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Research Article

Village Funds Policy and its Impact on Improvement and Autonomy Status of Villages in Indonesia

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Abstract.
”End poverty in all its forms everywhere” is the ultimate goal and crucial element of the world’s SDGs 2030 transformative agendas, as well as in Indonesia. The COVID-19 pandemic has hindered Indonesia from achieving its SDGs targets and reducing poverty, including rural poverty. The village funds policy sourced from the state budget is one of the policies that aims to alleviate rural poverty; thus, there will be a reduction of disadvantageous villages and an enhancement of self-sustained villages in Indonesia. This study aims to investigate the impact of village funds on the improvement and autonomy status of villages in Indonesia. It utilizes a quantitative method, namely linear regression of panel data using the Village Building Index (VBI) as the dependent variable and village funds as the independent variable over 2018-2021 in each regency/city in Indonesia. The result suggests that the village fund policy, through the 10% allocation of the state budget, has a positive and significant effect on changes in the improvement and autonomy status of the villages in Indonesia. The finding using the model (lin-log) tells us that a 1% increase in village funds will raise the VBI by 0.0013. This indicates that the village funds policy has contributed to the achievement of rural poverty alleviation goals, or it could be a pro-poor policy in order to achieve the purpose of the 1st SDGs goal.

Keywords: SDGs, poverty, village funds policy, improvement and autonomy status of villages

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1. Introduction

Sustainable development is a transformation process to ensure the fulfillment of the needs of the present generation without reducing the development opportunities of future generations through integrated actions in the economic, social and environmental fields (1). The successful implementation of the Sustainable Development Goals (SDGs) agenda is the only way forward to address global sustainability challenges in order to ensure human well-being, economic prosperity, and environmental protection(2).

Ending poverty in all forms (end poverty in all its forms everywhere) is the first goal and an important element of the transformative agenda of the 2030 SDGs (3) and the foundation for achieving other SDGs goals (4). Poverty Alleviation (SDGs1) has the most synergistic relationships with other SDGs objectives (2,5,6). The impoverishment has negative effects, namely being a threat to the implementation of almost all of the SDGs and keeping the poverty gap between industrialized and developing countries remains (3). Covid-19 also has implications in the achievement of the SDGs with widening the poverty (4) and hindering developing countries to overcome poverty because they have fragile economic systems and no financial support (3).

There are still few studies that tell about the topic of achieving the 1st SDGs since the topic has not become the main focus yet (7). Several previous studies have suggested future research on intergenerational poverty; urban poverty and poverty alleviation design with heterogeneous strategies (8); poverty reduction that can pose major obstacles to the implementation of the SDGs due to the presence of unexpected pandemics such as COVID-19 and a series of important items to encourage the implementation of one of the key SDGs (3).

In order to achieve the 1st SDGs goal, impoverishment in rural areas becomes a concern around the world, especially in developing countries. Urban and rural are organisms, thus urban poverty should give an equal attention to rural poverty, particularly in developing countries (9). Previous research mentioned that in the future it is necessary to conduct studies on the evaluation of the effectiveness of poverty reduction around the world and in various countries; studies that illustrate the gap between poverty alleviation and sustainable development goals, studies that analyze constraints that affect the achievement of poverty alleviation goals, and studies of models of poverty reduction strategies globally that are suitable for different regions, including in rural areas because eradicating poverty is the basis for revitalizing rural areas around the world (9).

Indonesia is one of the developing countries that still experiences obstacles in achieving the 1st SDGs goal, especially poverty in rural areas. Multidimensional poverty in Indonesia is clearly higher in rural areas than it in urban ones, although the gap in both is narrowing(10). The Covid-19 pandemic crisis has also prevented Indonesia from achieving the SDGs target and reducing the poverty rate (11) including rural poverty.

The condition of poverty in Indonesia shows that there is a gap in rural poverty which tends to be higher than urban areas. Table 2 tells that the percentage of population number of poverty, Poverty Gap Index and Poverty Severity Index in urban areas have decreased from 2018 to 2019. In 2020 (the Covid Pandemic period) it got the higher

number and then diminished again in 2021. However, the percentage of population number of poverty, Poverty Gap Index and Poverty Severity Index in rural areas tend to be higher when compared to urban ones.

Table 1: Rural and Urban Poverty in Indonesia.

Poverty Indicator	Year			
	2018	2019	2020	2021
1. % population number in poverty				
Rural	13.1	12.6	13,2	12,53
Urban	6.89	6.56	7,88	7,6
2. Poverty Gap Index				
Rural	2.32	2.11	2,39	2,25
Urban	1.08	1.02	1,26	1,23
3. Poverty Severity Index				
Rural	0.62	0.53	0,68	0,59
Urban	0.25	0.23	0,31	0,29

Source: (12,13)

The policy of village income sourced from the allocation of the State Budget (village funds) is one of the macro policies set by the government to overcome poverty in rural areas. The policy regulated by Law No.6 of 2014 concerning the Villages is one of the important changes in village policy during the Reformation period because it is different from the regulation of village income sources in the previous Law, namely Law No.22 of 1999 and Law No.32 of 2004, therefore starting in 2014 the central government directly guarantees the legality of financing government administration, development and community empowerment and village community through regulations on the amount and method of allocating, distributing and using village income sourced from the state budget, as much as 10% for the villages(14). The village funds is a form of state recognition to the village(15).

One of the objectives of the village funds policy is to alleviate poverty(15). In its implementation, several studies state that the village funds policy has an influence on the progress of villages in various regions in Indonesia. Research by Sigit & Kosasih(16) stated that village funds and village funds allocations negatively affected poverty at the district/city level in Indonesia in 2015-2017. The one conducted by Jumiati & Adam (17) stated that partially, the village funds program affects economic growth, expansion of employment and business opportunities and simultaneously there is an influence of the village funds program on economic growth, increase of employment and business opportunities in 10 villages in Purwakarta Regency. Arfiansyah (18) stated that the village

funds negatively affects poverty in Central Java Province, where the increasing village funds decreases the poverty rate. Study by Faoziyah & Salim (19) stated that 25.35% of areas that experienced proliferation (expansion) received a significant increase in village funds, but was not enough to reduce the poverty rate. Another study carried on by Gusti et al.,(20) stated that there was no significant relationship between village funds and the decline in poor heads of families or an increase in the number of village funds was not accompanied by a decrease in the poverty rate in Pesisir Selatan Regency. From some of those studies, it can be seen that the village funds policy affects poverty, economic growth, job expansion and business opportunities.

Although the village funds policy is a pro-poor policy, it is still unable to alleviate rural poverty evenly and still causes various problems. Research by Hastono & Shah(21) states that the village funds is a fund used for village welfare, even so, the current management of the village funds is considered too convoluted and full of uncertainty so that it can give rise to conflicts of interest and corrupt practices. Ernawati et al. (22) mentions that the village funds encourages inclusive growth as a pro-poor and pro-job policy but not pro-equality. As a pro-poor policy, the funds are allocated in accordance with the economic development needs of rural communities and encouraging employment opportunities in rural areas. In addition, the expansion of leading sectors and their supporting industries, such as agriculture and community empowerment, drives economic activity and creates new job opportunities. Rural infrastructure development also plays a role in creating new jobs through cash-for-work. However, village development policies are uneven, indicating that the programs financed from the allocation of these funds have not reduced the income gap of the community.

Based on the description of the problem and previous research, it can be seen that poverty alleviation in rural areas of Indonesia through the implementation of the village funds policy is one of the government's strategic steps to achieve the 1st SDGs goal. The Village Building Index (VBI) is an indicator to measure the improvement and autonomy status of villages to attain one of the village development goals, namely tackling poverty (Village Ministerial Regulation Number 2 of 2016 concerning the Building Village Index). Several previous studies have examined the effect of village funds policies on VBI in several regions of Indonesia. Research by Yulitasari & Tyas (23) stated that the change in the magnitude of village funds did not have a significant effect on changes in the status of villages in Central Java Province. Arina et al (24) stated that the village funds has a significant effect on VBI in Southeast Minahasa Regency. Research conducted by Dewi (25) stated that the village funds had a positive effect on VBI in Klaten Regency. One by Kharisma et al. (26) mentioned that the increase in the village funds budget and the

geographical difficulty index had a negative impact on the VBI in Riau Province. Study by Iftitah & Wibowo (27) stated that the use of Village Funds for capital participation of Village-Owned Enterprises and Village Original Income has a positive influence on VBI in Gowa Regency. Alhaqi (27) proposed that the use of village funds has a strong impact on the development of village independence in Hanging District. Study by Adekayanti & Achyani (29) stated that the village funds has a positive effect on VBI and has anegative influence on the poorness.

