The Effect of Local Government Fragmentation on Health and Education Service Delivery: A Case Study of Regencies in Indonesia

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Abstract

This paper discusses the effect of government fragmentation on health and education service delivery at regency level in Indonesia in 2011. It applies quantitative method to assess health and education spending and service delivery associated with the fragmentation process. The analysis combines data from Ministry of Home Affairs on local government data, budget of regencies from Ministry of Finance and socio-economic data from World Bank. The result shows a significant different fiscal capacity, spending priority, provision of health and education facilities and service delivery among the new regencies, originating regencies and non-split regencies.

Relevance to Development Studies

Decentralization are often expressed as an approach to improve public service delivery. The improvement of public service delivery lead to the improvement of human development. In the developing countries, decentralization is often followed by the creation of new local government unit through fragmentation. However, there is still little evidence about the effect of the government fragmentation in the decentralization setting. The investigation of this study will assess the effect of this process in Indonesia by exploring the situation at regency level. The result will contribute to enrich the research in this field.

Keywords

decentralization, local government fragmentation, local fiscal capacity, health and education, service delivery

Chapter 1
Introduction

1.1. Background of the Study

The Indonesian decentralization policy has resulted a large devolution of power and authority to the subnational level. In the decentralization era, the local governments gain full autonomy on administrative, political, and fiscal aspect. This process is also followed by the phenomenon of numerous local government fragmentation which significantly increase the newly created regions in Indonesia. The number of local governments increase almost doubled in the period of no more than fifteen years after most of central authority are decentralized. It means that on average there is a new district created every month during that period. This process led to the fiscal burden for the central government which must allocate intergovernmental transfer for all local government. However, the result of this fragmentation process remains unclear.

Indonesia, like many other developing countries, has been implementing decentralization since 2001 after the enactment of Law 22/1999. This policy aims at promoting development in all regions in Indonesia. Previously, during the 32 years of authoritarian regime, the development was centralistic and considered only focusing in the western area of the country especially Java Island in which the central government offices are located. This situation leads to a wide disparity between the western and eastern part of Indonesia. Therefore, the delegation of more authorities to the lower level of government through decentralization policy is intended to accelerate the development in each region.

Formerly, in the centralized government period, the creation of new region in Indonesia was considered as top-down policy. There were strict procedures and lengthy process through which a new region could ultimately be awarded the status of a new autonomous region. In contrast, along with the decentralization process, the regulation of the creation of new region has changed significantly. Under the Law 22/1999, local government have been allowed to propose a creation of new region through government fragmentation. This policy leads to the significant increase in new autonomous regions.

The creation of more regions has generated various consequences. The creation of new regions was not always followed by improvements in the conditions of the fragmented region. However, government fragmentation is still believed as an approach to improve public service provision including health and education sector as stated in each law of new local government formation. The improvement in health and education sector is also supported by the central-local expenditure assignments which fall more on the responsibilities of local governments.

1.2. Research Objectives and Questions

The purpose of this study is to analyse the relationship between fragmentation of regencies and health and education service delivery at regency level in Indonesia. In particular, this study looks at the difference of the budget composition between fragmented and non-fragmented regencies and how this budget composition influences the provision of basic services especially in health and education sector. Hence, the primary research question for this study is:

To what extent does fragmentation of regencies affect the health and education services delivery at regency level in Indonesia?

To facilitate the answering of this research question, the paper will assess the following sub-questions:

a) To what extent does regency fragmentation affect the total revenue of regencies in Indonesia?
b) To what extent does regency fragmentation affect the allocation of regency health and education expenditure in Indonesia?
c) To what extent does regency fragmentation affect the provision of regency health and education facilities in Indonesia?
d) To what extent does regency fragmentation affect the regency health and education service delivery in Indonesia?

1.3. The Structure of the paper

The paper describes and analyses health and education spending and service delivery associated with the fragmentation process of the regencies in Indonesia. The study will be divided into six chapters. This chapter elaborates the background of the research including research objectives, and questions. Chapter two explains the basic concept of decentralization and government fragmentation. Chapter three gives an overview of decentralisation and regency fragmentation in Indonesia. Chapter four focuses on the data, methodology, and hypotheses of the study. Chapter five discusses the result and the analysis of the empirical finding. Finally, chapter six will conclude.

Chapter 2
Theoretical and Analytical Framework

2.1. Decentralisation

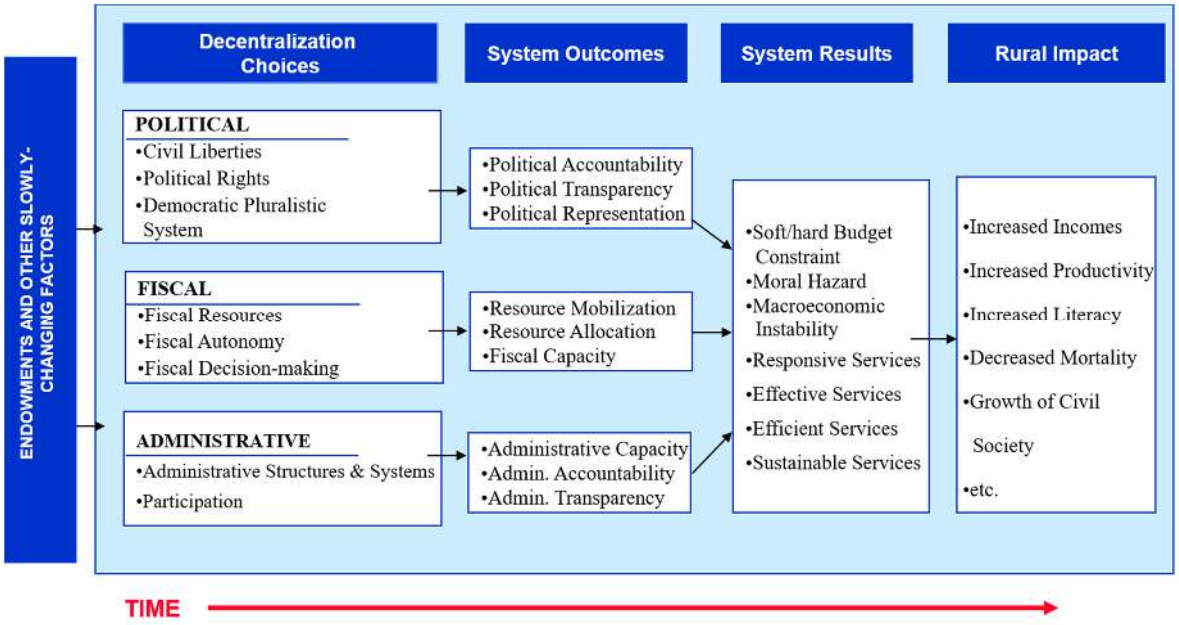
Decentralization is a common term in recent decades. Many scholars have tried to define this concept. One widely used definition is proposed by Rondinelli (1981). He defines that decentralization is the ceding of authority in planning, decision making and administration of public function from the national level to the lower tiers of government or nongovernmental entities. This concept has become the main interest as development approach in most Asia Pacific and Africa countries since the centralistic system applied in these countries is considered as an ineffective approach (Conyers 1983). In addition, this concept is also seen as a required condition to improve development in the countries with a high heterogeneity population (Hague and Harrop 2004).

