
The Impact Evaluation of the Authority Delegation from the District Mayor to the Department of Investment and One-Stop Service (OSS) on Economic Performance in Indonesia

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Abstract

This paper examines the impact of authority delegations, both licence and non-licence, from the district mayor to the Department of Investment and One-Stop Service (OSS) in the local government on Indonesia's economic performance. This authority delegation may simplify the regulation in doing business in Indonesia and create a more favorable business environment required to promote economic performance. However, this paper finds that the authority delegation has no significant impact on economic performance. A plausible underlying argument is that there are some constraints in the implementation, such as a lack of skilled personnel and weak internal governance, which impede the efforts to simplify the business regulation setting. Also, in terms of the cultural aspect, there are risk aversion behavior and a flawed perspective on entrepreneurial activities in Indonesian society, which may flourish the informal sectors with low productivity and technology, hampering the effectiveness of such reform in boosting economic performance.

Keyword: OSS, INSW, Impact Evaluation, DID

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I. Introduction

The business regulatory reform may have a crucial role in promoting economic performance. A good business regulatory environment may create a favorable business environment, as it can reduce the barriers to entry and enforce the competition among the enterprises (Armstrong & Wetland 2015). This barriers reduction would incentivise firms to increase their productivity and create innovation required to boost economic growth. Furthermore, the OECD (2015) suggests that lower entry barriers will also encourage the informal small and medium enterprises to engage in the formal economy. Some countries, such as China and Botswana, experience higher economic growth by implementing such reforms during their transition periods. In contrast, a poor business regulatory environment, which imposes entry barriers, such as overregulation in license procedure, may impede the firms to engage in productive activities, which prevents economic performance.

The quality of the business regulatory environment may positively impact economic performance. Djankov et al. (2002) show that the poor business regulatory environment has a significant negative relationship with economic growth. The study uses the database of business regulation created by the World Bank in 135 countries in seven regulatory aspects, including starting a business. In assessing the impacts, the method employed is the OLS and SLS methods. Haidar (2012) also suggests that the business regulatory reform positively affects GDP growth by about 0.15 percent. In the study, the data used is also the report of doing business developed by the World Bank in 172 countries during 2006 and 2010.

However, the effectiveness of the business regulatory reform may depend on the quality of the reform. Some factors, particularly the staff's size and level of skill and the law to enforce the commitment and credibility of the regulation, may affect the reform. Some characteristics of the regulatory organization in developing economies are low human capital, poor internal governance, and rent-seeking by the political actor, impeding the effectiveness of the reform to boost economic performance (Carino 2014, cited in Kirkpatrick 2014). Furthermore, Domah et al. (2003) suggest that the size of the regulatory organization, such as personnel number, in many developing countries, is relatively small, thus hampering its operation. Also, its service tends to impose higher transaction costs compared to advanced economies.

Besides, the culture in society may also influence the effectiveness of regulatory reform. The failure of regulatory reform may occur due to the implementation of best practice model from the developed economies towards the developing countries, which less appropriate with the developing countries environment, such as culture (Minogue 2004, cited in Kirkpatrick 2014). Changes in the culture may require a longer time than the regulation reform (North 1994). Thus, implementing such regulatory reforms in developed economies may have different impacts due to different cultures. Therefore, culture may play an essential role in determining the effectiveness of regulatory reforms in a country.

The business regulatory framework is a part of the policy agenda in Indonesia. According to the World Bank (2005), the poor regulatory structure in Indonesia may have contributed to the economic deterioration in Indonesia during the Asia financial crisis in the 1990s. Before the crisis, the investment contributed to 30 percent of GDP, with economic growth by about 7-8 percent. However, during the crisis, the investment dropped drastically. In the following

years, it could recover very slowly by about 4-5 percent, which is not sufficient for raising the income per capita. Therefore, after the crisis's emergence, Indonesia started to adopt regulatory framework reform to enhance the business regulatory setting to create a favorable business environment.

