achievement of ministry programs. It has also been used for formulating the nominal fund per village.

Based on data obtained through online media from various websites, there were 125 village corruption cases in 86 regencies/cities and 27 provinces investigated by prosecutors and police officers. The data was collected from Indonesian online media that was published from January 2015 to July 2022. After the validation, the next step is comparing IDM data with village corruption cases data. Data visualisation using Tableau application version .4.2021 shows two findings. These two findings present to classify how the village corruption case spread in different regions and at different levels of development. The first concerns the enforcement of village fund corruption cases on the island of Java compared to outside Java. The enforcement of corruption cases in Java spreads across the five provinces of East Java, West Java, Central Java, DI Yogyakarta, and Banten, counting a total of 58 from 125 village populations in this study (46.40%). The second concerns village corruption cases investigated on the island of Sumatra spread across the nine provinces of Aceh, Bangka Belitung, Bengkulu, Jambi, Riau Islands, Lampung, Riau, South Sumatra, and North Sumatra. It counted 33 of 125 (26.4%) village corruption cases. Corruption cases investigated in Sulawesi and eastern Indonesia consist of nine provinces: Gorontalo, Maluku, NTB, NTT, West Sulawesi, South Sulawesi, Central Sulawesi, Sulawesi Tenggggara, North Sulawesi. It counted 23 of 125 (18.4%) village corruption cases. Lastly, village corruption cases in the Kalimantan region occurred in four provinces: East Kalimantan, Central Kalimantan, West Kalimantan, and South Kalimantan. It counted 11 out of 125 (8.8%) village corruption cases. Inequality in policy implementation between Java and outside Java is in line with research by Salle (2020) and Wijayanti & Suryandari (2020). The percentage and distribution of law enforcement officers on village fund corruption cases per region and district/city for the 2015-2021 period are detailed in Figure 7 and Figure 8.
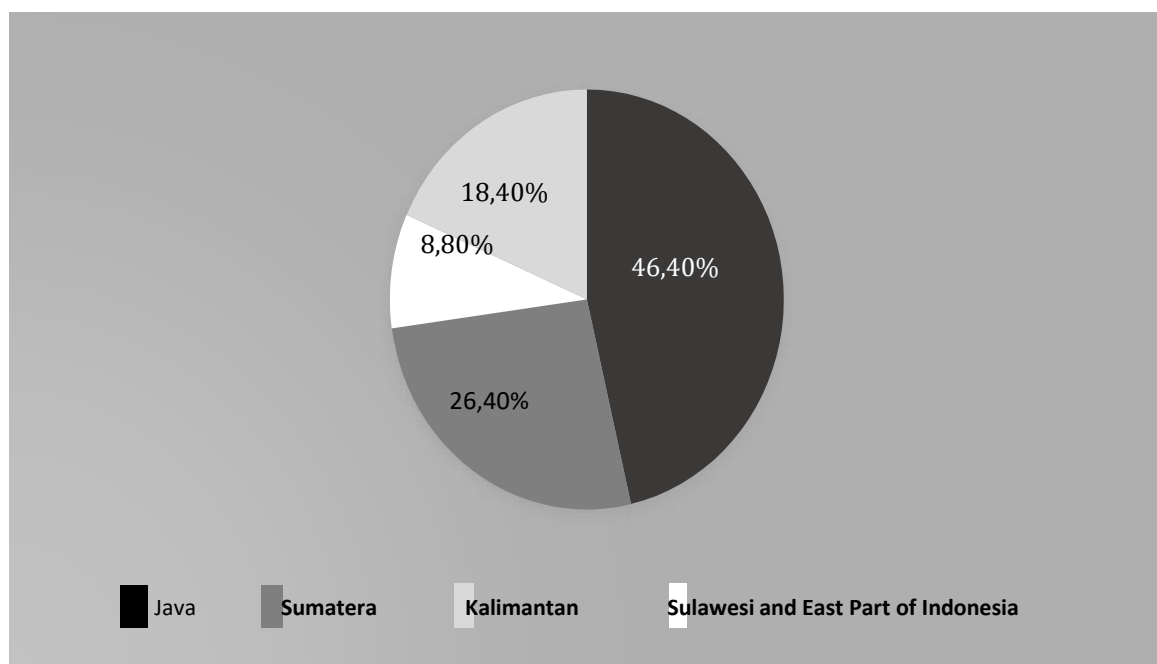