The implementation of this concept varies in forms and has multidimensional aspects. The aspects of decentralization can be distinguished into three dimensions, namely political, fiscal and administrative decentralization (Litvack et al 1998). Political decentralization is intended as the way of political institutions to get informational advantage of diverse interest of citizens (Litvack et al 1998). It allows the citizens to know better the candidates in the representative election process and allows the elected representatives to understand the aspiration of their voters. The other dimension is fiscal decentralisation refers to the extent of central government delegates fiscal authority to lower level government entities. It relates to who determine and raise what taxes, who allocate which spending and how to remedy imbalance revenue and expenditure among the government entities (Litvack et al 1998:6). Fiscal decentralization leads to the enhancement of non-central government's role to collect and allocate public resources (Martinez-Vazquez and Timofeev 2009:86). Meanwhile, administrative decentralization implies the shift of authority and responsibility of public service from the central level to the lower level of administrative units. This transfer includes planning, financing and management of public functions.

Furthermore, Rondinelli (1981) categorizes administrative decentralization into three distinct forms, namely deconcentration, delegation, and devolution. He differentiates the form of administrative decentralization based on the degree of decentralization. The weakest form is deconcentration where central government agencies shift the workload to regional branch offices without any distribution of power and authority. The more extensive form is delegation where local administration receive power from the central government for certain functions and specific area. The strongest level is devolution where the local government gains considerable power and authority as independent entity over which central government have low or indirect control.

Despite the popularity of decentralization, this approach is not a panacea for all issues in development (Cheema and Rondinelli 2007). Various factors, such as design of the system and characteristic of the country, can affect the success of decentralization in promoting development. Cheema and Rondinelli (2007) argue that the failures of the application of this concept are caused more by the ineffectiveness in the implementation rather than the infirmities of the concept itself. Designing an appropriate system is only one part toward the successful decentralization. The more challenging part is to make sure that the decentralization system is properly implemented.

Figure 2.1 Soufflé theory of decentralization



Source: Parker (1995)

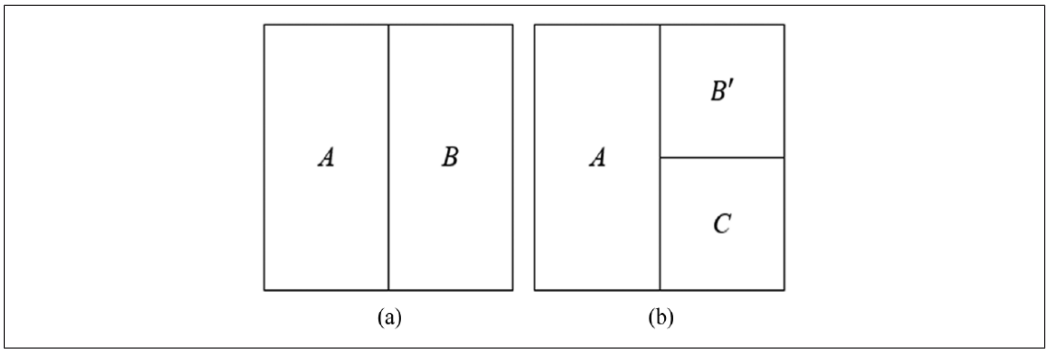
Parker (1995) once conceptualizes the design of decentralization in a theory which is called the soufflé theory of decentralization. He analogizes decentralization with a soufflé which needs a right composition of milk, eggs and heat to rise. Decentralization also needs a proper combination of political, fiscal and administrative aspects based on country specific. This theory implies that the implementation of decentralization will vary across country because it is not possible to standardize the design and the implementation strategy of decentralization.

2.2. Government Fragmentation

Government fragmentation is defined by Grossman et al (2017:823) as a process of splitting administrative unit into two or more units. There are two direction of government fragmentation namely vertical and horizontal fragmentation (Goodman 2015:7). Vertical fragmentation refers to a splitting process of a government tier into multiple layers. While, horizontal fragmentation is a fragmentation of administrative units in each tier.

This paper focuses on the horizontal fragmentation of government. In the horizontal fragmentation, a newly created administrative unit can be any lower tiers of government such as a province or a district. This unit has the same power and responsibility as the non-fragmented unit. Billing (2018) made an illustration of this process as shown in figure 2.2.

Figure 2.2 Illustration of government fragmentation



Source: Billing (2018)

(a) Pre-fragmentation (b) post-fragmentation

In the period of pre-fragmentation, there are two unit namely unit A and unit B. If fragmentation process occurs in unit B, then this unit will be divided into unit B' as an originating unit and unit C as a new unit. While, unit A, the non-fragmented unit, is called a non-split unit. This fragmentation changes the boundaries of unit B', so that this unit will have less area relative to its territory in the pre-fragmentation period. The remaining area which unit B losses from the fragmentation process is entitled to unit C as a new unit.

The motivation of government fragmentation could be divided into two categories. First, the fragmentation occurs through bottom-up motivation because of the initiative of local community who intend to gain power and more access to public resources. For example, Pierskalla (2016) notes that creation of new district in Indonesia were mostly motivated to form more homogeneous district based on religion or ethnic group. This local demand does not only come from one group in a district but also from coalition of several group across territory requiring new districts and provinces (Kimura 2010). In addition, Akinyele (1996) shows that redistricting in Nigeria was conducted to accommodate the dispersion of ethnic groups.

The second motivation of government fragmentation is identified as top-down approach. The elite of central government tries to maintain their position by taking advantage of government fragmentation. For example, the fragmentation of provinces in Vietnam is intended to assure political support for central government (Malesky 2009). In Ghana, the elite of central government tries to secure legislative support by increasing number of representatives through creating new districts (Resnick 2017). Central government also uses this mechanism as a strategy to weaken the opposition parties (Resnick 2014). Moreover, Hassan (2016) shows that central government of Kenya targeted districts with political opposition affiliated ethnic groups in the district splitting plan.