However, after the decentralization in 2001, Indonesia was still characterized by a poor business regulatory environment. According to Steer (2016), the decentralization implemented in 2001 was not sufficient in creating the adequate regulatory framework to establish a good business environment for trade and investment in Indonesia, which sharply fell during the Asia financial crisis. In this decentralization era, based on Law 34/2000, the local government determined the rules and procedures of licensing and registration at the districts level. Thus, the local government had the freedom to decide the license and charges. However, in this period, the permit is perceived as the source of revenue. Thus, the licensing procedures in Indonesia impose high transaction costs and inefficiencies, which impede entrepreneurship in Indonesia. There were increases in the number of regulations relating to license in 2002 by about 16 regulations per year, creating new taxes and fees. Besides, the time required to start a new business in 2002 was relatively long by about 97 days. Also, illegal activities occur due to complicated license procedures, which was about 40 percent of the taxes paid by enterprises. Furthermore, the information about the license rules and procedures was not widely available, and thus, about 75 percent of entrepreneurs did not acknowledge the system.

Thus, Indonesia introduced the one-stop-shop (OSS) in 2006, called the Indonesia National Single Window (INSW), to create a more favorable business environment. The program aims to simplify the licensing process to reduce inefficiencies in the registering administration for firms and remove the barriers to entry for firms in doing business (Steer, 2006). Since the local government held the licensing authority, the OSS was then established at the district level. According to Steer (2006), OSS's effectiveness may depend on the organization's form and the operation authority. In Indonesia, the OSS has three possible structures: unit, office, and department (Dinas). First, the OSS with unit form has the lowest degree of authority as there is no authority to approve the license application. Second, the OSS with offices structure can receive and process the application by coordinating with the technical departments, imposing high authority. Finally, the OSS with department form attached in the district government may receive, process and approve the application. Thus, among these three forms, the department may be the most effective form. However, the authority delegation may play a more critical role in determining OSS's effectiveness (Steer, 2006). The OSS with department form might impose more unsatisfactory performance than the units when the district mayor refused to delegate the authority towards this body.

Therefore, this paper will evaluate the OSS program, particularly in terms of the authority delegation from the district mayor to the OSS, which have had the organization form, called Department of investment and OSS, on the economic performance indicated by the real GDP per capita, as a proxy of the growth. The results suggest that there are no impacts of the authority delegation on economic performance. This impact absence may occur due to some constraints that emerge in the implementation of such reform. A lack of skilled official staff, weak law enforcement for the regulatory framework, particularly in terms of authority delegation, and a lack of coordination among related stakeholders may simplify the license procedures through authority delegation. Furthermore, risk aversion behavior and low perspective towards entrepreneurial activities resulted from Indonesia's culture may also influence the effectiveness of this reform to promote economic performance.

The paper will split into the following parts. First, it will present the OSS background in Indonesia, particularly in terms of the organization form and authority delegation. Second, it describes the data and methodology used in the analysis. Finally, it will discuss the

empirical results, including the main results, the robustness test result and the heterogeneity analysis results.

II. The Indonesia One-Stop Shop Background

According to the Law of the Republic of Indonesia Number 32 the year 2004 (law 32/2004), the OSS consists of three different levels, determined by the government level, which are the central, province, and district levels:

1. Under the Indonesian Investment Coordinating Board (BKPM), the central government OSS covers the administrations at the central government level and has authority from the technical ministries/boards, both license and non-license.
2. The province OSS gives services in the license and non-license for administration under province government, regulated in law 32/2004, the administration across districts, and the central government administration, which delegates to the governor.
3. The district's OSS covers administration of district government, regulated in law 32/2004 both license and non-license and the administration of central government, which delegate to the mayor of the district.

Recently, there are some efforts to strengthen the role of the OSS in Indonesia. The government has issued the regulation of the President of the Republic of Indonesia Number 97 of 2014 on the One-Stop-Shop (Regulation 9/2014). This regulation obliges the districts to establish the OSS and delegate both the license and non-license authority to the OSS. This regulation emphasizes that the implementation of OSS should cover the receiving, processing, and approval of the application. Thus, the authority delegation from the related stakeholders to the OSS is necessary to be applied. The definition of authority delegation is transferring of the duties, rights, and responsibilities, both license and non-license, signed by the delegator. The authority delegation to the OSS can simplify the service procedures for society (Bappenas 2018).