Even though previous studies have examined the effect of the village funds policy on VBI, the research is still partial in certain periods and regions in Indonesia. There has been no research that scrutines the influence of the village funds policy on VBI in Indonesia thoroughly. Therefore, this study aims to investigate how the village funds policy affects VBI in every Regency and City in Indonesia from 2018-2021. This research contributes on providing an empirical picture of the improvement and autonomy status of the villages in Indonesia in an effort to achieve of the 1^{st} SDGs goal, such as tackling poverty through the village funds policy and conceptually for the development of further research on rural poverty in Indonesia.

2. THEORETICAL STUDY

Poverty is a diverse, dynamic and multidimensional phenomenon, it is not a static and singular phenomenon (29–31). As a dynamic phenomenon, poverty manifests in the changes in well-being and socioeconomic status that individuals exhibit over time (30). Meanwhile, as a multidimensional phenomenon, poverty includes economic indicators consisting of income per capita; income poverty line; and income inequality and non-economic indicators consisting of education; health and nutrition; and environment (32). In addition, poverty also involves many aspects such as the geographical, socioeconomic, system and cultural environment (9) that occurs both at the economic and social levels and can be caused by behavioral, structural and political factors (33).

There are several factors that affect poverty in rural areas. Rural poverty factors at the macro level identify the causes of poverty in a country or region changing over time while poverty factors at the micro level identify the causes of some households in villages being poorer than others (34). Important factors that cause poverty at the village level include the type of terrain, the area of agricultural land per capita, the ratio of access to safe drinking water, the ratio of the labor force, and the ratio of rural residents enrolled in pension insurance in each Village. Meanwhile, the key factors that cause poverty at the district level contain per capita income, rough participation rates

in the first three years, the ratio of poor villages to passenger buses, vegetation cover, and terrain relief. Differences in the impact of the frequency of natural disasters and the area of cultivated land per capita between districts are influenced by factors at the district level. Meanwhile, individual and group effects have a significant impact on the incidence of poverty (35). The main factors influencing rural poverty in this case are the number of minors, the number of migrant workers, the number of peasant farmers and the proportion of wage equivalent income have significant effectiveness against rural poverty, while the status of the head of household, health status and accessibility traffic have little influence (36).

Furthermore, there is Multidimensional Poverty Index (MPI) that aim to measure acute poverty in more than 100 developing countries. This index consists of 3 dimensions and 10 indicators, for instance (1) the dimension of health (nutrition and child mortality); (2) educational dimensions (school year and school attendance); and (3) standard of living (fuel for cooking, sanitation, drinking water, electrical energy, homes, and asset ownership). In the global MPI, people are considered multidimensionally poor if they are deficient in one-third or more than 10 indicators with each indicator having the same weight in each dimension (37). The Multidimensional Poverty Line (MPL) can be used to estimate the incidence of poverty and assess the success or failure of the implementation of poverty strategies, policies and programs in Indonesia. The measurement consists of 3 variables, namely the adequacy dimension capability (10 indicators); empowerment variables dimensions of physical limitations, public services, gender equality and legal equality (4 indicators) and opportunities dimensions of access to loan, employment opportunities, access to business and training, access to roads, access to electricity and energy, market access, education, health, water and sanitation (21 indicators) (38).

VBI is one of the measures to see how far villages in Indonesia are able to overcome poverty. According to the Regulation of the Minister of Villages Number 2 of 2016, VBI is the basis for determining the classification of village status, that are: (a) Self-sufficient Village is a village that has the ability to carry out village development to improve the quality of life and life as much as possible for the welfare of rural communities with social, economic, and ecological resilience in a sustainable manner (VBI >0.8155); (b) Advanced Village is a village that has the potential for social, economic and ecological resources, as well as the ability to manage them to improve the welfare of rural communities, the quality of human life and overcome poverty (VBI $\leq$ 0.8155 and > 0.7072); (c) Developing Village is a potential village to become a Developed Village, which has the potential for social, economic and ecological resources but has not managed them optimally

for improving the welfare of rural communities, the quality of human life and tackling poverty (VBI $\leq$ 0.7072 and $>$ 0.5989); (d) Disadvantaged Villages are villages that have the potential for social, economic and ecological resources but have not managed them in an effort to improve the welfare of rural communities, the quality of human life and overcome poverty in its various forms (VBI $\leq$ 0.5989 and $>$ 0.4907); and (5) Very Disadvantaged Village is a village that experiences problems due to natural disasters, economic shocks, and social conflicts so that it is not able to manage the potential of social, economic and ecological resources and experiences poverty in its various forms (VBI $\leq$ 0.4907). The determination of in the improvement and autonomy status of the villages is an instrument between the Central Government, Regional Governments and Village Governments in carrying out the development and empowerment of village communities and specifically for the needs of mapping the village typologies and preparing priorities for the use of village funds.

VBI covers three dimensions, which are (1) the social dimension which includes the sub-dimensions of education, health, social capital and settlements; (2) economic dimension includes economic diversity of community production, availability and access to loan and banking, transportation (infrastructure and modes of transportation), access to trade centers (markets) and services; and (3) ecological dimensions related to environmental quality with water, soil and air quality components and awareness of disaster risks. In other words, VBI is a composite index produced from the average ecological resilience index (IKL), economic resilience index (IKE) and social resilience index (IKS) of each village.

3. METhods

This study utilizes VBI as dependent variable and village funds as the independent one. Independent variables were taken in the period 2018-2021, while the VBI variables used were from the period 2019-2022; this is due to the update of the VBI value in 2018 (t) published in 2019 (t+1). Both are secondary data in each Regency and City throughout Indonesia obtained from the Ministry of Finance (40–44) and (39–43) (45–49)(44–48). Based on the Decree of the Minister of Home Affairs No. 050-145 of 2022 concerning the Provision and Updating of Codes, Data on Government Administration Areas, and Islands in 2021, Indonesia has 416 Regencies and 98 Cities. However, not all of these areas receive the village funds; moreoever, there is a data void in both the village funds and the VBI variable in the Regency/City for the certain years. Hence the data used in this study involved 404 regencies/cities in the 2018-202 and 2019-2022 time spans.

This study uses a quantitative method in the form of regression of panel data. Panel data is cross-section data that is viewed in a certain time frame. There are some of the advantages of using panel data analysis, for example it can explicitly take into account the heterogeneity present in each unit; providing more informative data, more variability, reducing cholinearity between variables, and giving higher degrees of freedom and efficiency; providing a better picture of the dynamics of change; detecting and measuring unobserved influences on time-series and cross-section data; explaining complex behavioral models and minimizing biases that can arise from aggregated data.

Based on previous research, the hypothesis proposed in this study is that the village funds policy has a positive and significant effect on VBI. Testing of the hypothesis is carried out using a panel data regression model in the form of the following equation:

$$VBI_{it} = \alpha_0 + \alpha_1 lnDD_{it} + e_{it}$$

Equation 1 Panel Data Regression Model.

VBI is the i-th District/City Building Village Index at the t-th time, DD is the i-th District/City village funds at the t-th time, $\alpha_0$is constant (*intercept*), α_1 is the variable coefficient of the village funds, and e_{it} is an error term. In the model above, the village funds variable is transformed into a natural logarithm (ln) for reasons of interpretation. The change in ln data is an approximation of the relative change (in percent) so that the interpretation of the impact of the change of explanatory variable on dependent variables becomes easier to understand.

In the regression analysis of the data panel, there are three test models that can be carried out, including (1) the Common Effect Model (CEM) which is often called Pooled Regression; (2) Fixed Effect Model (FEM); and (3) Random Effect Model (REM). CEM is a panel data regression model that combines time series and cross section data assuming that there is no individual specific influence, so estimation can be done with the Ordinary Least Square (OLS) model. Meanwhile FEM is a model that pays attention to the diversity of independent variables according to individuals (49). Furthermore, REM is a model of panel data estimation where error terms can be related between times and individuals.

Before determining the best model among them to estimate the effect of the village funds on VBI, it is necessary to carry out several stages of testing such as Figure ??.

Figure ?? Stages of Data Panel Regression Testing.

The Chow test or F-statistical test is useful for determining whether the better model to use is CEM or FEM. This test is a fixed effect significance test to decide whether the model assumes of a fixed slope and intercept between individuals and between times

(common effect), or whether it is necessary to add a dummy variable to determine the difference in intercept (fixed effect). Furthermore, the Hausman Test is a test that is carried out to select the use of FEM or REM. This test follows the chi square statistical distribution with a degree of freedom of k where k is the number of independent variables.