Grossman and Lewis (2014) conceptualize government fragmentation process by labelling the originating unit and the new unit with dominant area and outlying area respectively. The dominant area is area in which the administrative capital is located. This area has a control of government so that development of the area tends to focus on this dominant area. While the outlying area is perceived as a marginalized area. The marginalization might be caused by political, symbolic, or material aspects. The political aspect makes the outlying area lack access of the resources in the area. In symbolic aspect, the marginalized area is seen as a minority group in the larger area. Whereas, in material aspect, the outlying area is considered as a less developed area compared to the dominant area. The fragmentation is highly triggered by the interest of the citizens in this marginalized

area to get more control of public resources (Grossman and Lewis 2014:197). The enhancement of development in the marginalized area is intended to be achieved by gaining this control.

2.3. Decentralization, Government Fragmentation, and Public Service Delivery

In practice, decentralization process is often combined with government fragmentation, even though both phenomena are theoretically different process. Basically, government fragmentation only requires changes in the jurisdiction of administrative unit and does not necessarily need any transfer of authority from central government to the fragmented units. However, government fragmentation frequently takes place after the implementation of decentralization reforms. This sequence happens because the value of local government control significantly increases after the lower tier of government units gain power and authorities from central government through decentralization (Grossman and Lewis 2014). As a result, this increase stimulates an initiative for creation of new administrative unit through fragmentation.

Decentralization and government fragmentation are often expressed as a tool to improve public service delivery. Decentralization is expected to promote this objective through the improvement in allocative efficiency (Oates 1972). Informational advantage owned by local government about the preference of the citizens can help this level of government to match the resource allocation with these preferences. This process leads to efficiency in the provision of public services, including health and education services.

The result of preference matching process changes the pattern of local public spending. Faguet (2004) examines the responsiveness of the local government in Bolivia after the implementation of decentralization. He finds that districts with low education indicators allocated more budget on education, while districts with better level of education outcome spend more on the other sectors (Faguet 2004). Kis-Katos and Sjahrir (2014) also investigate the determinant of local government spending in Indonesia. They find that districts with lower level of infrastructure condition allocate more budget on this sector after central government decentralized the spending authority (Kis-Katos and Sjahrir 2014).

Furthermore, many researchers also investigate the relationship between government spending and public service delivery. Ranis et al (2000) examine this relationship using data from 76 developing countries between 1960-1992. They find that government expenditure on health and education has significant effect on the improvement of human development indicators (Ranis et al 2000). Gupta et. al (2002) also examine this correlation using data from 50 developing countries. They find that education expenditure has a positive correlation with access to school, while health expenditure has a negative correlation with infant mortality rate (Gupta et. al 2002).

Besides above evidences, there are also several studies that support the impact of decentralization in improving public service delivery, especially in health and education sector. Faguet and Sánchez (2009) conducted study about this topic in Colombia. They find that there is a positive association between decentralization and the increase in enrolment rates in public schools in this country. Galiani et. al. (2008) also note that decentralization has positive correlation with secondary education test score in Argentina. There is also evidence that decentralisation increases access to primary health care in Kerala, India (Heller 2001, Narayana 2005).

Aligned with the common expectation about the impact of decentralization, government fragmentation is seen as an approach to enhance the implementation of decentralization. Borrowing arguments from decentralization literature, the improvement in public service delivery can be expected from the government fragmentation process. Increasing number of local government units enables more implementation different strategies among the local government and produces best practices in local development (Oates 1972). Smaller area of local governments as the result of government fragmentation creates a greater proximity between the decision maker and the citizens. This condition is assumed to improve the supply of information about local condition and citizen preference to the decision maker. Asher and Novosad (2015) find that creation of new states as a result of government fragmentation in India has a correlation with significant improvement in economic activity.

Furthermore, this redistribution of public resources is assumed to give a higher effect on public service provision in the new regions which are previously neglected (Grossman et. al. 2017). Building the first school or health care in the underserved areas will generate more significant improvement than adding services in the existing government capital. Therefore, government fragmentation of areas with a high inequality leads to a more efficient resource allocation and greater public service quality.

Nevertheless, the transfer of power and authority in public service delivery to subnational government accompanied by fragmentation of local administrative units leads some problem in the fiscal and administrative capacity of the local government. Bahl (2011) argues that this issue is caused by the imbalance of revenue and expenditure assignment of local government. The expenditure responsibility assigned to the local government is generally larger than revenue assignment gathered by this government level. Moreover, Grossman and Lewis (2014) explains that new regions may have lower administrative capacity since these regions are lack of personnel and infrastructure. This condition causes impediment in planning and delivering public services. Therefore, the new regions tend to rely more on the support of central government.

In addition, government fragmentation also makes fiscal capacity of local government diverse among different type of region. In order to provide public services, local government must have access to adequate resources. However, the access to the resources is not the same among regions. Billing (2018:4) notes that this different access stems from inequality in the local capacity to collect revenue. Taxation seems to be difficult task especially for the new region. As stated by Grossman and Lewis (2014), new regions are often underserved and peripheral areas relative to non-split and originating regions. Furthermore, Falleti (2005:329) explains that the transfer of taxing authority to the lower level government with low capacity to collect new taxes can lead to the pressures on local budget and makes the local government highly dependent on transfer fund from the center. Hence, it is hard to expect local taxes as a main resource in the new regions. Based on this argument, the non-split and originating regions have relatively the same local capacity to tax in the post-fragmentation period. While, the new regions are administrative units with the weakest capacity in revenue collection.

Even though, the central government transfers financial resources to overcome the budget pressure in the local level, it is not necessarily that all regions have the same bargaining position of this funds. Grossman and Lewis (2014:202) argue that this bargaining power differs because of two factors, namely surface area and total number of local governments. In one hand, access to transfer funds increases with total area of regions. In the other hand, bargaining position decreases as the total number of local government increases. In the pre-fragmentation period, the bargaining power of originating regions is the same with non-split regions. While, in the post-fragmentation period the non-split regions will have the strongest

position to the central transfer since the area of originating and new regions are smaller than the non-split regions.

Consequently, the outcome of public services will vary across non-split, originating and new regions because of the variety access to the resources. From this condition, we could predict that the new region will suffer from a lower provision of public services compared to the non-split and originating regency. While, the originating regions will experience a higher public service outcome relative to the new regions, but it is below the level of public service outcome in the non-split regions.