Further efforts to strengthen the role of the OSS at Indonesia's district level are adopted, particularly in terms of the organizational structure and the operation authority. In terms of the organizational structure of the OSS, there was a new regulation, which is Regulation of The Ministry of Home Affairs Number 100 by 2016 (regulation 100/2016), which obliged all districts to establish the OSS in department form, called Dinas, which attached in the district government structure. Also, in terms of authority operation of the OSS at the districts level, there is a new regulation issued by The Ministry of Home Affairs, which is Regulation of The Ministry of Home Affairs Number 138 by 2017 (regulation 138/2017), which regulate the OSS implementation guideline in districts level. This regulation further emphasizes the obligation of the district government to delegate the license and non-license authority towards the district's OSS to simplify the regulation (Bappenas 2018).

III. Data and Variables

The sample used is 249 districts, which have established the Department of investment and OSS in 2016 and delegated authority to this body after the regulation 138/2017. Table 1 provides the information about the districts OSS based on the organizational form regulated in regulation 100/2016 and the authority delegation regulated in regulation 138/2017. In terms of organization form, among 514 districts (Kabupaten/Kota), the number of districts establishing the department is 345 districts. For other 170 districts, 32 districts have established the department before the regulation. After 2016, 131 districts established the body, but the local regulation as a legal base is still unidentified, and six districts have not established the department (still have other forms). Furthermore, among 344 districts, 198

districts had delegated the authority to the OSS in 2017, and 51 districts implement the authority regulation in 2018. The remaining 96 districts transfer the authority before the regulation 138/2017 or have not delegated the authority to the OSS yet.

Table 1. The districts OSS, 2014–2018

Department form (regulation 100/2016)	
2016	345
Others	169
Authority Delegation (regulation 138/2017)	
2017	198
2018	51
Others	96

Source: The Ministry of Home Affairs, 2019

This study uses data from various data sources. The data sources are The Ministry of Home Affairs, The Ministry of Finance, the Indonesia Database for Policy and Economic Research (INDO-DAPOER) created by the World Bank, the Indonesia Statistics (BPS) and the Indonesian National Socio-Economic Survey (SUSENAS) published by Indonesia Statistics (BPS). The period covered in the study is five years, which is 2014–2018. Table 2 presents a summary of data sources for each variable used in this study.

Table 2. The data sources

Variables	Data Sources
Log district GDP per capita	Indonesia Statistics
Authority Delegation	The Ministry of Home Affairs
National government transfer per capita	The Ministry of Finance
The Mean years of schooling	SUSENAS (processed)
Household Access to Electricity	INDO-DAPOER

In this study, the treatment variable is the district mayor's authority delegation to the OSS department. The treatment group in this paper is the districts, which delegate the authority to the Department of Investment and OSS in 2017 and 2018, while the control group is the districts before they transfer the authority to the OSS department. Thus, this data category is the panel data with staggered.

This study focuses on one outcome of the OSS program: the district GDP per capita, as a proxy of growth, derived from Indonesia statistics. The economic performance across

districts during 2014–2019 was relatively good, showing an increase in economic development. However, some districts experience lower district GDP per capita during 2014–2018, five districts out of 249 districts (2 percent). One possible dependent variable for this program is the number of informal firms. However, due to data availability, the outcome used is only the district GDP per capita.

The analysis uses some control variables, which may exogenously influence the dependent variable (the log district GDP per capita). These control variables include log national government transfer per capita, mean years of schooling, household access to electricity. According to Dorojatoen (2018), most studies in Indonesia commonly use some variables, such as the national government transfer per capita and mean years of school enrolment, to analyze economic growth. However, the covariates used in this study adjust to the availability of the data. Table 3 presents the summary statistics for each variable used in the study, and Table 4 indicates the correlation among variables.

Table 3. Summary Statistics

Variables	Number of Observation	Mean	Standard Deviation	Minimum	Maximum
Log district GDP per capita	1245	10.19	0.61	8.88	12.87
Log national government transfer per capita	1245	14.86	0.70	12.95196	19.54
The Mean year of schooling	1245	8.14	1.51	4.39	12.60
Household access to electricity	1239	96.22	7.78	37.17	100.00

Table 4. Correlation between main variables

	District GDP per capita	Delegate	Mean year of schooling	Household access to electricity	Log National government transfer per capita
District GDP per capita	1.000				
Delegate	0.0696	1.000			
The Mean year of schooling	0.4010	0.0730	1.0000		
Household access to electricity	0.2368	0.1139	0.3225	1.0000	
Log National government transfer per capita	0.1722	0.0366	-0.0334	-0.3054	1.0000

IV. Empirical (Identification) Strategy

The study's main objective is to investigate whether the authority delegation, both license and non-license from the district mayor to the Department of Investment and OSS, can increase the district GDP per capita. In this study, the empirical model used is a fixed effect generalized difference-in-differences (FE DID) model with staggered because the data category used in the study is the panel data with staggered.