After obtaining the best model in estimation, it needs to carry out the classical assumption test to see if the model had fulfill the assumptions thus it gives the efficient result. This test will also determine the best weighting on the pre-selected panel data regression model. Additionally, t-statistical examination was performed to determine whether the explanatory variable affect the dependent one significantly. This test is a way to prove that the regression parameters in a model are statistically significant or not. The whole process of collecting and analyzing the data is using the help of the EViews 12.

4. RESULT AND DISCUSSION

The alleviation of rural poverty in Indonesia through the implementation of the village funds policy is one of the government's strategic steps to achieve the 1st SDGs goal. In accordance with the data used in this study, there were 404 regencies/cities that fully receive the village funds during the 2018-2022 period. The average village funds per regency/city in 2018 was 0.14 TrillionRp or 140 BillionRp, and then increased to 0.16 TrillionRp in 2019. In 2020, on average, regency/city in Indonesia received Rp. 0.17 trillionRp of village funds, and returned to 0.16 trillionRp in 2021 and 2022 as shown in Table 2.

Table 2: Village Funds in 2018-2020.

Year	Village Funds (in trillions of rupiah)	Average Village Funds per District/City (in trillion rupiah)
2018	55,60	0,14
2019	64,61	0.16
2020	67,21	0.17
2021	66,42	0.16
2022	63,84	0.16

Source: Authors' calculation

Furthermore, the ability of villages in Indonesia to overcome poverty can be seen according to data on in the improvement and autonomy status of the villages in regencies/cities according to VBI. Table 3 depicts that there is a change in the proggres and autonomy status of villages in the Regency/City every year. For example, in 2018

there are no Regencies/Cities that have the status of Self-sufficient Villages, meanwhile in 2022 there have been those that have obtained this status, including Denpasar City, Batu City, Badung Regency, Banjar City, Full River City, Banyuwangi Regency, Bantul Regency, Tabanan Regency, Klungkung Regency, Mempawah Regency, Gianyar Regency, Jembrana Regency, Banda Aceh City, Sleman Regency, Sambas Regency, Karangasem Regency, West Kotawaringin Regency and Ambon City. This means that those regions already have the ability to carry out village development to improve the quality of life and life as much as possible for the welfare of rural communities with social, economic, and ecological resilience in a sustainable manner.

Table 3: Improvement and Autonomy Status of Village in Regencies/Cities According to VBI.

Year	Number of District/ City	Number of District/City Status According to VBI				
		Self-sufficient	Advance	Developing	Disadvantage	Very Disadvantage
2019	404	2	28	258	107	9
2020	404	6	54	270	68	6
2021	404	10	94	244	51	5
2022	404	18	151	196	36	3

Source: Authors' calculation

In the meantime, regencies/cities that have the status of disadvantaged villages have decreased from 107 in 2019 to 36 in 2022. This means that they have the potential for social, economic and ecological resources but has not or lacks management in an effort to improve the welfare of rural communities, the quality of human life and overcome poverty in its various forms. Besides, regencies/cities that have very disadvantaged village status have decreased from 9 in 2019 to 3 in 2022, namely West Nias Regency, Arfak Mountains Regency, and Tambrauw Regency. It tells that the district is experiencing problems with natural disasters, economic shocks, and social conflicts so that it is not able to manage the potential of social, economic and ecological resources and experiences poverty in its various forms.

To examine the influence of the village funds policy on the in the improvement and autonomy status of the villages in Indonesia in an effort to achieve the 1^{st} SDGs goal of tackling poverty, a panel data regression analysis was carried out by testing the effect of the amount of village funds allocation on VBI in 404 Regencies and Cities in Indonesia in the 2018-2021 period. The descriptive statistical analysis of the variables used in this study presented at Table 4.

The table shows that all the values of variabels used int the paper are positve, and the increase in village funds is argued to produce an increase in VBI.

Table 4: Descriptive Statistical Analysi.

	VBI	Village Funds
Mean	0,660724	1.57e+08
Std. Error	0,070445	99862150
Observations	1616	1616

Source: Authors' calculation

4.1. Estimated Panel Data Regression Model

The estimation of the panel data regression model with the help of the Eviews 12 program shows the estimation results for CEM in Table 5; FEM in Table 6; and REM in Table 7.

Table 5: Estimation of Common Effect Model (CEM).

Variables	**Coef.**	**Standard Error**
village funds	-0,008***	0,003
Intercept	0,803***	0,051

*, **, *** denote significance at 10% ,5% and 1%

The results of the CEM estimate are:

$$\widehat{IDM}_{it} = 0,803 - 0,008 lnDD_{it}$$

Table 6: Fixed Effect Model (FEM).

Variables	**Coef.**	**Standard Error**
village funds	0,112***	0,005
Intercept	-1.423***	0,100

*, **, *** denote significance at 10% ,5% and 1%

The results of the FEM estimation are:

$$\widehat{IDM}_{it} = -1,423 + 0,112 lnDD_{it}$$

Table 7: Random Effect Model (REM).

Variables	**Coef.**	**Standard Error**
village funds	0.047***	0,004
Intercept	-0,225***	0,075

*, **, *** denote significance at 10% ,5% and 1%

The results of the REM estimate are:

$$\widehat{IDM}_{it} = -0,225 + 0,047 lnDD_{it}$$

4.2. Selection of Panel Data Regression Model

Accuracy testing between CEM and FEM models via Chow Test, where:

Initial hypothesis (H_0) = CEM

Alternative hypothesis (H_1) =FEM

Chow Test calculation against previous CEM and FEM models in Eviews12 shows that the Prob value was 0.00 or less than = 5%; therefore, H_0 was rejected. Hence, it is concluded that the suitable model to be used is FEM. These results showed that there were non-observed observation-unit specific effects and affected the model.

Furthermore, Hausman test was carried out to determine the accuracy between the FEM and REM models, as follows

Initial hypothesis (H_0) = REM

Alternative hypothesis (H_1) =FEM

The test was performed with Eviews 12 and found a Prob>chi square value of 0.00 which was smaller than α = 5%, or it is concluded that H_0 was rejected. Thus, it is save to say that the more qualified model to be conducted is FEM.

After obtaining the right model through some of the previous tests, the classic assumption test are carried out to ensure the efficiency of the variables in the model. The first is the heteroskedasticity test aimed at seeing whether the residuals of the model used have a constant variance or not. H_0 in this test is homoskedasticity and H_1 is heteroskedasticity. Based on calculations carried out with the Wald test method on the previous FEM, a Prob>chi square value of 0.00 was obtained thus H_0 was rejected, meaning that the residual of the FEM model is heteroskedastic. Then, in panel data regression models with heteroskedasticity problem, there is a further testing that needs to be done in order to see the presence of cross-sectional dependence. The test was carried out with a CD Distribution (cross-sectional dependence) test to test whether the residual are correlated across entitites (50). The H_0 is that residuals are not correlated; on the contrary, H_1 tells that the residuals are correlated. The result shows that the FEM has cross-sectional dependence since we reject the null hypothesis (Pr=0,00).

As a result, FEM in this study has heteroscedasticity dan cross-sectional dependence, hence the proper model to be used is FEM with Seemingly Unrelated Regression (SUR). However, since the number of cross-section data (n) is larger than period of the data (t), the more suitable model to be used is cross section Seemingly Unrelated Regression Panel Corrected Standard Errors (SUR PCSE) in cross-section weights estimator(51).

4.3. Panel Data Regression Final Model Estimation

FEM estimation results with cross section Seemingly Unrelated Regression Panel Corrected Standard Errors (SUR PCSE) in cross-section weights estimator is as follows:

$$IDM_{it} = -1,764 + 0,130 lnDD_{it}$$

TABLE 8: Final Estimation of FEM.

Variables	Coef.	Standard Error
village funds	0,130***	0,034
Intercept	-1,764***	0,635

*, **, *** denote significance at 10% ,5% and 1%

The value of intercent α_i is different for each district/ city, presented in the appendix to this study.

The result shows that the village funds has a significant and positive effect on VBI. In addition, the estimates on the cross section model Seemingly Unrelated Regression Panel Corrected Standard Errors (SUR PCSE) in cross-section weights estimator explains that the increase in the village funds will increase the VBI in every Regency/City in Indonesia. In other words, the village funds has a positive and significant effect on VBI. Then, the model used (lin-log) is a model to calculate the absolute change of VBI to the percentage change in the village funds, so that a 1% increase in the village funds will increase the VBI by 0.0013.