Figure 7. Percentage of Corruption Cases in villages by region for the 2015-2021 period
(Source**:** Data visualisation by the author using Tableau)
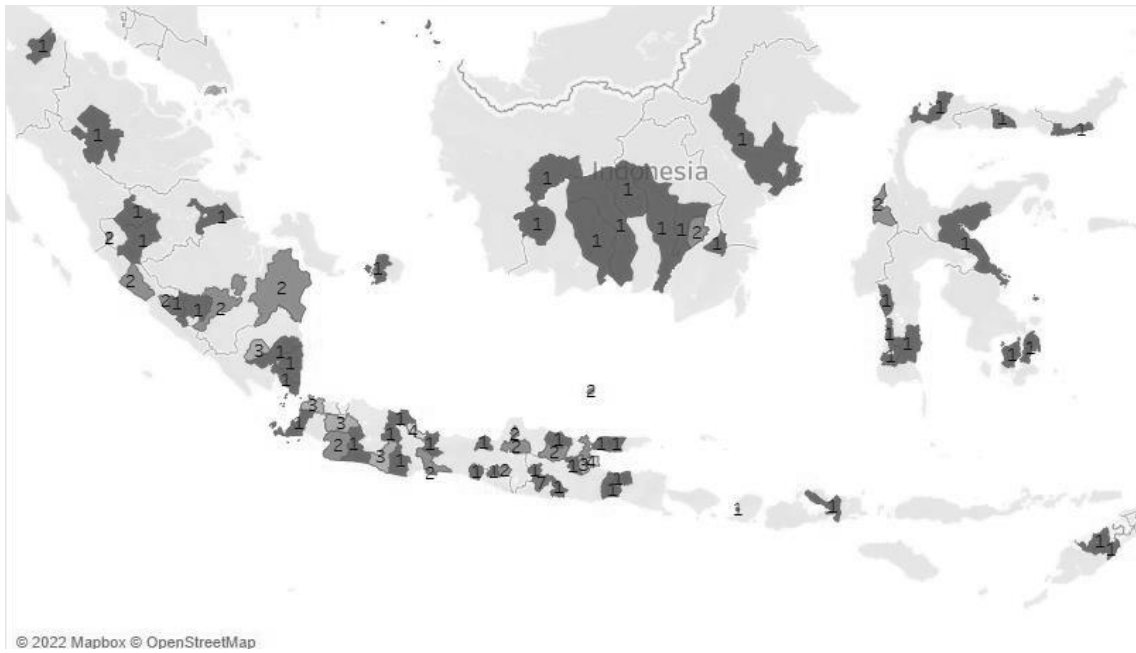
© 2022 Mapbox © OpenStreetMap

Figure 8. Distribution of village corruption case enforcement by the Police and Prosecutors for the 2015-2021 period (Source**:** Data visualisation by the author using Tableau)

The second result shows that the level of development of villages affected by corruption cases is dominated (above 50%) by the 'Developing' Status. The results show 67 villages as developing villages, 37 as disadvantaged villages, 15 as advanced villages, and 6 as Very Disadvantaged villages, as illustrated in Figure 9. The results did not describe the relationship between the vulnerability of villages and a certain level of development to corruption risk. However, identifying this pattern could reduce the scope of detection to a specific characteristic of the village case (in this study: development level). Law enforcement for corruption that occurs in the villages of Java island is still dominant compared to outside of Java. This follows research by Prabowo et al. (2017) and Prabowo & Cooper (2016) which does not associate corruption with a particular level of regional development.
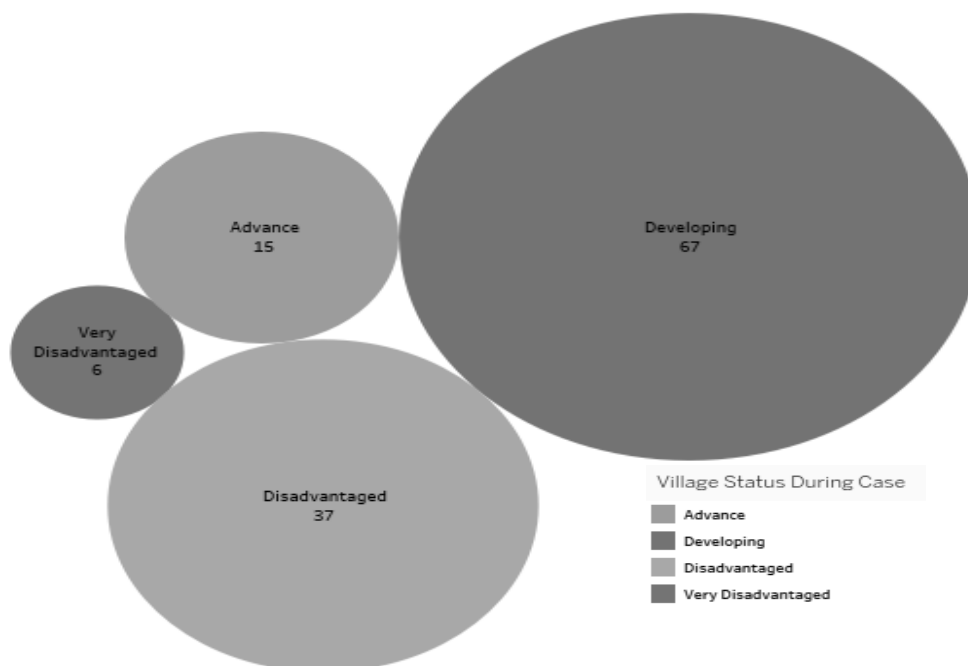