There are two specification models used: the FE DID model without covariates (equation 1) and FE DID model with covariates (equation 2).

$$Y_{it} = \alpha + \tau T_{it} + \eta_i + t_t + \varepsilon_{it} \quad (1)$$

$$Y_{it} = \alpha + \tau T_{it} + \beta X_{it} + \eta_i + t_t + \varepsilon_{it} \quad (2)$$

In equation 1 and 2, subscripts i and t represent individual districts, respectively; Y is district GDP per capita. Next, T is a dummy variable denoting the authority delegation from the district mayor to the Department of Investment and OSS, which takes on the value of one for all years after delegating the authorities, else zero. ε is the error term, and α and τ are the parameters to be estimated. τ is the parameter, which is the main focus of the study. The difference between the two-equation is only in control variables, including log national government transfer per capita, mean years of schooling, and household access to electricity. The study will apply these two equations to treated units only as treatment timing is staggered (Callaway & Sant'Anna 2019). Staggered timing means that setups such that once an individual/group get treatments, he/she remains treated in the following periods.

The validity of the DID model relies on the parallel trend assumptions. The DID model allows having some biases as long as they are constant over time. However, this would not help remove the difference in changes between the treatment and control groups (The World Bank 2016). For example, when the government implement the new seaport and road repair program in a particular area simultaneously, the effects of both interventions cannot be separated using the DID model. Therefore, the time-invariant difference between the control and treatment groups does not exist. In other words, the changes in outcomes between these two groups have a similar trend in the absence of the treatment.

In this study, there are three methods to test the parallel trend assumptions (Wing et al., 2018). First, the granger-type causality tests examine the possibility that current outcomes influence future treatment exposures, leading to a biased result. In this procedure, we add two lead variables: the first and second lead treatment variables in the model. If the coefficients of the two variables are jointly insignificant, then the parallel trend assumption is fulfilled. Second, the group-specific linear trends to examine the common trend assumption of more than two periods can allow for group-specific linear trends. The null hypothesis is that all the group-specific linear patterns' coefficients are jointly zero, implying the common trends valid. Third, based on the balancing test, which is regressing each covariate on the treatment. When all covariates in the model balance, it may suggest that the parallel trend assumption is satisfied.

Moreover, there are some steps in analyzing the treatment effects in the study. First, the FE DID model without covariates will be exercised and then test the parallel trend assumption. If the model can fulfill the parallel trend, the next step is to exercise the FE DID model with covariates to check the standard error. If its standard error is more minor than the previous model, the next phase is to test the parallel trend test. When the assumption is satisfied, we should choose the FE DID model with covariates; otherwise, we select the FE DID model without covariates. On the other hand, when the FE DID without covariates cannot fulfil the parallel trend, the action is to exercise the FE DID model with covariates. If the parallel trend assumption hold, we select the FE DID model with covariates; otherwise, we should consider another approach.

As a comparison, the study presents the naïve approach to estimate the average treatment effects. However, the presentation of this model is only to compare with the primary model used in this study; the FE DID model with a staggering feature.

$$Y_{it} = \alpha + \tau T_{it} + \varepsilon_{it} \quad (3)$$

The treatment effect, which is τ , can be estimated using the Ordinal Least Square (OLS). However, this approach may potentially have some issues. First, the potential selection and heterogeneity biases in τ if T relate to the error terms. Also, the generalizability of the estimation is lack, which indicates the absence of external validity.

V. Results

5.1 Main empirical results

Table 4 presents the results of the main interest of naïve approaches and the FE DID model with staggered with and without covariates. Cluster Standard errors at the district level are applied to consider the serial correlation within groups over the period. The two staggered DID models, with covariates and no covariates, include fixed time and district effects (constant). At the same time, the naïve approach only consists of the treatment in the model.

