Labour Standards in the Global Supply Chain; Village Fund and Labour Working Hours in Indonesia

Bondi Arifin1, Rita Helbra Tenrini[1], Eko Wicaksono[1], Arif Budi Rahman[1], Irwanda Wisnu Wardhana[1], Hadi Setiawan1, Sofia Arie Damayanty[1], Akhmad Solikin[2], Maman Suhendra[2], Acwin Hendra Saputra[3], I Gede Agus Ariutama[3], Praptono Djunedi[4], Rudi Handoko[4]

[1]*Fiscal Policy Agency, Ministry of Finance Republic of Indonesia*
[2]*Department of Accounting, Polytechnic of State Finance STAN, Indonesia*
[3]*Department of Financial Management, Polytechnic of State Finance STAN, Indonesia,*
[4]*Fiscal Policy Agency, Ministry of Finance Republic of Indonesia*

Abstract- **In the recent years, fashion brands and retailers in the West have introduced supplier's codes of conduct to strengthen international labour standards in their supply chain. Village funds have been allocated since 2015, and increase overtime. In 2015, the allocation of village funds amounting to Rp.28.8 trillion increased to reach Rp60 trillion in 2018. Village funds were used to finance government administration, implementation of development, community development, and community empowerment. This research uses the difference-in-difference (DID) which is adapted to continuous treatment method to analyze the impact of village funds on the work of rural communities. The analysis uses "repeated" cross section data from SUSENAS 2012-2017. We found that an increase in village fund per capita was more likely to raise the labor hours in agriculture and service industries, primarily on non-Java islands. The recommendation of this study is the need for regulation to standardize the proportion of village funds allocation based on the demographic (or number of poor people) and geographical (land area) conditions of the regions. Moreover, increasing the effectiveness of organizational management can be implemented by increasing the capacity of village officials.**

Keywords: village funds, employment, human resource capacity, global supply chain

1. Introduction

In recent decades, concerns of labor standards and workers' rights in global supply chains have resulted in many Western brands and retailers adopting suppliers' codes of conduct as a voluntary-regulatory measure to promote international labor standards in suppliers' factories. Through village funds, villages have the authority and sources of funds to unlock their potential in order to improve the economy and the welfare of the entire community. Village funds aim to create jobs, reduce income gaps, and alleviate poverty [1-3].Village funds, first allocated in 2015, increase annually. As an illustration, the allocation of village funds was IDR28.8 trillion in 2015, then this number has reached IDR60 trillion in 2018.

The government allocates village funds based on the population, poverty rate, the size area, and the geographical difficulties level. Criteria for determining the level of geographical difficulties are based on the availability of basic services including infrastructure, transportation, and communication facilities. However, consideration of the number of population, poverty rates, the size area and the village location only contributes to 10 percent of the distribution of village fund allocation during 2015-2017. The relatively large proportion of Basic Allocation (AD) compared to Formula Allocation (AF) (90%: 10%) causes differences in the allocation of village funds per capita based on the population density, or the size area.

The village funds are utilized primarily for infrastructure development and community empowerment. The allocation for these two priorities reaches at least 90% of total village funds [4]. As a result, there has been an acceleration in the provision of village infrastructure and facilities such as village roads, bridges, reservoirs, irrigation, drainage and sanitation facilities. Regarding the community empowerment, there are growing establishment of Village-Owned Enterprises (BUM Desa), RTLH, the provision of toilet for poor families, empowerment of posyandu, etc.

Based on the data from the Ministry of Village, until 2017 the establishment of BUM Desa reached 21,811 units [5]. BUM Desa is expected to be a major contributor to revive the rural economy [6]. The Regulation of Minister of Villages, Disadvantaged Regions, and Transmigration Number 4 of 2015 allows village governments to use village funds as equity capital for BUM Desa to improve the village economy, unlock the village potential, increase business activities, create the market, improve public services, provide jobs and increase income of the village community. This government policy might provide incentives for villagers.