4.4. Discussion

The results of the regression analysis shows that the village funds policy through the allocation of budgets sourced from 10% of the state budget to villages has a positive and significant effect on changes in the improvement and autonomy status of the villages in regencies/cities in Indonesia. The results of this study support previous research which also stated that the village funds had a positive effect on VBI(24,28,52).

Meanwhile, the small percentage of the effect can be caused of the data utilized in this study have not covered the distribution of the fund and the priority of using the funds for poverty reduction; for instance, there is a priority of the policy direction in 2020 for using the village in providing affirmative allocations for disadvantages and very disadvantages village(15). Consequently, in-depth analysis of how the village fund is used for poverty reduction from each district/city in Indonesia is urgently needed to support the findings of this study (26). Additionally, the small percentage of the effect

of village funds on the VBI also shows that there are other factors exist and are notable to be take into account. Future research needs to elaborate these factors.

Nevertheless, the finding of this study may indicate that the village funds policy has contributed to the achievement of the goal of alleviating rural poverty and can be said as a pro-poor policy, in line with results found by Imanuddin et al., 2019(15) and Ernawati et al. (22). Equally important, the finding of this research can provides a different view compared to the results of previous studies which stated that the village funds policy had a negatief effect on the poverty as propesed by Sigit & Kosasih (16) and Faoziyah & Salim (18)(19).

Furthermore, the findings may also denote that there is a need to elaborate and develop VBI as one of the measure tools to examine the conditions of poverty alleviation in rural areas in Indonesia as a multidimensional manner; on this occasion, by paying attention to the factors, dimensions, variables and indicators of MPI and MPL(37)(39)(38) as the measurement base. Ultimately, VBI is not only qualtify the proggres and autonomy status of the villages as an instrument among the Governments in carrying out development and empowerment of village communities and specifically for the needs of mapping Village typologies and preparing priorities for the use of village funds, but it also comprehensively can be a database of multidimensional poverty in rural Indonesia.

5. Conclusion

Using the data of village funds and VBI from 404 districts and cities in Indonesia, this study suggests that the village funds policy (through the allocation as much as 10% of budget sourced from the State Budget) has a positive and significant effect on the proggres and autonomy status of the villages. The result obtained from the FEM with SUR PCSE in cross-section weights estimator explains that the increase in the village funds will increase the VBI in regency/city in Indonesia. Additionally, the calculation with the model (lin-log) shows that a 1% increase in the village funds will raise the VBI by 0.0013. This indicates that the village funds policy has contributed to the achievement of the goal of alleviating rural poverty or it can be said as a pro-poor policy in the context of support efforts to achieve the 1^{st} SDGs goal.

Nevertheless, this study has limitations in terms of methods; type of data; and aspects analyzed. Therefore, further research needs to examine the influence of village funds policies on in the improvement and autonomy status of the villages both quantitatively and qualitatively, for example by including other aspects such as its effect

on multidimensional poverty in rural areas, using more comprehensive data up to the micro level thus it could find a new viewpoint to the extent of impact of village funds policy in supporting the achievement of the 1^{st} SDGs goal.

6. AUTHORS' CONTRIBUTION

Rosita Novi Andari and Rizky Fitria contributed equally as the main contributors to this article. Both authors have researched, read and approved to this article.

References

[1] Sobczak E, Bartniczak B, Raszkowski A. Implementation of the no poverty sustainable development goal (SDG) in visegrad group (v4). Sustain. 2021;13(3):1–21.

[2] Pradhan P, Costa L, Rybski D, Lucht W, Kropp JP. A systematic study of sustainable development goal (SDG) Interactions. Earth's Futur. 2017;5(11):1169–1179.

[3] Leal Filho W, Lovren VO, Will M, Salvia AL, Frankenberger F. Poverty: A central barrier to the implementation of the UN Sustainable Development Goals. Environ Sci Policy [Internet]. 2021;125(August):96–104. Available from: https://doi.org/10.1016/j.envsci.2021.08.020

[4] Fenner R, Cernev T. The implications of the Covid-19 pandemic for delivering the Sustainable Development Goals. Futures [Internet]. 2021;128(July 2020):102726. Available from: https://doi.org/10.1016/j.futures.2021.102726

[5] Fonseca LM, Domingues JP, Dima AM. Mapping the sustainable development goals relationships. Sustain. 2020;12(8):1–15.

[6] Yang S, Zhao W, Liu Y, Cherubini F, Fu B, Pereira P. Prioritizing sustainable development goals and linking them to ecosystem services: A global expert's knowledge evaluation. Geogr Sustain [Internet]. 2020;1(4):321–330. Available from: https://doi.org/10.1016/j.geosus.2020.09.004

[7] Sebestyén V, Domokos E, Abonyi J. Focal points for sustainable development strategies—Text mining-based comparative analysis of voluntary national reviews. J Environ Manage [Internet]. 2020;263:110414. Available from: https://doi.org/10.1016/j.jenvman.2020.110414

[8] Yu Y, Huang J. Poverty reduction of sustainable development goals in the 21st Century: A bibliometric analysis. Front Commun. 2021;6(October):1–15.

[9] Zhou Y, Liu Y. The geography of poverty: Review and research prospects. J Rural Stud [Internet]. 2022;93:408–416. Available from: https://www.scopus.com/

inward/record.uri?eid=2-s2.0-85060854799&doi=10.1016{%}2Fj.jrurstud.2019.01.008&partnerID=40&md5=142efeecadd1bc8d1b588587ae0cbb42

[10] Hanandita W, Tampubolon G. Multidimensional Poverty in Indonesia: Trend Over the Last Decade (2003–2013). Soc Indic Res. 2016;128(2):559–587.

[11] Hadi SP, Mohd Ibrahim H, Bulan P, Suryoko S. Pandemic, SDGs, and CSR: Case study of Indonesia. E3S Web Conf. 2020;202:1–5.

[12] BPS-Statistics. Statistical yearbook of Indonesia 2020. Jakarta: BPS-Statistics Indonesia; 2020. p. 255–256.

[13] BPS-Statistics. Statistical yearbook of Indonesia 2022. Jakarta: BPS-Statistics Indonesia; 2022. 274–275 p.

[14] Andari RN. Kebijakan Pendapatan Desa Yang Bersumber Dari Alokasi Apbn (Dana Desa) di Indonesia Masa Reformasi 1999-2015 (Studi tentang Perubahan Kebijakan Pendapatan Desa yang Bersumber dari Alokasi APBN/Dana Desa). Responsive. 2018;1(1):12.

[15] Imanuddin, Mulyono, Nasrullah, Riyadi S, Prianto A, Devi AL. Buku Pintar Dana Desa (Dana Desa untuk Kesejahteraan Rakyat) [Internet]. Proposal SIMLITAMAS. Direktorat Jenderal Perimbangan Keuangan; 2019. Available from: https://drive.google.com/u/0/uc?id=1Cfi3P2BhcwRAWB-_TCK3SmQbCRspzfwS&export=download

[16] Sigit TA, Kosasih A. Pengaruh Dana Desa terhadap Kemiskinan: Studi Tingkat Kabupaten/Kota di Indonesia. Indones Treas Rev J Perbendaharaan Keuang Negara dan Kebijak Publik. 2020;5(2):105–119.

[17] Jumiati E, Adam D. Pengaruh Program Dana Desa Terhadap Perekonomian Masyarakat, Perluasan Lapangan Kerja dan Peluang Usaha Masyarakat Desa (Studi Deskriptif Korelasi pada 10 Desa di Kabupaten Purwakarta). Lisyabab J Stud Islam dan Sos [Internet]. 2020;1(2):2722–8096. Available from: https://lisyabab-staimas.e-journal.id/lisyabab

[18] Arfiansyah MA. Dampak Dana Desa Dalam Penanggulangan Kemiskinan Di Jawa Tengah. J Stud Islam dan Sos [Internet]. 2020;1(c):91–106. Available from: https://lisyabab-staimas.e-journal.id/lisyabab%0ADampak

[19] Faoziyah U, Salim W. Seeking prosperity through village proliferation: An evidence of the implementation of village funds (Dana Desa) in Indonesia. J Reg City Plan. 2020;31(2):97–121.

[20] Gusti Y, Agustar A, Osmet. Pemanfaatan Dana Desa dan Kaitannya dengan Pengentasan Kemiskinan di Kabupaten Pesisir Selatan. J Ilm MEA (Manajemen, Ekon dan Akuntansi). 2020;4(2):265–285.