Based on the results in Table 5, using the Naïve specification, the estimator is a positive and highly significant estimate, which is 0.089. Therefore, under this model, the authority delegation may positively impact the district GDP per capita. In other words, on average, the district GDP per capita in districts that have delegated the authorities to the Department of Investment and OSS is expected to be 0.09 percent higher than the districts which have not implemented such policy. However, this model may suffer from the possible selection, and heterogeneity biases since there many factors other than the treatment may also influence both outcomes and treatment variable. Therefore, we cannot trust these results due to possible biased estimates, whether upward or downward biased.

Table 5. Authority Delegation and district GDP per capita

Independent Variable	Naive approach		FE Staggered DID- without covariate		FE Staggered DID- with covariate	
	Coef.	SE	Coef.	SE	Coef.	SE
Delegate	0.089***	(0.014)	-0.002	(0.004)	-0.002	(0.005)
Log national government transfer per capita					0.034	(0.023)
The mean year of schooling					0.027	(0.019)
Household access to electricity					-0.001	(0.001)
_cons	10.168***	(0.040)	10.124** *	(0.003)	23.86 7***	(0.918)
R^2	0.00		0.70		0.71	
Number of observations	1,245		1,245		1,239	

Notes: Significant at 90 (*), 95 (**), 99 (***) percent confidence.

However, under the two FE DID with staggered models, both with and without covariates, which include fixed time and district effects in the model, the magnitude of estimation is negative and insignificant, suggesting that the estimation resulted under naïve approach is upward biased. Thus, this may tentatively suggest that the district mayor's authority delegation to the Department of Investment and OSS may have no impacts on district GDP per capita. This result may also suggest that the effectiveness of authority delegation from the district mayor to the Department of Investment and OSS is still limited in simplifying business procedures and thus impede the favorable business environment required to promote economic development. According to OECD (2018), the national licensing systems in Indonesia still somewhat complicated, it is hampering the favorable business environment development. This flawed system has resulted in Indonesia's shallow position for the indicator of starting a business of World Bank Doing Business (144th position worldwide).

The efforts to simplify the license regulation through the authority delegation may have some issues. First, the OSS's institutional quality in different districts is heterogeneous and thus hamper the performance of the policy (the OECD, 2018). Also, there is a separation in the OSS systems into three different levels of government, which may give the difficulties to get coordination, particularly in terms of information and services. Furthermore, the OSS implementation impedes by a lack of human capital, particularly in terms of the trained personnel. The regulatory enforcement is still relatively weak due to a lack of commitment of the district mayor (Bappenas, 2018).

Furthermore, the cultural aspect in society may also contribute to the ineffectiveness of the business license reform to promote economic development. The entrepreneurs in Indonesia tend to have risk aversion behavior, which is a fear of failure in starting a business. Out of the total population in Indonesia, 47 percent of people have such behavior (the OECD 2018). Also, society still perceives that being workers in companies can give more opportunities than entrepreneurs (Hermanto and Suryanto 2017). Thus, these cultural aspects may play essential roles in developing effective business regulatory reform in Indonesia.

Therefore, due to the absence of a sound regulatory setting, the informal sectors, which have low productivity, still dominate the Indonesian economy, impeding economic performance. This sector contributes to national employment by about 70 percent and total business firms by 90 per cent (The OECD 2018). The characteristics of informal enterprises in Indonesia are poor skill, technology, and innovation. The small firms in Indonesia have low productivity (GDP per worker), which is only 16 per cent of large companies, and a small proportion of small enterprises create new products and services (5 percent). Furthermore, the absence of formality impedes these informal firms' access to economic activities with higher productivity, such as export. This access limit indicates that formality is one of the eligibility requirements to do exports. This situation may further hamper the productivity of this sector, which in turn impede economic performance.

5.2 Robustness checks

Parallel trend assumption

In this study, one of the efforts to fulfill the parallel trend assumptions is selecting the districts, which has established the Investment and OSS Department in 2016. Table 6 presents the parallel trend test results for the FE DID model with and without covariates. First, the FE DID model without covariates may able to fulfill the parallel trend assumption. Based on the granger type causality tests, since the joint test of lead treatment is insignificant (the p-value > 0.05); thus, there are no anticipatory effects before the authority delegation implying trend assumption satisfied. Secondly, for group-specific linear trends, since the p-value=0.00 < $\alpha=0.05$, we reject H0 (all the coefficients of the group-specific linear trends are jointly zero) and conclude that the model cannot satisfy the parallel trend assumption. However, since the magnitude and significance of effects are relatively unchanged when the model already includes group-specific linear time trends, which is -0.002 as shown in Table 7, the parallel trend assumption is assumed to uphold the FE DID model without covariates.