The creation of jobs for the community in the village can be performed through infrastructure development programs, community development and empowerment. The development of village infrastructure, such as roads and bridges, requires labor. Empowering rural communities can also create jobs, among others, through job training programs and village community assistance, and labor-intensive work programs.

The village fund program is a form of Community Driven Development (CDD) that has been implemented in several countries in the world. CDD is a community development that emphasizes community control on decision making and investment. Basically, the idea of CDD is how the community is involved in decisions making related to its regional development to optimize the use of local resources in accordance with the needs of

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communities, especially the poors. CDD aims to improve living conditions of the poor through improved access to basic services, social capital and local governance. Therefore, the CDD approach is a popular form of development intervention because it empowers people by using resources more efficiently.

Although the village fund program and BUM Desa are believed to have many benefits for rural communities, there are still few studies related to this topic especially in developing countries. This study is expected to fill the gap and enrich the study by conducting an analysis of the impact of government spending in the form of village funds on rural development in developing countries in Indonesia. This research is the first to examine the impact of public expenditure aimed directly at rural administrative areas on employment, primarily the labor hours in Indonesia.

METHOD

Data

Globalization and the diffusion of industry supply chains to developing countries have provoked a fierce debate over how best to improve labor standards in these emerging centers of production. Child labor, hazardous working conditions, excessive working hours and poor wages continue to be a problem at many factories in developing countries, creating scandal and embarrassment for the global brands that source from those factories. This research is a collaboration between the Fiscal Policy Agency (BKF) and Polytechnic of State Finance STAN, Ministry of Finance and it is part of the research of Village Funds Study: Empirical Analysis of Village-Owned Enterprises and Job Opportunities. This study uses secondary data to complement primary data obtained on the village fund survey. For example, secondary data is employed to see aggregate impacts. In addition, primary data covers a limited area compared to secondary data. Although the advantages of primary data can identify the geography of the location up to the kelurahan level and the existence of specific topics concerning village funds, only 10% of the samples are in non-Java islands Table 1 presents the data used in the study.

This research uses the difference-in-difference adapted to continuous treatment method to analyze the impact of village fund programs on the labor hours of rural communities. The use of natural experiments to conduct program evaluations has gained widespread acceptance in empirical research in the economic and social fields. A simple comparison between regions that get intervention (villages) after getting an intervention (village funds) will confound the impact of the intervention with other effects such as the effect of time. DID compares areas that get intervention with regions that do not get interventions with a parallel trend with regions that get intervention, thus overcoming differences in the effects of time between before and after intervention.

Table 1. Research Data

Data	Period	Sampling Unit	Source
Social Economic Survey (SUSENAS)	2012-2017	Individual	Statistics Indonesia
Population Projection	2012-2017	Municipality / Town	Statistics Indonesia
Village Fund Allocation	2015-2017	Municipality / Town	Ministry of Finance
Regional Government Budget (APBD)	2012-2017	Municipality / Town	Ministry of Finance

The framework of the difference-in-difference method is described as follows (see [7-9]), For example, the effect of intervention (treatment effect, δ) can be defined by differences in potential results with intervention (Y^1) and potential results without intervention (Y^0)

$$\delta=E[Y^1 \mid T=1,I=1,X]- E[Y^0 \mid T=1,I=1,X] \quad (1)$$

where T and I are binary variables for time and intervention, E [.] is the expectation of potential results and X is a control variable that affects the outcome variables analyzed. the rules of observation of the results of variables and expectations of potential results of (Y^0) conditional T, I, and X are:

$$Y=TI \times Y^1+(1-TI) \times Y^0 \quad (2)$$

$$E[Y^0 \mid T,I,X]= \alpha T+ \beta I+ \lambda X \quad (3)$$

using equations (1) and (3), we can obtain the potential results of Y^1 conditional T, I, and X, i.e.