Chapter 3
The Overview of Decentralization and Regency Fragmentation in Indonesia

3.1. Decentralization in Indonesia

Indonesia is the largest archipelago country which comprises of more than 17,000 islands (BBC 2018). Sumatera, Kalimantan, Java, Sulawesi, and Papua are among the largest island in the country. This country is occupied by more than 250 million people, placing Indonesia as the fourth most populous country in the world (World Population Review 2018). However, the population is not equally distributed with Java as the most resided island (BPS n.d.). Indonesia is also rich in ethnicity and culture. It consists of more than 300 ethnicities with their own regional languages (BBC 2018).

Furthermore, Indonesia is unitary state which comprise of three government levels namely central government, province, and district. Based on Law No. 23/2014 as amendment of Law No. 22/1999 and Law No. 32/2004, province is the second level of government under central government, while district is the third government level. In addition, districts in Indonesia are categorized into two type of region: regency and municipality. The difference between the two categories can be seen from the characteristics of regions. On average, regency has a wider but less populous area relative to municipality. Economic activities in the regency are largely in the agricultural sector, while trade and services dominate activities in municipality. There are 416 regencies, 98 municipalities and 34 provinces in Indonesia in 2014 (Ministry of Home Affairs 2014).

In the pre-decentralization period, Indonesia experienced 32 years authoritarian regime. All substantial policies were formulated and decided by central government. Central government also fully control the distribution and allocation of revenue from natural resources. Based on Law No. 5/1974, it was stipulated that the local government have no discretion to accommodate the local needs and preferences. Any development policies had to be proposed to the central government. This was also applied for the election of governors, regents, and mayors. Furthermore, revenue from natural resources such as oil and mining were not distributed fairly to the regions which had contribution to this revenue. This condition led to higher inequality between Java in where the central government are located and the other region in Indonesia. It also caused disappointment from those regions such as Papua and Kalimantan which have high reserves of natural resources.

This condition met the turning point when Indonesia suffered from Asian Financial Crisis in 1999. This crisis led to high pressure for the president Soeharto and forced him to step down and end his regime. Under the president Habibie, the successor of president Soeharto, Indonesia started the decentralization policy based on Law No. 22/1999 on local government. This law was enacted together with Law No. 25/1999 on fiscal balance between the central and subnational government. Five years later, both regulations were revised into Law No. 32/2004 and Law No. 33/2004. Then, in 2014, Law No. 32/2004 on local government was amended by Law No. 23/2014. Through those regulations, decentralization in Indonesia have covered all dimension of this policy.

In the administrative aspect, central government devolves autonomy to the two government levels: provinces, regencies, and municipalities. Central government only retains the responsibilities of defence, foreign affair, fiscal affair, religion, security, and justice. All

other functions became the authority of local government including health and education sector. For example, in education sector, the primary and junior secondary education became the responsibility of regencies and municipalities. While, senior secondary education is in the responsibility of provinces. In health sector, the majority of primary health care services, personnel and financing are under responsibility of local government.

In the fiscal aspect, aligned with the transfer of huge responsibility of public services, local government also gathered authority on the revenue collection and budget allocation. To finance their functions, local governments rely on two main resources, namely own source and intergovernmental transfer. Based on Law No. 34/2000, local governments have a high discretion in the collection of own source revenue. This regulation stipulates that local governments have authority to raise 11 taxes and 27 charges. Moreover, each local government could also create their own taxes and charges besides the specified taxes and charges in the Law. However, the creation of new taxes and charges must be examined by central government. This examination is intended to assess the effect of the taxes and charges on the local condition. This regulation, then, was revised by Law No. 28/2009. This new regulation gives no more discretion for local government to create new taxes and charges. However, there are 4 additional taxes and 4 new charges. The purpose of this policy is to increase local fiscal capacity without negatively affecting local economy.

Furthermore, based on Law No. 33/2004 central government allocates intergovernmental transfer to rectify fiscal imbalances both in vertical and horizontal dimension. Vertically, this transfer remedy fiscal imbalance between central government and local government. While, in the horizontal dimension, it equalizes fiscal capacity among local governments. This allocation encompasses general-purpose grant, specific-purpose grant, and shared revenue.

Central government transfers the general-purpose grant for all local governments. This grant is intended to equalize the inequality of the fiscal condition among the local governments. Based on Government regulation No. 55/2005, this grant is transferred through formula-based allocation. The formula is a function of civil servant wage bill, fiscal needs and fiscal capacity of local government. The fiscal needs are estimated based on area size, number of populations, gross regional domestic product per capita, construction cost index, and human development index. While, the capacity of local government fiscal is estimated by own source revenue and shared revenue obtained by local government. Consequently, local governments with low fiscal capacity will receive more general-purpose grant relative to those with high fiscal capacity. This fund is considered as the largest source of funding for majority local government.

The second type of intergovernmental transfer is specific-purpose grant. This grant is allocated to local government to support the financing of local government responsibilities which included in the central government priority program such as in health, education and infrastructure sector. This grant could be classified as conditional grant because the local government as the recipient must allocate matching fund. Based on Law No. 33/2004, the amount of this matching fund is at least 10 percent of allocated specific-purpose grant.

Shared revenue is the other type of intergovernmental transfer. Shared revenue consists of shared tax revenue and shared non-tax revenue. Shared tax revenue includes property tax, and income tax. While shared non-tax revenue comprises of revenue from forestry, fisheries and mining. This transfer is distributed based on specific percentage stipulated in the Government Regulation No. 55/2015.

In the expenditure assignment, there is no specific regulation on how local government spend their budget. They have full discretion on the allocation of the expenditure. However,

Indonesian constitution stipulates a mandatory spending on health and education sector. Law No. 20/2003 states that central government and local governments must minimally spend 20 percent of the budget on education sector. Furthermore, Law No. 36/2009 stipulates that central government must allocate their budget at least 5 percent on health sector. While local governments must have at least 10 percent allotment on their budget for health sector.

In the political aspect, there are two stages of implementation of decentralization. In the first stage, representative of local parliaments have been elected since the implementation of decentralization policy. Then, the process was continued with the election of local government heads by the elected local parliaments. In this period, the local government was still elected indirectly. Furthermore, in the second stage, five years after the implementation of decentralization, Indonesian constitution stipulated direct elections of local government heads through Law No. 32/2004. However, this regulation was implemented gradually to allow the incumbent to finish their term.