[21] Hastono T, Syah F. Alternative solutions for determining village funds using weight product method. In: RR, editor. 7th International Conference on DV-Xa Method: The Advances-Related Experiments and Theories on Material Science, ICDM 2019 [Internet]. Universitas Pgri Yogyakarta, Yogyakarta, Indonesia: Institute of Physics Publishing; 2020. Available from: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85085660576&doi=10.1088{%}2F1757-899X{%}2F835{%}2F1{%}2F012029&partnerID=40&md5=801cfcc0e3c65573c4d71edd96c51ed7

[22] Ernawati E, Tajuddin T, Nur S. Does government expenditure affect regional inclusive growth? An experience of implementing village fund policy in Indonesia. Economies [Internet]. 2021;9(4). Available from: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85119055882&doi=10.3390{%}2Feconomies9040164&partnerID=40&md5=d41898afd7e2f185745a524b5cbde64a

[23] Yulitasari Y, Tyas WP. Dana Desa dan Status Desa di Provinsi Jawa Tengah. J Reg Rural Dev Plan. 2020;4(2):74–83.

[24] Arina AIS, Masinambow V, Walewangko EN. Pengaruh Dana Desa Dan Alokasi Dana Desa Terhadap Indeks Desa Membangun Di Kabupaten Minahasa Tenggara. Pembang Ekon dan Keuang Drh. 2021;22(3):22–41.

[25] Kharisma B, Taifur WD, Muharja F. Dampak Anggaran, Kesulitan Geografis, dan Rumah Tangga Desa terhadap Status Desa di Provinsi Riau. J Reg Rural Dev Plan. 2021;5(3):187–202.

[26] Iftitah AE, Wibowo P. Pengaruh Dana Desa, Alokasi Dana Desa, Dan Pendapatan Asli Desa Terhadap Indeks Desa Membangun Di Kabupaten Gowa. J Ilmu Pemerintah Widya Praja. 2022;48(1):17–36.

[27] Alhaqi RN. Pengaruh Dana Desa Terhadap Perkembangan Kemandirian Desa di Kecamatan Gantung. J Bisnis, Manajemen, dan Ekon. 2022;3(2):75–97.

[28] Adekayanti N, Achyani F. Pengaruh Dana Desa terhadap Kemandirian Wilayah dan Kemiskinan di Provinsi Jawa Tengah pada Tahun 2016-2020. In: Webinar Nasional Dewan Pengurus Pusat Ikatan Alumni Universitas Negeri Yogyakarta dalam Rangka Dies Natalis ke-58 UNY. 2022. p. 25–32.

[29] Artha DRP, Dartanto T. The Multidimensional Approach to Poverty Measurement in Indonesia: Measurements, Determinants and Its Policy Implications. J Econ Coop Dev. 2018;39(3):1–38.

[30] Leal Filho W, Henrique Paulino Pires Eustachio J, Dinis MAP, Sharifi A, Venkatesan M, Donkor FK, et al. Transient poverty in a sustainable development context. Int J Sustain Dev World Ecol. 2022;29(5):415–428.

[31] Chaudhry I, Malik S, Faridi MZ. Factors Affecting Rural Poverty: A Qualitative Approach. JHSS. 2007;XV(March):107–109.

[32] Sumner A. Meaning versus measurement: Why do “economic” indicators of poverty still predominate? Dev Pract. 2007;17(1):4–13.

[33] Sompolska-Rzechuła A, Kurdyś-Kujawska A. Assessment of the Development of Poverty in EU Countries. Int J Environ Res Public Health. 2022;19(7).

[34] Osmani SR, Latif MA. The Pattern and Determinants of Poverty in Rural Bangladesh: 2000-2010. Bangladesh Dev Stud [Internet]. 2013;XXXVI(2):2000–2010. Available from: https://about.jstor.org/terms

[35] Wang Y, Jiang Y, Yin D, Liang C, Duan F. Examining Multilevel Poverty-Causing Factors in Poor Villages: a Hierarchical Spatial Regression Model [Internet]. Vol. 14, Applied Spatial Analysis and Policy. Springer Netherlands; 2021. p. 969–998. Available from: https://doi.org/10.1007/s12061-021-09388-1

[36] Zhang J, Zuo F, Zhou Y, Zhai M, Mei L, Fu Y, et al. Analyzing influencing factors of rural poverty in typical poverty areas of Hainan Province: A case study of Lingao County. Chinese Geogr Sci. 2018;28(6):1061–1076.

[37] UNDP, OPHI. Global Multidimensional Poverty Index 2021 Unmasking Disparities by Ethnicity, Caste and Gender OPHI [Internet]. 2021. Available from: https://hdr.undp.org/system/files/documents//2021mpireportenpdf.pdf

[38] Firdausy CM, Budisetyowati DA. Variables, Dimensions, and Indicators Important to Develop the Multidimensional Poverty Line Measurement in Indonesia [Internet]. Vol. 162, Social Indicators Research. Springer Netherlands; 2022. p. 763–802. Available from: https://doi.org/10.1007/s11205-021-02859-5

[39] DJPK Kementrian Keuangan. Rincian Alokasi Transfer ke Daerah dan Dana Desa (TKDD) dalam APBN Tahun Anggaran 2022 [Internet]. 2021. Available from: https://djpk.kemenkeu.go.id/wp-content/uploads/2021/10/DBH-DAU-DID-Otsus-Dais-Dandes-TA-2022.pdf

[40] DJPK Kementrian Keuangan. Rincian Alokasi Transfer ke Daerah dan Dana Desa (TKDD) dalam APBN Tahun Anggaran 2021 [Internet]. 2020. Available from: https://djpk.kemenkeu.go.id/wp-content/uploads/2020/09/Dana-Desa_rotated.pdf

[41] DJPK Kementrian Keuangan. Perubahan Rincian Dana Desa Menurut Daerah Kabupaten/Kota Tahun Anggaran 2018 [Internet]. 2018. Available from: https://djpk.kemenkeu.go.id/wp-content/uploads/2018/01/PMK-226-Tahun-2017-edit.pdf

[42] DJPK Kementrian Keuangan. Rincian Alokasi Transfer ke Daerah dan Dana Desa (TKDD) Dalam APBN Tahun Anggaran 2020 [Internet]. 2019. Available from: https://djpk.kemenkeu.go.id/wp-content/uploads/2019/09/7.-DANA-DESA.pdf

[43] DJPK Kementrian Keuangan. Rincian Alokasi Transfer ke Daerah dan Dana Desa (TKDD) dalam APBN Tahun Anggaran 2019 [Internet]. 2018. Available from: https://djpk.kemenkeu.go.id/wp-content/uploads/2018/10/DANA-DESA-1.pdf

[44] Madjid T, Rachmawaty R, Fachri M, Agusta I, Hariyanti, Sukoyo, et al. Status Indeks Desa Membangun Provinsi Kabupaten Kecamatan Tahun 2019 [Internet]. DJPPMD Kementerian Desa, Pembangunan Daerah Tertinggal dan Transmigrasi. 2019. p. 152–158. Available from: https://drive.google.com/file/d/1qK-PIXOpJLvSN8U6s8q_PpmP8Umtuib_/view

[45] Direktorat Jenderal Pembangunan Desa dan Perdesaan. Peringkat Nilai Rata-Rata Indeks Desa Membangun Tahun 2022 [Internet]. Kementerian Desa Pembangunan Daerah Tertinggal dan Transmigrasi; 2022. p. 5–12. Available from: https://drive.google.com/file/d/1-uatOklifanBRJ7WH58Vi1Y_5pfVDdpG/view

[46] Direktorat Jenderal Pembangunan Desa dan Perdesaan. Peringkat Indeks Desa Membangun Tahun 2021 [Internet]. Kementerian Desa Pembangunan Daerah Tertinggal dan Transmigrasi; 2021. p. 4–12. Available from: https://drive.google.com/file/d/1Ng9MJ2vlUjPceQ4f2pNKgWnmXy-eWe6Z/view

[47] Kementerian Desa Pembangunan Daerah Tertinggal dan Transmigrasi. Peringkat Indeks Desa Membangun Tahun 2018 [Internet]. Kementerian Desa Pembangunan Daerah Tertinggal dan Transmigrasi; 2018. p. 3–9. Available from: https://drive.google.com/file/d/1YnruFhFeYanLEZ0e5XGxIbhuOdOoTX9r/view

[48] Madjid T, Rachmawaty R, Fachri M, Wikantosa B, Nagoro NS, Uguy LS, et al. Peringkat Status IDM Tahun 2020 [Internet]. Peringkat Status IDM Provinsi-Kabupaten-Kecamatan-Desa Tahun 2020. Kementerian Desa Pembangunan Daerah Tertinggal dan Transmigrasi; 2020. p. 4–12. Available from: https://drive.google.com/file/d/1Rz5Qz-wWCY3_imH_FLom0ORFxYaLBe96/view

[49] Srihardiati M, Mustafid, Prahutama A. Metode Regresi Data Panel Untuk Peramalan Konsumsi Energi Di Indonesia. J Gaussian. 2016;5(3):475-485.