Figure 9. Village Development affected by Corruption for the 2015-2021 Period
(Source: Data visualisation by the author using Tableau)

Limitations of Corruption Detection Mechanisms in Villages

Although it has been recognised from the aspects of territory and authority under Village Law number 4/2016, the Top Down approach in corruption prevention policy still places actors at the village level more at the implementing level (target group) than decision-makers (implementors). Therefore, any designed policies which target villages determined by actors at the state level (Dewi & Setiabudhi, 2018; Fathia & Indriani, 2022; Kartika & Arief, 2021; Lituhayu, 2019; Mardhiah, 2017; Puspa & Prasetyo, 2020) than local/regional actors. Further impacts of this approach are: (1) causing an effect of dependence on village funds rather than efforts to increase the original income of the village/ PAD (Adriyanto, 2021), and (2) reduced public trust in the government for its failure to reduce corruption cases (Divayani, 2018; Hartanto et al., 2021; Morris & Klesner, 2010). Even in the top-down approach, revision and reformulation of policy should sustain and ensure that the person in each role carries the same vision. The government and other relevant stakeholders need to design or redesign village corruption prevention policies with clear and measurable objectives, inputs (resources), processes, outputs, outcomes, and impacts. Impacts differ from outcomes that directly affect the implementor or the target group. The outcome example of this village prevention policy is the improvement in the anti-corruption behavior of the village community. Impacts usually indirectly affect the implementor or the target group. In this policy, the impact example is the ease of investors to start a business in the village.

Limited input and resources are a more complex issue. As reported by the National Secretariat of Corruption Prevention (National Secretariat of Corruption Prevention/NSCP Secretariat, 2021), the inability of the Village Financial Supervision System (Siswakeudes) application developed by the Financial and Development Supervision Agency (BPKP) to reach all villages in Indonesia resulted in unfinished target at the end of 2020. The anti-corruption commission/KPK has developed the Jaga (corruption prevention network) application to reach 74,961 villages in Indonesia. However, this application is still minimally used and serves more as a complaint channel.

It is difficult to measure or analyse a corruption prevention program or any anti-fraud policy on the delivery of its objectives if it does not include repressive aspects of enforcement. According to Arief (2008), repressive measures can also act as preventive measures in a broad sense. The Financial and Development Supervisory Agency/BPKP (2002) Fraud Control Plan includes preventive, detective, and repressive measures. This collaboration of measures is the basis of the previous policy (The 2012 National Strategy of Corruption Prevention and Eradication/NSCPE) which was deleted but not designed in the new policy (NSCP 2018).

Prevention of corruption will be more effective and increase public trust if there is an examination or audit mechanism first (Cordery & Hay, 2019; Leung et al., 2015; Ode et al., 2017). Until 2021, the Supreme Audit Board of the Republic of Indonesia (BPK) had not conducted inspections at the village level or delegated the authority to audit village financial reports to other parties (Sampurna, 2021). This condition caused village communities represented by the Village Consultative Body (BPD) as principals to be unable to assess the accountability of the village government (village heads and their staff) regularly.