3.2. Regency Fragmentation in Indonesia

Besides the transfer of administrative, fiscal and political authority to the local level, decentralization in Indonesia was also followed by the phenomena of the large creation of new local government unit through the fragmentation process. Fitriani et al. (2005) argue that this splitting process was motivated by revenue expectation, natural resource reserves, geographic aspect, and ethnic heterogeneity. Law No. 22/1999, the basic law of decentralization in Indonesia, also gives a possibility for a region to form a new local government unit as stated on article 5 and 6 of this law. Indonesian government also issued Government Regulation No. 129/2000 on Requirement of Formation and Criteria of Splitting, Elimination, and Amalgamation of Region as details guidance of Law No. 22/1999 article 5 and 6.

Based on this regulation, creation of new local government unit requires prior approval from the regional head and local parliament of the originating area. This approval must be complemented with the technical evaluation to assess the properness of the prospective region. Based on Government Regulation No. 129/2000, there is 11 aspects and 25 indicators of evaluation. These aspects encompass area, population, control span, economy, finance, social, security, human development index and regional potential. This proposal has to get approval from the president after it is assessed by Regional Autonomy Advisory Council (DPOD). Finally, this proposal is delivered to national parliament for passing the law of new region.

However, this process is not the only way to create new region. There is also another avenue for the formation of new local government unit. New region can also be proposed by national parliament. This process seems to be taken to avoid the objection from the originating regions and the central government. The law of new region issued by the national parliament will automatically take effect even without agreement from the president. Law No. 2/1950 that law will come into force on the thirtieth day after it is passed by the parliament. Therefore, the central government has no effective effort to prevent the creation of new region through this method.

This condition led the central government to tighten the requirement of the creation of new local government unit. One effort of the central government is by amendment of Government Regulation No. 129/2000. This regulation was changed with Government Regulation No. 78/2007. The major changes on this regulation are in three aspects. First,

there is an additional requirement on the proposal of the establishment of new region. The prospective region should get support from the majority people in that region stated in the official document. Second, the central government increase the requirement of minimum number of lower level government unit for the creation of new government. The minimum unit for the creation of a province increases from three into five regencies and/or municipalities. It rises from three into five sub-districts for a new regency and from three into four sub-districts for a new municipality. The other aspect is about the age of the region that is going to be fragmented. A province can be split after at least ten years since the formation of this province. While, a regency or a municipality can be fragmented after at least seven years since the creation of this region.

When the law of new region has been stipulated, Ministry of Home Affairs will assign an official to be the interim head of a new region. The interim head will be on duty until there is a definitive head of region through election. The composition of local parliament in the new region will reflects on the portion on the legislative seat in the originating region. Each party will get the same allocation as in the originating region based on the latest election. However, since 2003 central government seemed to suspend the formation of parliament in the new region through this approach as parliamentary elections were planned to be conducted in 2004 (Fitriani et al. 2005).

In the fiscal aspect, the new region will also obtain intergovernmental transfer fund as the other region. As stated on Government Regulation No. 55/2005 article 46, the new region will receive general-purpose grant after the formation law of this region has been enacted by national parliament. Given the data constraint, the allocation of general-purpose grant for this new region uses proportional distribution with the originating region based on civil servant wage bill, area size and number of populations.

In the end of 1998, there are 27 provinces, 249 regencies, and 65 municipalities. However, after decentralization, there are 207 new additional regions until 2014. It encompasses 7 new provinces, 167 new regencies and 33 new municipalities.

Table 3.1 Creation of New Region in Indonesia by Island (1998-2014)

Island	Number of regions								New Region (1998-2014)
	Province		Regency		Municipality		Total		
	1998	2014	1998	2014	1998	2014	1998	2014	
Sumatera	8	10	55	120	21	34	84	164	70
Java	5	6	82	85	26	34	113	125	12
Nusa Tenggara	4	3	39	37	3	4	46	44	-2
Kalimantan	4	5	24	47	6	9	34	61	27
Sulawesi	4	6	33	70	7	11	44	87	43
Maluku	1	2	4	17	1	4	6	23	17
Papua	1	2	12	40	1	2	14	44	30
Total	**27**	**34**	**249**	**416**	**65**	**98**	**341**	**548**	**207**

Source: author's calculation

As shown in Table 3.1, the number of local governments increase more in the eastern part of Indonesia rather than in western part of the country. The region in Sulawesi almost doubled and it more than tripled in Maluku and Papua between 1998 and 2014. In western

part, the increase of local government seems to have the same rate in Sumatera and Kalimantan. It counts for around 75 percent in each island. The creation of new regency seems to be the contributor of the significant increase of local government unit in Indonesia. However, the number of new municipalities also accounts for this growth. In the period of fifteen years, the number of regencies rose from 249 to 416, much more than the number of municipalities which have only increased from 65 to 98.

Table 3.2 also shows a significant amount of new region creation outside Java island. It could be caused by geographic dispersion where the regions outside Java island have larger area relative to regions in Java island. One regency in Papua and Kalimantan island could have the same area with two provinces in Java. Moreover, region in small islands also tend to separate from the main island region because of limited access to public services which are typically concentrated in regency's capital. As noted by Faoziyah and Salim (2016) that the fragmentation process is considered as the way to improve public services in the area with a very large service coverage and limited access to public services.

Chapter 4
Data and Methodology

4.1. Data

This study uses secondary data published by Ministry of Home Affair of Indonesia, Ministry of Finance of Indonesia, Statistics Indonesia, and World Bank. The data of local government in Indonesia are derived from Ministry of Home Affair. The budget of the regencies and its component are collected from the website of Ministry of Finance of Indonesia. While the data of regency characteristic and health and education indicators are obtained from the publication of Statistics Indonesia and World Bank Database. Table 4.1 shows the descriptive statistics of the data.