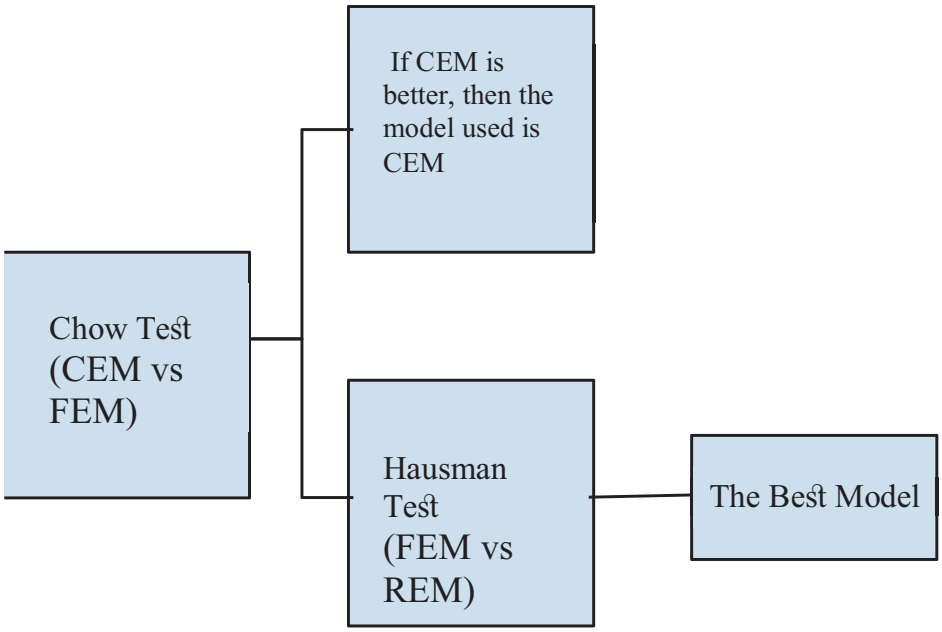
[50] Hoechle D. Robust standard errors for panel regressions with cross-sectional dependence. Stata J. 2007;7(3):281–312.

[51] Sitorus YM, Yuliana L. Penerapan Regresi Data Panel Pada Analisis Faktor-Faktor yang Mempengaruhi Belanja Pemerintah Fungsi Kesehatan di Indonesia Tahun 2010-2014. Media Stat. 2018;11(1):1–15.

[52] Dewi SS. Analysis of the impact of village funds on regional development in Klaten Regency. Repos UMS [Internet]. 2021;(Universitas Muhammadiyah Surakarta). Available from: http://eprints.ums.ac.id/id/eprint/95305

APPENDICES

Appendix 1. CEM Eviews result



Appendix 2. FEM Eviews result

Dependent Variable: IDM
Method: Panel Least Squares
Date: 10/29/22 Time: 20:42
Sample: 2018 2021
Periods included: 4
Cross-sections included: 404
Total panel (balanced) observations: 1616

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.803395	0.051163	15.70269	0.0000
LNDD	-0.007638	0.002738	-2.790195	0.0053

R-squared	0.004800	Mean dependent var	0.660724
Adjusted R-squared	0.004184	S.D. dependent var	0.070445
S.E. of regression	0.070297	Akaike info criterion	-2.470937
Sum squared resid	7.975866	Schwarz criterion	-2.464269
Log likelihood	1998.517	Hannan-Quinn criter.	-2.468462
F-statistic	7.785187	Durbin-Watson stat	0.139534
Prob(F-statistic)	0.005330		

Appendix 3. REM Eviews result

Dependent Variable: IDM
Method: Panel Least Squares
Date: 10/29/22 Time: 20:45
Sample: 2018 2021
Periods included: 4
Cross-sections included: 404
Total panel (balanced) observations: 1616

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-1.423143	0.100050	-14.22425	0.0000
LNDD	0.111564	0.005356	20.82860	0.0000

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.896947	Mean dependent var	0.660724
Adjusted R-squared	0.862568	S.D. dependent var	0.070445
S.E. of regression	0.026115	Akaike info criterion	-4.239874
Sum squared resid	0.825902	Schwarz criterion	-2.889612
Log likelihood	3830.818	Hannan-Quinn criter.	-3.738727
F-statistic	26.08967	Durbin-Watson stat	1.385248
Prob(F-statistic)	0.000000		

Appendix 4. Chow-test result

Dependent Variable: IDM
Method: Panel EGLS (Cross-section random effects)
Date: 10/29/22 Time: 20:50
Sample: 2018 2021
Periods included: 4
Cross-sections included: 404
Total panel (balanced) observations: 1616
Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.224794	0.069477	-3.235521	0.0012
LNDD	0.047408	0.003716	12.75936	0.0000

Effects Specification	S.D.	Rho
Cross-section random	0.063703	0.8561
Idiosyncratic random	0.026115	0.1439

Weighted Statistics

R-squared	0.079325	Mean dependent var	0.132674
Adjusted R-squared	0.078755	S.D. dependent var	0.029439
S.E. of regression	0.028256	Sum squared resid	1.288658
F-statistic	139.0619	Durbin-Watson stat	0.745008
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	-0.244515	Mean dependent var	0.660724
Sum squared resid	9.973966	Durbin-Watson stat	0.096257

Appendix 5. Hausman-test result

Redundant Fixed Effects Tests
Equation: Untitled
Test cross-section fixed effects

Effects Test	Statistic	d.f.	Prob.
Cross-section F	26.014437	(403,1211)	0.0000
Cross-section Chi-square	3664.602229	403	0.0000

Cross-section fixed effects test equation:
Dependent Variable: IDM
Method: Panel Least Squares
Date: 10/29/22 Time: 20:46
Sample: 2018 2021
Periods included: 4
Cross-sections included: 404
Total panel (balanced) observations: 1616

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.803395	0.051163	15.70269	0.0000
LNDD	-0.007638	0.002738	-2.790195	0.0053

R-squared	0.004800	Mean dependent var	0.660724
Adjusted R-squared	0.004184	S.D. dependent var	0.070445
S.E. of regression	0.070297	Akaike info criterion	-2.470937
Sum squared resid	7.975866	Schwarz criterion	-2.464269
Log likelihood	1998.517	Hannan-Quinn criter.	-2.468462
F-statistic	7.785187	Durbin-Watson stat	0.139534
Prob(F-statistic)	0.005330		

Appendix 6. FEM SUR PCSE Eviews result

Correlated Random Effects - Hausman Test
Equation: Untitled
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	276.527806	1	0.0000

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
LNDD	0.111564	0.047408	0.000015	0.0000

Cross-section random effects test equation:
Dependent Variable: IDM
Method: Panel Least Squares
Date: 10/29/22 Time: 20:51
Sample: 2018 2021
Periods included: 4
Cross-sections included: 404
Total panel (balanced) observations: 1616

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-1.423143	0.100050	-14.22425	0.0000
LNDD	0.111564	0.005356	20.82860	0.0000

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.896947	Mean dependent var	0.660724
Adjusted R-squared	0.862568	S.D. dependent var	0.070445
S.E. of regression	0.026115	Akaike info criterion	-4.239874
Sum squared resid	0.825902	Schwarz criterion	-2.889612
Log likelihood	3830.818	Hannan-Quinn criter.	-3.738727
F-statistic	26.08967	Durbin-Watson stat	1.385248
Prob(F-statistic)	0.000000		

Appendix 7. Cross-section Fixed Effects

Dependent Variable: IDM
Method: Panel EGLS (Cross-section weights)
Date: 10/29/22 Time: 20:53
Sample: 2018 2021
Periods included: 4
Cross-sections included: 404
Total panel (balanced) observations: 1616
Linear estimation after one-step weighting matrix
Cross-section SUR (PCSE) standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-1.764052	0.635074	-2.777711	0.0056
LNDD	0.129815	0.033999	3.818163	0.0001