The need for audit and the monitoring of fraud is vital for each village. The regional inspectorate (APIP) is not establishing a financial or mandatory audit. These institutions do compliance audits which are closer to monitoring than assurance services (Iranisa, 2016; Mardiasmo, 2001). According to the Institute of Internal Auditors/IIA (2006), there are three parties to agency theory: The Principal is the mandated provider of resources, the Agent is the recipient of the Principal's mandate (management) and the Auditor's role is as the information intermediary and the giver of confidence/assurance service between the Principal and Agent. The implementation of this theory occurs only at the state/national and regional levels (provinces, districts, and cities). At the village level, no institution provides regular audit services or reports them on an ongoing basis to principals at the village level, namely village representative/parliament board/BPD. A comparison of agency theory between design, implementation in the state/region, and implementation in the villages can be seen in Figure 10.
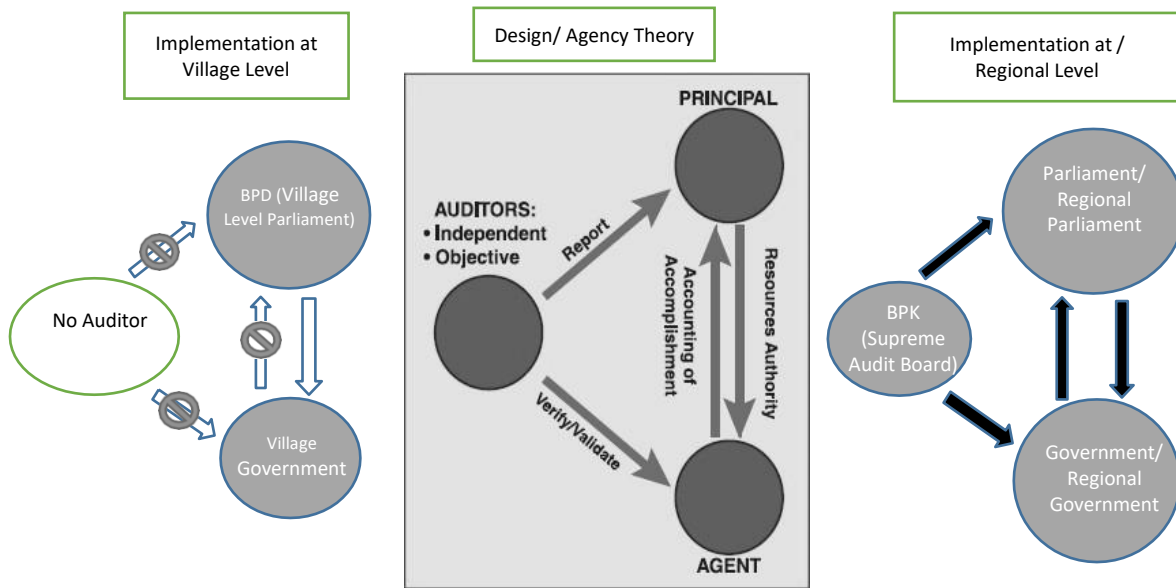
Figure 10. The absence of an auditor institution that assesses the village's scope
(Source: Analysis from IIA (2006))