$$E[Y^1 \mid T,I,X]=\delta+ \alpha T+ \beta I+ \lambda X \quad (4)$$

substitution of equation (3), (4) with equation (2) then the impact of the intervention δ can be identified by the interaction of the impact of time (T) and intervention (I):

$$Y=TI \times [\delta+ \alpha T+ \beta I+ \lambda X]+(1-TI) \times [\alpha T+ \beta I+ \lambda X]$$

$$Y=\delta TI+\alpha T+\beta I+\lambda X \quad (5)$$

We developed equation (5) by using continuous intervention rather than using binary variables to obtain differences in the intensity of intervention in each region that received intervention. Therefore, the basic difference-in-difference regression that

Yist is a variable working hours for individuals i who live in regencies / cities s in year t. DDst is an intervention variable, which is the allocation of village funds per capita to districts / cities s in year t. Allocation of village funds is 0 for all districts / cities before intervention (2014 or earlier) and continuous values for regions that receive intervention (village) after intervention (2015 or later). DD2 is the allocation of village funds per capita squared to see non-linear impact of village funds.

Local government revenue per capita, local government tax income, regional retribution per capita, regional wealth management income per capita, profit sharing funds per capita, general allocation funds per capita, special allocation funds per capita, grants per capita, emergency funds per capita, special autonomy per capita fund are vector of control variables found in Z`st at the district / city level. This variable is very useful for separating the impact of village funds and other income received by the intervention area and control area. X`ist is a vector of control variables at the individual level of the sample unit, including gender, age, marital status, position in the

household, education (year), and whether an individual lives in a rural or urban area.

This study included the fixed effects of districts / cities to capture differences in each sample area that were not observable and did not change during the analysis period. In addition to this, by providing one variable in each district / city through the fixed effect of districts / cities, the district / city fixed effect captures the difference between regions rather than one intervention variable (I) in the equation (5) used in the standard difference-in-differences (DID) method. For example, the development of districts / cities in Java is better compared to the development of districts / cities outside Java so that there are greater employment opportunities in Java both before and after village funds.

We include interaction between province and year (□_t) to capture differences that cannot be observed at the time and place at the province level. Variable fixed effect interactions between provinces and years can capture every change every year that occurs at the provincial / district / city level such as provincial programs that are applied to all regions under it. The variable also replaces the time variable (T) in equation (5) in the standard difference-in-differences (DID) method because changes are captured not only based on changes before and after at macro level but also changes to the provincial / district / city level each year; and ϵist is an idiosyncratic error. We do clusters at the household level to capture household characteristics that is likely to correlate with the employment.

Parallel trend hypothesis testing

The key to the identification assumption in the difference-in-difference evaluation method used is the parallel trend of the results of the research conducted between the intervention areas and the control areas without intervention. Although the direct test of the parallel trend of the two types of regions without intervention for the entire time of the study cannot be conducted, parallel trend tests for the time before the intervention can be performed to understand the trends of the two groups of regions.

For this purpose, we conducted a placebo test using the data before the intervention (2014 and earlier) and made artificial interventions such as using per capita village funds in 2017 given in 2013 or 2014. If there are differences in trends before the intervention and or spurious regression results from those obtained from equations (6) we will get substantial results on the placebo test. We use the same equation with equations (6) to do a placebo test but we limit it to 2014 and replace interventions in 2013 or 2014.

RESULTS AND DISCUSSION

Supply chain dislocation has been one of the most visible of the impacts of the COVID-19 crisis. Governments around the world need to play a prominent role in developing strategies to protect supply chains for the future and put in place more robust disaster recovery plans, including relevant stockpiles, to enable more resilient outcomes. Figure 1 shows a comparison of the allocation of village funds per capita in 2015-2017 between rural administrative areas on the island of Sumatra and other islands in central Indonesia and eastern Indonesia towards Java. The values listed in the X axis are years of average village fund allocation, average population projection and average per capita village fund allocation. The value stated in the Y axis is a comparison index (Java Island Index = 1.00) between Sumatra Island and Java Island and other islands in central and eastern Indonesia with Java. For example, the average projection of the population of rural administrative areas on the island of Sumatra in 2015 was 0.27 times (27%) compared to the average projection of the population of rural administrative regions in Java.