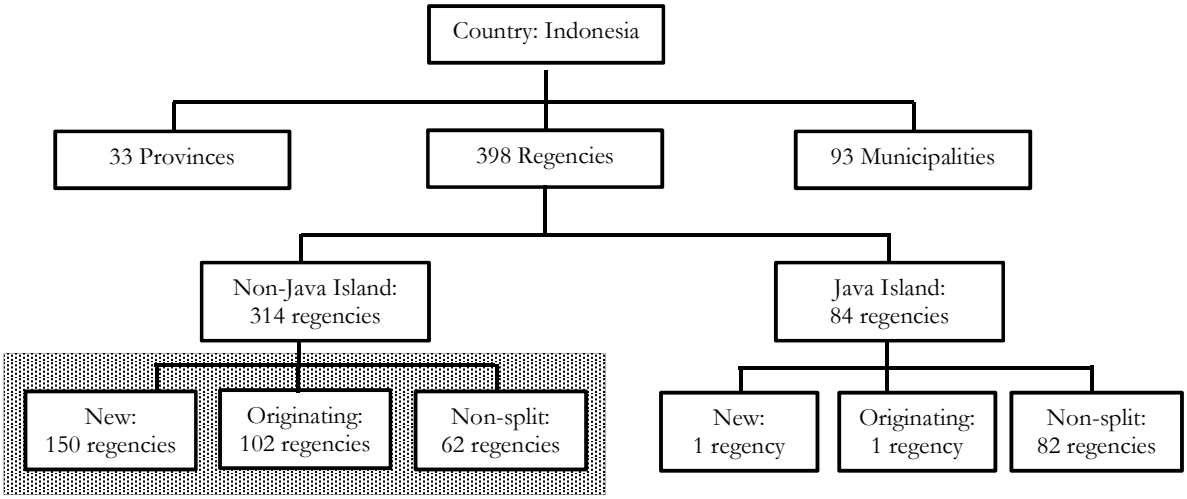
Table 4.1 Descriptive Statistics

Variable	Obs	Mean	Standard Deviation
Total Revenue (in million rupiah)	314	622,152.00	330,560.00
Share of Own Source (%)	314	4.75	5.45
Share of Intergovernmental Transfer (%)	314	84.22	7.76
Share of Education Expenditure (%)	314	31.92	11.53
Share of Health Expenditure (%)	314	9.00	2.22
Share of Public Works Expenditure (%)	314	14.40	8.20
Birth attended by skilled health worker (%)	314	67.79	20.86
Net Enrolment Ratio – Junior Secondary (%)	314	63.06	12.31
Community Health Center (in number)	314	64.02	36.12
Junior Secondary School (in number)	314	68.83	50.47
Area (in km^2)	314	5694.32	6715.92
Population (in 10,000)	314	25.81	21.20
GDP-Regional (in million rupiah)	314	4,530,235.00	6,627,224.00
New Regency -Dummy	314	0.48	0.50
Originating Regency -Dummy	314	0.33	0.47

This study analyses the regencies in Indonesia and focuses on the condition of non-Java Island for the year of 2011. The exclusion of regencies in Java Island from the analysis is intended to avoid a bias result as the Java island is the least fragmented area. By the end of 2011, there are only one fragmented regency from 84 regencies in this island. In addition, Regencies in Java island have a very different characteristics, specifically on social and economic condition, compared to the regencies in the non-Java island as a result of development policies that more concentrated on Java island in the New Order era (Faoziyah and Salim 2016).

In the next step, the regencies included in this analysis are divided into three categories, namely new regency, originating regency and non-split regency. This categorization is presented as follow:

Figure 4.1 Categorization of local government in 2011 as unit of analysis



4.2. Empirical Model

This study uses regression analysis to investigate the relationship between the regency fragmentation and the health and education service delivery. The analysis is conducted through logical sequence starting from the revenue into service delivery on health and education. This study focuses on the different condition among regency categories. It is assumed that fiscal capacity and public service delivery vary across the regencies as a result of fragmentation process. The estimation coefficients are interpreted as a correlation and not a causal relationship because of the limitation of this study. This study relates directly the spending of each type regencies to output and outcome in health and education sector. There is no further investigation of the spending details.

On the budget of regencies, the estimation starts from the revenue of the regencies as the financial source of the local government in delivering public services. Model I estimate the difference in total revenue (**R**) with dummy variable of regency's category, stated with **N** and **O**, as the interest variables where **N** stands for the new regencies and **O** stands for the originating regencies. The composition of the revenue is also estimated by using this model. The revenue of the regencies is determined by the type of the regency and the control variables. The control variables (**X**) include the gross regional domestic product (GDP-Regional), the number of residents, and the total area of the regencies. This control variables are also used for all models in this paper.

(I) $$\boldsymbol{R_{ij} = \alpha + \beta_1 N + \beta_2 O + \beta_3 X_i + \varepsilon}$$

The difference of the revenue among the regencies can be seen from the value of $\boldsymbol{\beta_1}$ and $\boldsymbol{\beta_2}$. If both coefficients show positive sign, it means that regency fragmentation has a correlation with the higher revenue of the fragmented regencies relative to non-fragmented regencies. In contrast, if both coefficients show negative sign, it reflects the correlation between regency fragmentation and the lower revenue of the originating and new regencies compared to non-split regencies. Whereas, it shows no difference in the revenue among the regencies if both coefficients have no value.

After examining the revenue and its component, the assessment is continued by investigating how each type of regencies spend their revenue. Before conducting this estimation, the expenditure of the regencies is categorized into 9 function based on Regulation of Ministry of Home Affair No. 13/2006 i.e. economy, health, education, public works, social protection, administrative services, security, environment, and tourism. Regencies' expenditure, stated with **E**, on each function is estimated by using Model II. In this model, regencies' expenditure is determined by the type of the regency and the control variables.

$$\text{(II)} \quad \boldsymbol{E_{ij} = \alpha + \beta_1 N + \beta_2 O + \beta_3 X_i + \varepsilon}$$

The result of this estimation is interpreted as the result of the estimation on model I. While in the model I both $\boldsymbol{\beta_1}$ and $\boldsymbol{\beta_2}$ show the difference on the revenue, these coefficients reflect the difference on the expenditure in the model II. From the estimation on model I and II, the pattern of regencies' source and spending can be identified.

Moving from the budget, the assessment is then conducted on the number of health and education facilities, stated with **F**, as one of indicator in output side. The number of facilities is a function of the type of the regency, the regencies' expenditure and the control variables.

$$\text{(III)} \quad \boldsymbol{F_{ij} = \alpha + \beta_1 N + \beta_2 O + \beta_3 E_{ij} + \beta_4 X_i + \varepsilon}$$

$$\text{(IV)} \quad \boldsymbol{F_{ij} = \alpha + \beta_1 N + \beta_2 O + \beta_3 (E_{ij} \times N) + \beta_4 (E_{ij} \times O) + \beta_5 X_i + \varepsilon}$$

The number of community health center (*puskesmas)* as the frontline facilities in regency level is chosen as a proxy in health sector. While, the proxy in education sector is the number of junior secondary school since the participation on the junior secondary school is much lower than that on the primary school in national level (UNESCO n.d.). Model III is employed to estimate this indicator. The model also uses dummy variable of regency's category as the interest variables. In this model, the health and education expenditure are included as independent variables to examine the relationship of these spending on the provision of facilities in health and education sector. Further examination of these spending is also conducted by interacting these variables with the dummy variable of regency's category to see the different effect of each spending on each type of regencies. Model IV presents this extended examination.