Effects Specification

Cross-section fixed (dummy variables)

Weighted Statistics

R-squared	0.977475	Mean dependent var	1.140303
Adjusted R-squared	0.969960	S.D. dependent var	0.843970
S.E. of regression	0.025779	Sum squared resid	0.804804
F-statistic	130.0765	Durbin-Watson stat	1.598553
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	0.895959	Mean dependent var	0.660724
Sum squared resid	0.833820	Durbin-Watson stat	1.520296

	DISTRICTS	Effect
1	Kab. Aceh Barat	-0.125591
2	Kab. Aceh Besar	-0.161435
3	Kab. Aceh Selatan	-0.096166
4	Kab. Aceh Singkil	-0.025249
5	Kab. Aceh Tengah	-0.100410
6	Kab. Aceh Tenggara	-0.127865
7	Kab. Aceh Timur	-0.159269
8	Kab. Aceh Utara	-0.292265
9	Kab. Bireuen	-0.235813
10	Kab. Pidie	-0.239848
11	Kab. Simeulue	-0.022008
12	Kota Banda Aceh	0.182717
13	Kota Sabang	0.326484
14	Kota Langsa	0.121372
15	Kota Lhokseumawe	0.142728
16	Kab. Gayo Lues	-0.029315
17	Kab. Aceh Barat Daya	-0.005515
18	Kab. Aceh Jaya	-0.008650
19	Kab. Nagan Raya	-0.082249
20	Kab. Aceh Tamiang	-0.041125
21	Kab. Bener Meriah	-0.063298
22	Kab. Pidie Jaya	-0.073185
23	Kota Subulussalam	0.043059
24	Kab. Asahan	-0.028270
25	Kab. Dairi	-0.056134
26	Kab. Deli Serdang	-0.108730
27	Kab. Karo	-0.067475
28	Kab. Labuhanbatu	0.076134
29	Kab. Langkat	-0.063351
30	Kab. Mandailing Natal	-0.184916
31	Kab. Nias	-0.176493
32	Kab. Simalungun	-0.117016
33	Kab. Tapanuli Selatan	-0.073232
34	Kab. Tapanuli Tengah	-0.088724
35	Kab. Tapanuli Utara	-0.118341
36	Kab. Toba Samosir	-0.079797
37	Kota Padang Sidempuan	0.161416
38	Kab. Pakpak Bharat	0.114502
39	Kab. Nias Selatan	-0.293027
40	Kab. Humbang Hasundutan	-0.043946
41	Kab. Serdang Bedagai	-0.048230
42	Kab. Samosir	-0.010025
43	Kab. Batu Bara	0.015341
44	Kab. Padang Lawas	-0.151045
45	Kab. Padang Lawas Utara	-0.207281
46	Kab. Labuhanbatu Selatan	0.178477
47	Kab. Labuhanbatu Utara	0.028238
48	Kab. Nias Utara	-0.172101
49	Kab. Nias Barat	-0.145124
50	Kota Gunungsitoli	-0.022399

51	Kab. Limapuluh Kota	0.141837
52	Kab. Agam	0.157482
53	Kab. Kepulauan Mentawai	0.096310
54	Kab. Padang Pariaman	0.079730
55	Kab. Pasaman	0.165266
56	Kab. Pesisir Selatan	-0.001447
57	Kab. Sijunjung	0.156264
58	Kab. Solok	0.074133
59	Kab. Tanah Datar	0.198930
60	Kota Sawahlunto	0.249339
61	Kota Pariaman	0.190639
62	Kab. Pasaman Barat	0.230987
63	Kab. Dharmasraya	0.160073
64	Kab. Solok Selatan	0.206417
65	Kab. Bengkalis	0.066078
66	Kab. Indragiri Hilir	-0.077227
67	Kab. Indragiri Hulu	-0.014191
68	Kab. Kampar	-0.067863
69	Kab. Kuantan Singingi	-0.043945
70	Kab. Pelalawan	0.088543
71	Kab. Rokan Hilir	-0.013557
72	Kab. Rokan Hulu	0.002847
73	Kab. Siak	0.071280
74	Kab. Kepulauan Meranti	0.005816
75	Kab. Batang Hari	0.102864
76	Kab. Bungo	0.035549
77	Kab. Kerinci	-0.066720
78	Kab. Merangin	-0.018481
79	Kab. Muaro Jambi	0.036634
80	Kab. Sarolangun	-0.004800
81	Kab. Tanjung Jabung Barat	0.025099
82	Kab. Tanjung Jabung Timur	0.048312
83	Kab. Tebo	0.053909
84	Kota Sungai Penuh	0.286872
85	Kab. Lahat	-0.147838
86	Kab. Musi Banyuasin	-0.065196
87	Kab. Musi Rawas	-0.029049
88	Kab. Muara Enim	-0.065064
89	Kab. Ogan Komering Ilir	-0.105388
90	Kab. Ogan Komering Ulu	-0.040659
91	Kota Prabumulih	0.212730
92	Kab. Banyuasin	-0.115763
93	Kab. Ogan Ilir	-0.079265
94	Kab. Ogan Komering Ulu Selatan	-0.118161
95	Kab. Empat Lawang	-0.033079
96	Kab. Penukal Abab Lematang Ilir	0.031141
97	Kab. Musi Rawas Utara	0.013670
98	Kab. Bengkulu Selatan	0.020600
99	Kab. Bengkulu Utara	-0.009463
100	Kab. Rejang Lebong	-0.011491
101	Kab. Kaur	-0.034436
102	Kab. Seluma	-0.031952
103	Kab. Muko Muko	0.047654
104	Kab. Lebong	0.029977
105	Kab. Kepahiang	0.037022
106	Kab. Lampung Barat	0.073877
107	Kab. Lampung Selatan	-0.060298
108	Kab. Lampung Tengah	-0.069846
109	Kab. Lampung Utara	-0.100613
110	Kab. Lampung Timur	-0.090233
111	Kab. Tanggamus	-0.105620
112	Kab. Tulang Bawang	-0.005094
113	Kab. Way Kanan	-0.052134
114	Kab. Pesawaran	0.002858
115	Kab. Pringsewu	0.050548
116	Kab. Mesuji	0.039482
117	Kab. Tulang Bawang Barat	0.062193
118	Kab. Pesisir Barat	-0.015296
119	Kab. Bandung	-0.008025
120	Kab. Bekasi	-0.032447
121	Kab. Bogor	-0.112853
122	Kab. Ciamis	-0.010772
123	Kab. Cianjur	-0.114196
124	Kab. Cirebon	-0.104294
125	Kab. Garut	-0.141527
126	Kab. Indramayu	-0.074414
127	Kab. Karawang	-0.099262
128	Kab. Kuningan	-0.054298
129	Kab. Majalengka	-0.069715
130	Kab. Purwakarta	0.003403
131	Kab. Subang	-0.012366
132	Kab. Sukabumi	-0.087769
133	Kab. Sumedang	-0.010582
134	Kab. Tasikmalaya	-0.116723
135	Kota Banjar	0.391755
136	Kab. Bandung Barat	0.023053
137	Kab. Pangandaran	0.113267
138	Kab. Banjarnegara	-0.078608
139	Kab. Banyumas	-0.088570
140	Kab. Batang	-0.035895
141	Kab. Blora	-0.094994
142	Kab. Boyolali	-0.013508
143	Kab. Brebes	-0.150396
144	Kab. Cilacap	-0.060740
145	Kab. Demak	-0.086470
146	Kab. Grobogan	-0.093334
147	Kab. Jepara	-0.039346
148	Kab. Karanganyar	0.007756
149	Kab. Kebumen	-0.121839
150	Kab. Kendal	-0.024670