Figure 1 gives an indication that the formula of the Basic Allocation and Allocation of Formula that is applied causes the magnitude of the average village fund allocation during 2015-2017 per administrative region on the island of Sumatra to get around 70% compared to administrative areas similar to Java. Administrative regions on other islands in Eastern and Central Indonesia have an average of around 50% compared to Java. The projected population on Sumatra Island is around 28% and the projected population in Central and Eastern Indonesia is around 17% of the projected population in Java. It has caused a smaller allocation of village funds in Sumatra and central and eastern Indonesia based on the application of basic allocations and allocation of formulas.

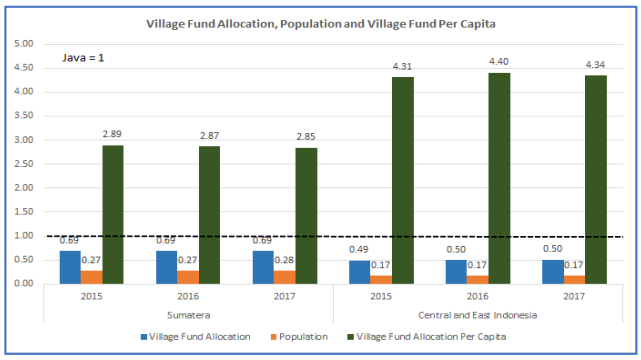

Figure 1. Average Village Fund Allocation, Population and Village Fund Allocation Per Capita

The high-density population in Java compared to other islands and the high proportion in the basic allocation formula caused the allocation of village funds per capita during 2015-2017 on the island of Sumatra more than 285% greater than similar allocations in Java. Furthermore, it is greater for regions in central and eastern Indonesia that reach 430% of the allocation of village funds per capita compared to Java. Substantial differences in village funds per capita between Java and other regions outside Java can be viewed from two views. On the one hand, this shows the disparity in per capita village fund allocation so that densely populated areas will be harder to catch up with in terms of village fund impact compared to those of less densely populated areas. On the other hand, Java is a more developed area compared to areas outside Java, so that the greater allocation of village funds per capita in areas outside Java can provide equitable development in the area. This also requires the importance of the analysis to be carried out with the allocation of village funds per capita rather than using the total allocation of village funds due to substantial population differences between regions in Indonesia. Moreover, village funds per capita substantial differences between regions suggest to see the differences in the impact on Java and outside Java islands.

Village Fund and Global Supply Chain

The village fund program that has been implemented since 2015 could have an impact on employment. The

impact could be obtained from the implementation of infrastructure development programs, community empowerment, government administration, community development and others.

The village government can provide job training to the village community, employ village communities to carry out infrastructure development and other activities either involving BUM Desa or carried out directly by village officials.

The results are carried out per region, namely Java, Sumatra and central and eastern Indonesia. The results of data processing can be seen in Figures 2, 3 and 4 which indicate the allocation of village funds per capita and working hours in each region. The allocation of village funds per capita for the three regions is different, with Java getting a village fund allocation per capita of up to 500 thousand rupiah, Sumatra Island getting an allocation of up to 1.6 million rupiah and central and eastern Indonesia getting up to 5 million rupiah.