Following the interpretation of the result of model I and II, $\boldsymbol{\beta_1}$ and $\boldsymbol{\beta_2}$ in the model III and IV shows the difference of the provision of health and education facilities associated

with the regency fragmentation. In addition, in the model III, $\boldsymbol{\beta_3}$ represents the correlation between regency expenditure and the provision of facilities in the new and originating regencies. While, $\boldsymbol{\beta_3}$ and $\boldsymbol{\beta_4}$ in the model IV reflect the correlation of regency spending and the provision of health and education facilities in different areas. $\boldsymbol{\beta_3}$ represents this correlation in the new regencies and $\boldsymbol{\beta_4}$ reflects this relationship in the originating regencies.

The last analysis is conducted on the achievement of each type of regencies in health and education services, stated with **Y**. In this model, the outcome of the service delivery is determined by the type of the regency, the regencies' expenditure, the number of facilities and the control variables.

$$\text{(V)} \quad \boldsymbol{Y_{ij} = \alpha + \beta_1 N + \beta_2 O + \beta_3 E_{ij} + \beta_4 F_{ij} + \beta_5 X_i + \varepsilon}$$

$$\text{(VI)} \quad \boldsymbol{Y_{ij} = \alpha + \beta_1 N + \beta_2 O + \beta_3 (E_{ij} \times N) + \beta_4 (E_{ij} \times O) + \beta_5 (F_{ij} \times N) + \beta_6 (F_{ij} \times O) + \beta_7 X_i + \varepsilon}$$

Birth attended by skilled health worker is chosen as a proxy in this analysis since the maternal mortality rate in Indonesia is still high. Indonesia is the country with the third highest rate of maternal mortality among ASEAN countries (ASEAN 2015). While net enrolment ratio on junior secondary education is chosen as a proxy in education sector. Junior secondary school is included in the main goal of nine-year primary education program as stated in Law 20/2003. However, the achievement on net enrolment ratio of junior secondary school in the national level has not been able to attain this achievement on primary school (UNESCO n.d.). Therefore, this indicator is better representing the effort of each local government in education sector since junior secondary school is still in the responsibility of the regency's government. The estimation for both indicators uses Model V and VI. In model V, each indicator in health and education services is estimated by dummy variable of regency's category to see the different achievement of each regencies. In addition, this model also includes government spending and number of facilities as independent variables. The last two variables are then separated based on the regency's category in the Model VI to capture how these variables affect the outcome of health and education services in each regency.

$\boldsymbol{\beta_1}$ and $\boldsymbol{\beta_2}$ in the model V and VI shows the difference of the outcome on health and education sector associated with the regency fragmentation. In addition, in the model V, $\boldsymbol{\beta_3}$ represents the correlation between regency expenditure and the health and education outcome in the all fragmented regencies. The correlation between regency facilities and these outcome in all fragmented regencies is reflected by $\boldsymbol{\beta_4}$ in model V.

In the model VI, $\boldsymbol{\beta_3}$ and $\boldsymbol{\beta_4}$ reflect the correlation of regency spending and the outcome of health and education facilities in new regencies and originating regencies respectively. While, $\boldsymbol{\beta_5}$ and $\boldsymbol{\beta_6}$ reflect the correlation of regency spending and the outcome of health and education facilities in new regencies and originating regencies respectively

4.3. Hypothesis

Hypothesis 1: New regencies have the lowest fiscal capacity indicated by the lowest share of own source revenue and the highest share of transfer funds relative to non-split and originating regencies.

Hypothesis 2: There is a different priority in the allocation of regency budget across new, originating and non-split regencies.

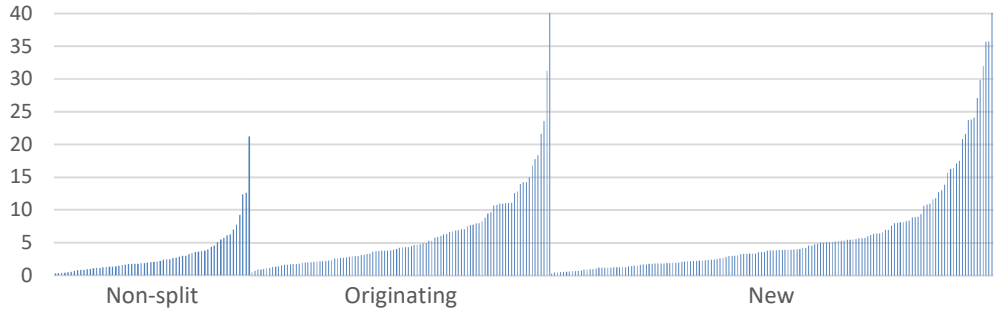
Hypothesis 3: The provision of health and education facilities varies across three type of regencies.

Hypothesis 4: There is a different level of health and education service delivery across new, originating and non-split regencies.

Chapter 5
Result and Analysis

5.1. Regency Characteristic

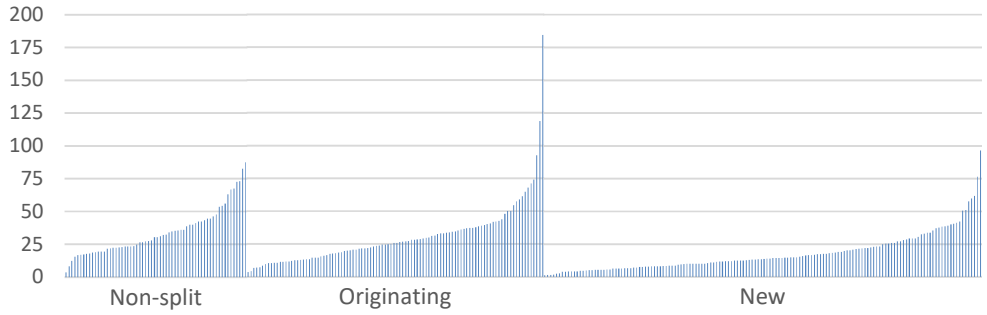
Chart 5.1 Total Area (in 1000 km^2)



Source: author's calculation based on data from INDO-DAPOER World Bank

Chart 5.1 show three type of regencies ranked by their area. The non-split regencies seem to have the lowest area relative to originating and new regencies. While, the originating and new regencies have relatively the same area. Both type regencies also show larger variation compared to non-split regencies. In contrast, non-split regencies seem to have the highest population. Among the three, new regencies have the lowest population as shown in chart 5.2.