151	Kab. Klaten	-0.112526
152	Kab. Kudus	0.068586
153	Kab. Magelang	-0.105074
154	Kab. Pati	-0.106294
155	Kab. Pekalongan	-0.086262
156	Kab. Pemalang	-0.062362
157	Kab. Purbalingga	-0.050448
158	Kab. Purworejo	-0.106205
159	Kab. Rembang	-0.063825
160	Kab. Semarang	-0.013584
161	Kab. Sragen	0.008920
162	Kab. Sukoharjo	0.047755
163	Kab. Tegal	-0.125259
164	Kab. Temanggung	-0.046629
165	Kab. Wonogiri	-0.013825
166	Kab. Wonosobo	-0.021732
167	Kab. Bantul	0.203798
168	Kab. Gunung Kidul	0.095037
169	Kab. Kulon Progo	0.127932
170	Kab. Sleman	0.180057
171	Kab. Bangkalan	-0.114111
172	Kab. Banyuwangi	0.095906
173	Kab. Blitar	0.035170
174	Kab. Bojonegoro	-0.059477
175	Kab. Bondowoso	-0.031445
176	Kab. Gresik	-0.011770
177	Kab. Jember	-0.031007
178	Kab. Jombang	-0.036444
179	Kab. Kediri	-0.086583
180	Kab. Lamongan	-0.104059
181	Kab. Lumajang	-0.007359
182	Kab. Madiun	0.047956
183	Kab. Magetan	0.037998
184	Kab. Malang	-0.043734
185	Kab. Mojokerto	-0.004437
186	Kab. Nganjuk	-0.040186
187	Kab. Ngawi	-0.008450
188	Kab. Pacitan	0.041631
189	Kab. Pamekasan	-0.023129
190	Kab. Pasuruan	-0.103535
191	Kab. Ponorogo	-0.057316
192	Kab. Probolinggo	-0.098133
193	Kab. Sampang	-0.062180
194	Kab. Sidoarjo	-0.045600
195	Kab. Situbondo	0.030879
196	Kab. Sumenep	-0.131853
197	Kab. Trenggalek	0.054209
198	Kab. Tuban	-0.027485
199	Kab. Tulungagung	-0.025149
200	Kota Batu	0.404113
201	Kab. Bengkayang	0.027657
202	Kab. Landak	-0.086115
203	Kab. Kapuas Hulu	-0.088526
204	Kab. Ketapang	-0.079144
205	Kab. Mempawah	0.228862
206	Kab. Sambas	0.025933
207	Kab. Sanggau	0.009612
208	Kab. Sintang	-0.141946
209	Kab. Sekadau	0.089676
210	Kab. Melawi	-0.012624
211	Kab. Kayong Utara	0.151383
212	Kab. Kubu Raya	0.072428
213	Kab. Barito Selatan	0.043432
214	Kab. Barito Utara	0.035538
215	Kab. Kapuas	-0.097629
216	Kab. Kotawaringin Barat	0.157119
217	Kab. Kotawaringin Timur	-0.043190
218	Kab. Katingan	-0.071974
219	Kab. Seruyan	0.001271
220	Kab. Sukamara	0.202873
221	Kab. Lamandau	0.081436
222	Kab. Gunung Mas	-0.020501
223	Kab. Pulang Pisau	0.053417
224	Kab. Murung Raya	-0.090658
225	Kab. Barito Timur	0.056162
226	Kab. Banjar	-0.080515
227	Kab. Barito Kuala	-0.024783
228	Kab. Hulu Sungai Selatan	0.041488
229	Kab. Hulu Sungai Tengah	0.031486
230	Kab. Hulu Sungai Utara	-0.047249
231	Kab. Kotabaru	-0.034491
232	Kab. Tabalong	0.054807
233	Kab. Tanah Laut	0.045815
234	Kab. Tapin	0.048430
235	Kab. Balangan	0.020850
236	Kab. Tanah Bumbu	0.036094
237	Kab. Berau	0.061644
238	Kab. Kutai Kartanegara	-0.007700
239	Kab. Kutai Barat	-0.025958
240	Kab. Kutai Timur	-0.012034
241	Kab. Paser	0.035883
242	Kab. Penajam Paser Utara	0.236261
243	Kab. Mahakam Ulu	0.035527
244	Kab. Bolaang Mongondow	-0.019653
245	Kab. Minahasa	0.038513
246	Kab. Kepulauan Sangihe	-0.003457
247	Kab. Kepulauan Talaud	0.038851
248	Kab. Minahasa Selatan	-0.010691
249	Kab. Minahasa Utara	0.077999
250	Kab. Kep. Siau Tagulandang Biaro	0.105638

251	Kab. Bolaang Mongondow Utara	0.044264
252	Kab. Minahasa Tenggara	0.075036
253	Kab. Bolaang Mongondow Timur	0.099442
254	Kab. Bolaang Mongondow Selatan	0.117017
255	Kab. Banggai	-0.057068
256	Kab. Banggai Kepulauan	-0.018259
257	Kab. Buol	0.039292
258	Kab. Toli-Toli	0.023244
259	Kab. Donggala	-0.006576
260	Kab. Morowali	-0.005571
261	Kab. Poso	-0.013820
262	Kab. Parigi Moutong	-0.063626
263	Kab. Tojo Una Una	-0.039404
264	Kab. Sigi	-0.055784
265	Kab. Banggai Laut	0.065611
266	Kab. Morowali Utara	-0.027467
267	Kab. Bantaeng	0.223316
268	Kab. Barru	0.221458
269	Kab. Bone	-0.110740
270	Kab. Bulukumba	0.068614
271	Kab. Enrekang	-0.007205
272	Kab. Gowa	0.036625
273	Kab. Jeneponto	0.039659
274	Kab. Luwu	-0.095855
275	Kab. Luwu Utara	-0.033064
276	Kab. Maros	0.076543
277	Kab. Pangkajene dan Kepulauan	0.080832
278	Kab. Luwu Timur	0.027410
279	Kab. Pinrang	0.079796
280	Kab. Sinjai	0.121317
281	Kab. Kepulauan Selayar	0.023463
282	Kab. Sidenreng Rappang	0.147137
283	Kab. Soppeng	0.156420
284	Kab. Takalar	0.066307
285	Kab. Tana Toraja	-0.058236
286	Kab. Wajo	0.020689
287	Kab. Toraja Utara	-0.088771
288	Kab. Buton	0.061809
289	Kab. Konawe	-0.121335
290	Kab. Kolaka	0.052491
291	Kab. Muna	-0.053685
292	Kab. Konawe Selatan	-0.126493
293	Kab. Bombana	0.002659
294	Kab. Wakatobi	0.070861
295	Kab. Kolaka Utara	-0.044769
296	Kab. Konawe Utara	-0.040939
297	Kab. Buton Utara	0.036412
298	Kab. Konawe Kepulauan	0.004141
299	Kab. Kolaka Timur	-0.009123
300	Kab. Muna Barat	0.030299
301	Kab. Buton Tengah	0.055217
302	Kab. Buton Selatan	0.065130
303	Kab. Badung	0.339194
304	Kab. Bangli	0.223412
305	Kab. Buleleng	0.080180
306	Kab. Gianyar	0.246090
307	Kab. Jembrana	0.258331
308	Kab. Karangasem	0.187655
309	Kab. Klungkung	0.251034
310	Kab. Tabanan	0.189960
311	Kota Denpasar	0.395183
312	Kab. Bima	-0.067979
313	Kab. Dompu	0.103306
314	Kab. Lombok Barat	0.021470
315	Kab. Lombok Tengah	0.018512
316	Kab. Lombok Timur	-0.043828
317	Kab. Sumbawa	0.016753
318	Kab. Sumbawa Barat	0.164160
319	Kab. Lombok Utara	0.143967
320	Kab. Alor	-0.129317
321	Kab. Belu	0.007158
322	Kab. Ende	-0.143332
323	Kab. Flores Timur	-0.043843
324	Kab. Kupang	-0.125386
325	Kab. Lembata	-0.060244
326	Kab. Manggarai	-0.087125
327	Kab. Ngada	-0.002666
328	Kab. Sikka	-0.083635
329	Kab. Sumba Barat	-0.018512
330	Kab. Sumba Timur	-0.064901
331	Kab. Timor Tengah Selatan	-0.215543
332	Kab. Timor Tengah Utara	-0.110000
333	Kab. Rote Ndao	-0.016936
334	Kab. Manggarai Barat	-0.112100
335	Kab. Nagekeo	0.007729
336	Kab. Sumba Barat Daya	-0.170278
337	Kab. Sumba Tengah	-0.000952
338	Kab. Manggarai Timur	-0.109219
339	Kab. Sabu Raijua	-0.033680
340	Kab. Malaka	-0.083036
341	Kab. Maluku Tenggara Barat	0.082182
342	Kab. Maluku Tengah	-0.044617
343	Kab. Maluku Tenggara	0.016304
344	Kab. Buru	0.028494
345	Kota Ambon	0.263744
346	Kab. Seram Bagian Barat	-0.002778
347	Kab. Seram Bagian Timur	-0.102642
348	Kab. Kepulauan Aru	-0.089433
349	Kota Tual	0.223226
350	Kab. Maluku Barat Daya	-0.066574