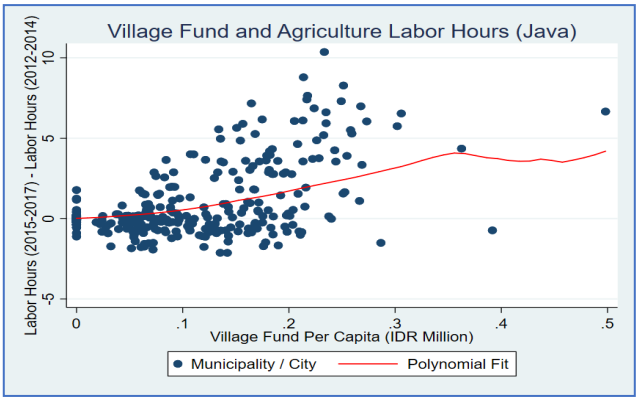

Figure 2. Village Fund Allocation Per Capita and Agriculture Labor Hours (Java)

Figure 2 presents the distribution of village funds allocation in each district that receives funds in the proportion of rural people working in agriculture. The change in the proportion of rural people who worked during 2015 to 2017 was minus the average proportion of village people who worked during 2012 to 2014. Working hours are number of hours working last week. All village funds per capita (IDR Millions) is the village funds per capita in each district that receives village funds in 2015 to 2017.

Figure 2 shows the allocation of village funds per capita gives the possibility of increasing individuals working hours in the agricultural sector, then the impact will decline after the allocation of village funds per capita exceeds three hundred fifty thousand rupiahs. However, the proportion of the received village funds per capita of more than three hundred thousand rupiahs to five hundred thousand rupiahs only consists of three cities. The majority of districts receive village funds per capita under three hundred thousand rupiahs with an average of 103 thousand rupiahs per capita.

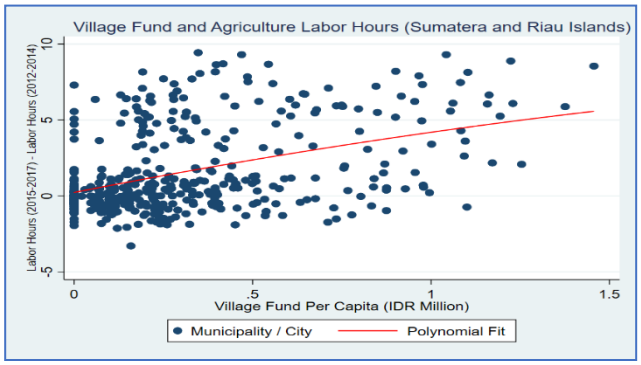

Figure 3. Village Fund Allocation Per Capita and Agriculture Labor Hours (Sumatera and Riau Island)

Figure 3 suggests larger village fund per capita is more likely to increase labor hours in Sumatera and Riau Islands. While the increasing allocation of village funds per capita on Java Island gives the possibility of increasing the number of working hours up to five hours of work in a one-week period. Greater allocation of village funds per capita on the island of Sumatra compared to the allocation on Java Island led to an increase in the number of working hours more than five hours in the same period. In contrast to the trends in Java, the greater allocation of village funds per capita in Central and Eastern Indonesia shows upward sloping curve. Figure 4 shows correlation of village funds per capita and labor hours for Center and East Indonesia. Similar trend with Java Island, the figure provides inverted u-curve but increase less labor hours than Java or Sumatera.

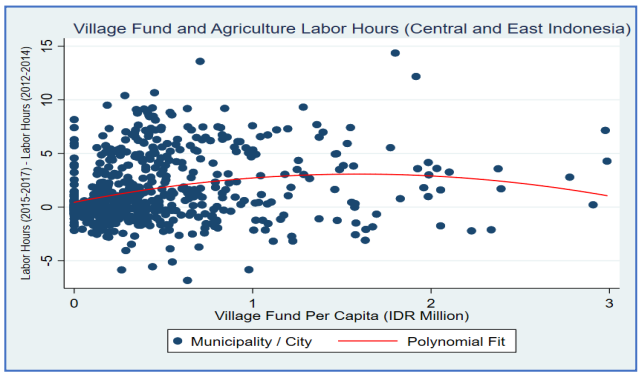

Figure 4. Village Fund Allocation Per Capita and Agriculture Labor Hours (Central and East Indonesia)

The figures suggest three findings. The appearance of an inverted curve indicates that the greater village funds per capita does not always increase the impact of the village funds. For example, although increasing village fund per capita is more likely to increase labor hours, too large fund makes it increasingly difficult for management to use funds that are not utilized for productive activities. Next, the allocation of village fund per capita in Java region is very small. IDR 103 thousand per capita per year implies less than one dollar (IDR 8.500) per capita per year which is quite small allocation per capita. Village fund per capita more likely increases around five working hours per week, which is more likely part-time type of employment.