Table 6. Parallel trend assumption

FE DID – without covariates		FE DID – with covariates		
Granger-Type Causality Tests	Group-Specific Linear Trends	Granger-Type Causality Tests	Group-Specific Linear Trends	Covariate Balance Tests
<p>Jointly test of lead treatment is insignificant</p> <p>$F(2, 248) = 0.33$</p> <p>Prob > F = 0.7210</p> <p>The parallel trend assumption is satisfied.</p>	<ul style="list-style-type: none"> All the coefficients of the group-specific linear trends are jointly significant. <p>$F(1, 248) = 33852.23$</p> <p>Prob > F = 0.0000</p> <ul style="list-style-type: none"> The magnitude of effects and significance does not change when group-specific linear time trends added to the model (-0.002) <p>The parallel trend assumption is satisfied.</p>	<p>Jointly test of lead treatment is insignificant.</p> <p>$F(2, 248) = 0.69$</p> <p>Prob > F = 0.5048</p> <p>The parallel trend assumption is satisfied.</p>	<ul style="list-style-type: none"> All the coefficients of the group-specific linear trends are jointly significant. <p>$F(6, 335) = 1918.54$</p> <p>Prob > F = 0.0000</p> <ul style="list-style-type: none"> The magnitude of effects and significance does not change when the model includes group-specific linear time trends (-0.002). <p>The parallel trend assumption is satisfied.</p>	<p>2 out of 3 covariates are statistically significant (unbalance).</p> <p>The parallel trend assumption is not satisfied.</p>

Table 7. The FE DID Model - with group specific linear time trends

Independent variable	FE DID without covariates		FE DID with covariates	
	Coef.	SE	Coef.	SE
Delegate	-0.002	(0.003)	-0.002	(0.003)
Log National government transfer per capita			0.010	(0.012)
Mean year of schooling			0.007	(0.010)
Household access to electricity			0.00003	(0.0004)
R^2	0.94		0.94	
N	1,245		1,239	

Notes: Significant at 90 (*), 95 (**), 99 (***) percent confidence.

Secondly, we exercise the FE DID model with covariates to check whether the model can have a minor standard error. Based on Table 4 above, its standard error is 0.005, which is higher than the standard error of the FE DID model without the covariates (0.004); thus, the model without covariate is preferable. Also, this specification cannot fulfill the parallel trend assumption. Although the model can satisfy the parallel trend assumption based on the granger type causality tests and group-specific linear trends, however, based on the balancing test, national government transfer per capita and mean year of schooling are statistically significant. Thus, the parallel trend assumption is not satisfied (Table 8).

Therefore, based on this robustness check, the FE DID model without covariates is preferable to the FE DID model with covariates.

Table 8. Covariates Balance Tests

Independent variable	Log National government transfer per capita		The mean year of schooling		Household access to electricity	
	Coef.	SE	Coef.	SE	Coef.	SE
Delegate	-0.033*	(0.017)	0.040**	(0.016)	-0.194	(0.374)
Constant	14.761***	(0.018)	7.937***	(0.008)	94.867***	(0.175)
R^2	0.14		0.67		0.15	
N	1,245		1,245		1,239	

Notes: Significant at 90 (*), 95 (**), 99 (***) percent confidence.

Exogenous assumption

The treatment variable, the authority delegation to the Department of OSS from the district mayor, is possibly endogenous. The district mayor may influence the decision about the authority delegation. However, the FE DID approach can overcome the endogenous problem when the unobservable factor is time-invariant. On the other hand, if the unobservable factors are time-variant, the results will be biased. Since the FE DID model without covariates can satisfy the parallel trend assumption, the time-variant unobservable factors that influence the treatment are possibly absent. Thus, we can assume that the treatment is exogenous.