Recognising Fraud at the Village Level with a Data Analysis Approach

With the ineffectiveness of existing policies to detect and prevent village corruption, a detection approach integrated with the existing system is needed. As outlined in the previous discussion, recognising corruption behavior is the first step in prevention and detection. After being recognised, it is necessary to identify and analyse the information with an automated Information Technology (IT) approach. This activity should be performed and monitored by the audit organisation on an ongoing basis. According to Bănărescu (2015), there are three levels of control to prevent and anticipate the occurrence of corruption/fraud: unforeseen control, repetitive control, and permanent control. These three levels are described in Figure 11.
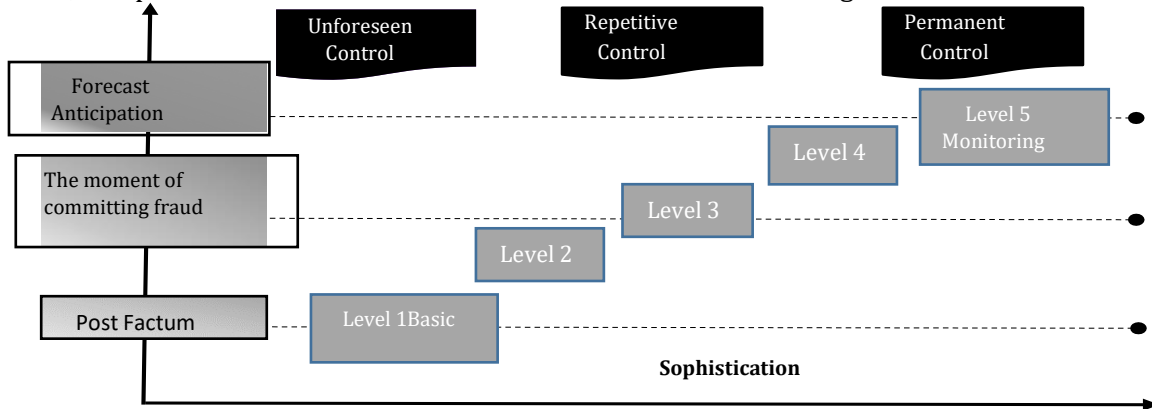

Figure 11. Fraud Detection and Prevention Using Data Analytics (Bănărescu (2015))

The control structure above is applied in a two-step process. Firstly, the auditor needs to make a trend analysis (for example, with the characteristics of village development in the previous discussion). Secondly, they should continue making predictions of villages targeted for corruption prevention and detection policies. Analysis like this need to be developed by the auditor to detect red flags (Gee, 2015). These red flags consist of deviations from the internal control system (Siskeudes), anomalies in bookkeeping/accounting, irregularities in financial analysis or trends, grouping complaints by types, and changes in the behavior of financial managers or apparatus in villages. The NSCP 2018 has been able to identify the existence of a village financial supervision system (Siswakeudes) based on information technology. This will make it easier for auditors/ supervisors to design and determine the risk of corruption in the village or even find indicators of corruption cases.

The use of information technology assistance has become popular in every sector. With the problem of limited resources and mechanisms described in the previous discussion, villages need to match the change of the perpetrator's ability to make a more sophisticated corruption scheme. The use of analysis to detect fraud (Fraud Analytics) has been commonly used, especially for auditors (Gee, 2015, Indriasari et al., 2019, Mittal et al., 2021), government/policy makers (Peltier-Rivest, 2018), and business organisations (Indriasari et al., 2019; John et al., 2020; Y. Yang & Wu, 2020).

Conclusion

From the discussion and results of the research above, the author can take three conclusions. Firstly, the increasing village fund transfer has a role in the increase of corruption cases in villages. A policy or mechanism of corruption prevention and detection is not clear enough at the village level. Secondly, the villages most affected by corruption in Indonesia are villages with Developing Status centralised on the island of Java. Thirdly, an analytical approach through auditing is needed using an information technology approach. Regarding the development of villages, this study has different results from the research of (Fiorino et al., 2012; Mauro, 1995; F. Yang et al., 2017), which indicates that corruption is inversely proportional to the level of economic development. This research supports the research of Prabowo et al. (2017), and Prabowo & Cooper (2016) which suggests that: (1) corruption can occur at different levels of development; (2) there are differences in development and policy implementation between Java and outside Java, and (3) the importance of fraud detection policies that comprehensively implemented, including in villages. This study recommends a corruption detection and prevention system that is acceptable to rural communities or internal auditors/APIP. This study also recommends the establishment of an institution that audits and monitors corruption prevention policies on an ongoing basis at the village level.

Further study related to the behavior patterns of human resources at the corrupted village level is required (behavioral red flags). Based on the Association of Certified Fraud Examiners (ACFE, 2012), these red flags consist of: Living Beyond Means, Financial Difficulties, Unusually Close Association with Vendor/Customer, Control Issues (Unwillingness to Share Duties), Divorce/Family Problems, Wheeler-Dealer Attitude, Irritability, Suspiciousness or Defensiveness, Addiction Problems, and Past Employment-Related Problems. By comparing the characteristics of the village with the human behavior of the apparatus, the formation of a policy model for the prevention and detection of corruption can be more comprehensive. In addition, research in corruption prevention at the village level with an empirical approach needs to be formulated in the future.

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