Figure A.1.1-Figure A.2.3 in appendices show similar trend for manufacturing and service industries. In sum, increasing village fund per capita more likely increases labor hours in manufacture and service industries. Figure 2 – Figure A.2.3 provide the correlation of village fund

allocation per capita and working hours without taking into account other factors that can have an impact on increasing employment opportunities and working hours of rural communities. For example, local revenue and transfers of other funds used to provide employment can affect the increase in employment opportunities and the number of hours worked by the community in the area.

To overcome this problem, Table 2 shows the impact of village funds per capita on working hours in the agricultural sector, manufacturing and services using the DID with continuous treatment model summarized in Appendix 3-5. Manufacturing covers employment in the infrastructure development sector. The author divides the estimate into Java, Sumatra and Riau Island and central and eastern Indonesia.

Table 2. Village Fund and Labor Hours

Labour Hours	Java	Sumatera	Center and East
Agriculture	X	↑	↑
Manufacture	X	X	X
Service	X	X	↑

The model indicates that people living in districts that have a larger allocation of village funds per capita will give a greater possibility of working hours. Increasing one-million-rupiah village fund per capita is more likely to increase 2.5 agriculture working hours on Java island although not statistically significant, 2.8 agriculture working hours on Sumatera and 1.2 agriculture working hours on Center and East Indonesia. The same intervention is more likely to increase one working hour on service sector for Center and East Indonesia. Although not significant, we found that increasing one-million-rupiah village fund increased 4.2 working hours on service sector in Java Island. The author did not find statistically significant impact of village funds per capita on the increase in working hours in all sectors in Java. While village funds have an impact on increasing working hours in the agricultural sector in Sumatra and Eastern Indonesia. An increase in the number of working hours in the service sector also occurred in East and Central Indonesia. It indicates village fund is more likely to provide part-time employment to society.

Although the greater allocation of village funds per capita impacts the greater likelihood of employment opportunities, yet the greater village funds per capita does not always increase employment (see appendix 3-5). We found that when the allocation of village funds per capita is very small, village funds cannot provide employment opportunities to the village community. This is due to the lack of village funds per capita and the minimum proportion for empowerment and community development. Since more than 50% of the proportion of village funds is used for infrastructure development activities, the amount of village funds used for economic development in rural communities is very minimal.

The increasing allocation of village funds per capita will increase employment opportunities, as experienced in Sumatra and Central and East Indonesia. This supports the idea that the greater the village funds per capita the greater the impact experienced by the community. However, when the per capita village funds are very large, the impact on employment will decrease, as indicated by Indonesia in Central and Eastern Indonesia. The author also found that the same thing on Sumatra Island although it was not substantial. A possible explanation for this is the ineffective management theory of organizational change, namely the limited capacity of organizational resources such as education, which influences organizational performance.

Ineffective organization management can result in the lack of innovation in the use of village funds for community development and only focus on making infrastructure. Figure 5 illustrates the educational conditions of village officials sampled from village fund survey data. About 50% of the education of village officials is at the level of high school.