Heterogeneity analysis

Table 9 presents the heterogeneity analysis using the FE DID model without covariates based on two different subgroups between Kabupaten and Kota and the eastern and western regions. The estimated effects of the authority delegation on the districts real GDP per capita are adverse and insignificant for Kabupaten and Kota subgroups. Thus, this may suggest no different effects of the authority delegation on the district real GDP per capita between Kabupaten and Kota.

Table 9. Heterogeneity Test on district GDP per capita

Independent Variable	Kota		Kabupaten		Western		Eastern	
	Coef.	SE	Coef.	SE	Coef.	SE	Coef.	SE
Delegate	-0.003	(0.006)	-0.001	(0.006)	0.0003	(0.005)	-0.018*	(0.009)
_cons	10.456***	(0.007)	10.027**	(0.004)	10.160***	(0.004)	9.823***	(0.006)
R^2	0.78		0.68		0.69		0.85	
Number of observations	280		965		1110		135	

Notes: Significant at 90 (*), 95 (**), 99 (***) percent confidence.

However, there may be different effects of authority delegation of the district GDP per capita between eastern and western subgroups. The estimated impact of the authority delegation on the district GDP per capita in the eastern region is negative and significant, suggesting that the authority delegation has adverse effects on the district GDP per capita in districts located in the eastern region. On the other hand, for districts in the western region, the effects of treatment on the district GDP per capita are positive but insignificant. Therefore, this may suggest a heterogeneity effect of authority delegation on the district real GDP between the eastern and western regions.

VI. Conclusion

The paper has investigated the impacts of the authority delegation from the district mayor to the Department of Investment and OSS on the economic performance, indicated by the district GDP per capita as a proxy of growth in five years. This authority delegation is vital to simplify license procedures to create a favorable business environment. This study uses the FE DID model with staggered as the model specification is the most appropriate with the data characteristic. The FE DID model without covariates is preferable to the FE DID model with covariates to fulfill the parallel trend assumption. The authority delegation is assumed to positively impact economic performance since it can simplify the regulation, enhance legal firms, and reduce informal enterprises, improving productivity and boosting economic performance, indicated by the higher GDP per capita.

However, the study shows that the authority delegation may not affect economic performance. The insignificant estimator derived from the model may indicate such a result. Moreover, the analysis imposes no different impacts of authority delegation of district mayor to the Department of Investment and OSS between Kabupaten and Kota. However, it shows different impacts between the eastern and western regions. For districts located in the eastern, the district mayor's authority delegation to the Department of Investment and OSS has a significant negative impact on the district GDP per capita. It shows that the authority delegation remains complex due to a lack of human capital internal governance and weak internal governance. The risk aversion behavior and a poor perception of entrepreneurship activities resulting from the Indonesian society's culture may also further impede the effectiveness of business regulatory reform on economic performance in Indonesia. Both weak regulatory environment and culture may then encourage firms to remain engaged in the informal sectors. Such circumstances may then hinder economic performance, as the informal sectors tend to have low productivity and technology.

However, the study has some caveats. First, investigating the impacts of the authority delegation on informal enterprises is required to gain more robust arguments. Also, the assumption of exogenous treatment may require further investigation, as in reality, there is a possibility that certain time-variant factors, which influence the treatment to exist.

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Appendices

A. Parallel Trends Assumption

Table 1. Granger causality and group specific linear trend – FE Staggered DID without and with covariate

Independent variable	FE Staggered DID without covariates				FE Staggered DID with covariates			
	Granger causality		Group specific linear trend		Granger causality		Group specific linear trend	
	Coef.	SE	Coef.	SE	Coef.	SE	Coef.	SE
Delegate			-0.002	(0.003)			-0.002	(0.003)
F.delegate	0.002	(0.008)			0.001	(0.008)		
F2.delegate	0.0001	(0.005)			-0.001	(0.005)		
Log National government transfer per capita					0.012	(0.014)	0.010	(0.012)
The Mean year of schooling					0.022	(0.024)	0.007	(0.010)
Household access to electricity					0.0004	(0.001)	0.000	(0.000)
Constant	10.124**	(0.002)	-53.430**	(0.063)	9.724***	(0.236)	-52.424***	(11.478)
R^2	0.55		0.94		0.55		0.94	
N	747		1,245		741		1,239	

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$