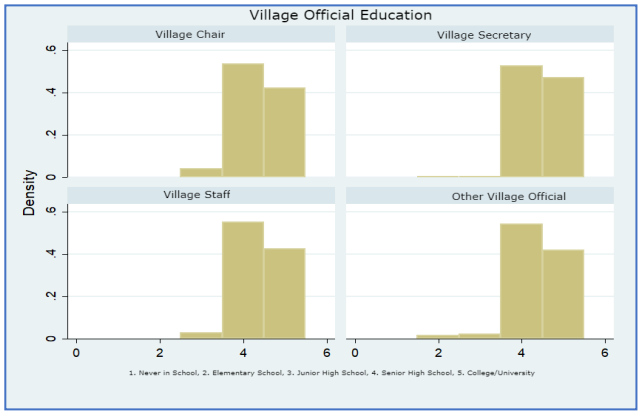

Figure 5. Village Official Education

The author did not find any impact on village funds on increasing employment opportunities in manufacturing. Manufacturing employment includes manufacturing infrastructure. If infrastructure development is carried out massively because of the large proportion of utilization of village funds for infrastructure, then this should have an impact on increasing employment opportunities in the manufacturing sector. However, the results of data processing indicate that infrastructure development programs carried out such as village roads and other road developments have not been able to provide substantial jobs in manufacturing (including infrastructure) compared to the areas in the kelurahan.

To ensure that the estimates are made due to village funds intervention, the authors conducted a placebo test as was carried out in the previous section. Appendix 6-8 displays a placebo impact on village funds with an artificial year of 2013 and 2014 with a total of 24 placebo tests. In general, the entire village fund allocation coefficient per capita does not substantially affect employment opportunities in agriculture, manufacturing or services. This supports the belief that the impact occurred due to the intervention of village funds by the government.

CONCLUSION

Distribution of village funds aims to improve the welfare of rural communities through programs of global supply chain strategies that are expected to increase the participation of village communities. Village Funds originating from the State Budget (APBN) are allocated to streamline village-based programs in an equitable manner through the provision of opportunities for village governments to manage and utilize these funds according to their needs.

To overcome the problem of differences in characteristics between regions that make one area incomparable with the other regions, this study uses a village fund allocation variable per capita by dividing the village allocation of funds per district / city with projections of the number of population of districts / cities in the same year. This makes the same unit in each districts / cities and interventions that are continuous. As for convincing that the estimation made was due to village funds intervention, a series of placebo tests were conducted.

Some conclusions obtained based on the results of the analysis using descriptive statistics and econometric evaluation programs, namely the difference-in-difference (DID) with continuous treatment method are as follows:

The allocation of village funds per capita more likely increases individuals working in the agricultural and service sectors, but with the increasing allocation of village funds per capita it does not always increase employment opportunities. For example, too large fund makes it increasingly difficult for management to spend the funds effectively so that funds are not used for productive activities. However, the proportion of recipient regions obtaining village funds per capita of more than two million rupiah was not large. The average districts receive village funds per capita under one million rupiah with an average of 103 thousand rupiah in Java Island.

One million increase of village fund per capita more likely adds 2.8 hours of individuals working in agriculture on Java Island, and 1.2 hours on Center and East Indonesia. The same intervention more likely increases an hour of individuals working in service sector on Center and East Indonesia. It implies that village fund is more likely to provide part-time employment to the society.

The authors did not find any impact of village funds on increasing employment opportunities in manufacturing including manufacturing infrastructure. If infrastructure development is carried out massively because of the large proportion of utilization of village funds for physical infrastructure, then this should have an impact on increasing employment opportunities in the manufacturing sector. However, the results of data processing indicate that infrastructure development programs carried out such as village roads and other road developments have not been able to provide substantial employment in manufacturing (including infrastructure) compared to areas in the kelurahan.

Based on the findings obtained, several recommendations can be given as follows:

The need for regulations to direct the proportion of village funds utilization based on the regional conditions (demographic and geographical) so that there is a proportion of village funds utilized for human resource development.

Since village fund is one of the programs to improve the village economy and poverty alleviation, the factor of population (or the number of poor people) and area can occupy a substantial proportion in the formula for village fund allocation. It is needed because of the large variation in population (and area) among regions.

Increasing the effectiveness of organizational management can be conducted by increasing the capacity of village officials, such as providing training to improve human resources specifically aimed at village officials.

This paper sheds light on an alternative approach to understanding collective bargaining and labour activism at the bottom of the supply chain and provides recommendations for further research

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