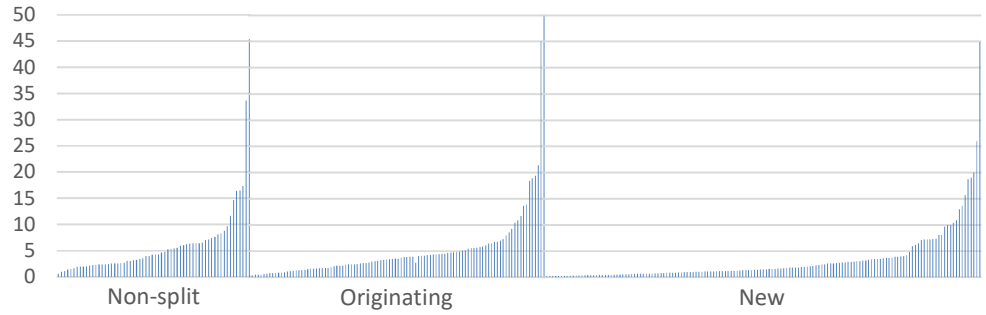
Chart 5.2 Population (in 10,000 people)



Source: author's calculation based on data from INDO-DAPOER World Bank

In term of economy, it is seen that there is larger variation in the non-split regencies relative to originating and new regencies. While the new regencies seem less variation in the gross regional domestic product. The new regencies also have the lowest gross regional domestic product compared to non-split and originating regencies.

Chart 5.3 Gross Regional Domestic Product (in trillion rupiah)

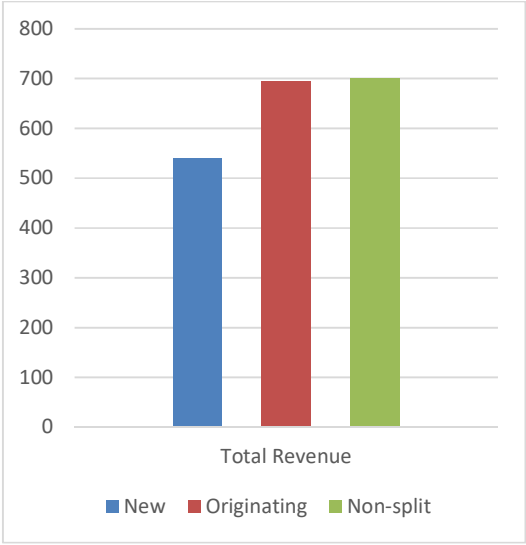


Source: author's calculation based on data from INDO-DAPOER World Bank

5.2. Revenue Composition

The comparison of the average revenue among the three categories of the regencies is presented as follows.

Chart 5.4 Average of Regencies' Total Revenue (in billion rupiah)

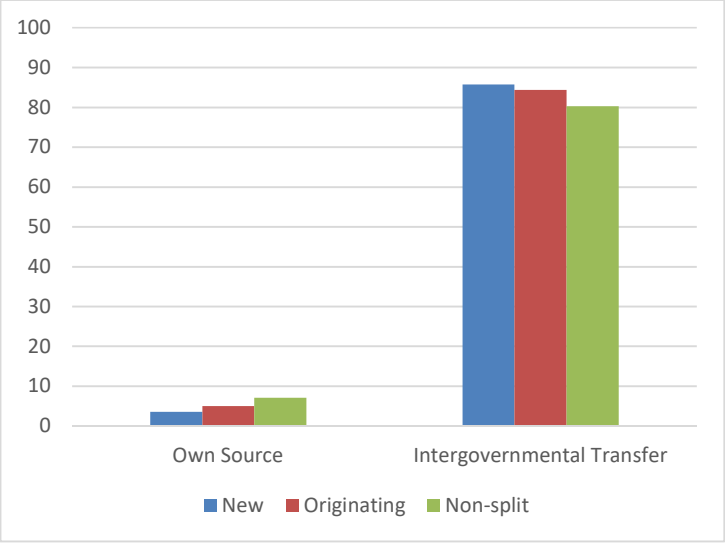


Source: author's calculation based on data of local government budget compiled by Ministry of Finance

Chart 5.4 shows that on average the new regencies have the lowest total revenue compared to the other type of regencies. The gap is more than 150 billion rupiah. While the average revenue of the originating regencies is slightly below the non-split regencies. The

difference of the revenue between the originating and the non-split regencies is less than 6 billion rupiah. From the composition of the revenue as shown in Chart 5.5, the contribution of the own source on the total revenue is less than 10 percent for all regencies. In contrast, intergovernmental transfer dominates the revenue sources of all the type of regencies. This share of transfer funds is more than 80 percent in the total revenue of all regencies. Chart 5.5 also delineates different pattern among the regencies in the share of own source and transfer funds. The new regencies have the lowest average of the own source share, but the highest portion of transfer funds. Whereas, the non-split regencies have the highest share of the own source, yet the lowest average of the transfer funds.

Chart 5.5 Average of Regencies' Share of Revenue (%)



Source: author's calculation based on data of local government budget compiled by Ministry of Finance

However, the above comparison does not consider the other factor that can influence the total revenue of the regencies. We can argue that the difference in the total revenue among the regencies is caused by the different size of economy, population and total area. Therefore, by using regression method, we try to control all the specific characteristics which may distort the result.

Table 5.1 Regression Result on Regencies' Revenue

Explanatory Variables	Total Revenue	Log (Total Revenue)	Own Source	Intergovernmental Transfer
New Regency	-53,354.961	-0.142	-0.028	0.035
	(1.79)*	(4.17)***	(2.70)***	(2.71)***
Originating Regency	221.451	-0.051	-0.017	0.031
	(0.01)	(1.65)	(1.56)	(2.35)**
GDP-Regional (in million rupiah)	0.030	0.000	0.000	-0.000
	(3.14)***	(5.53)***	(1.84)*	(1.94)*

Population (in 10,000 people)	2,631.216	0.007	0.000	-0.001
	(1.64)	(6.17)***	(0.36)	(2.25)**
Area (in km^2)	15.435	0.000	-0.000	0.000
	(9.99)***	(12.25)***	(1.61)	(2.78)***
Constant	357,312.369	12.948	0.062	0.827
	(9.23)***	(295.87)***	(5.78)***	(62.59)***
R-squared	0.73	0.74	0.11	0.15
Number of Regencies	314	314	314	314

robust standard errors in parentheses * $p<0.1$; ** $p<0.05$; *** $p<0.01$

The regression result in table 5.1 confirms the pattern shown in the descriptive statistic. In column 1 the coefficient of dummy variable of new regency is negative and statistically significant at ten percent level after we controlled for the GDP-Regional, population and area size. This indicates that the total revenue of the new regencies is lower than the originating and non-split regencies. The size of the estimated difference is non-negligible. This gap is counted around 53 billion rupiah as in column 1 or around 14 percentage point as shown in the column 2. The regression results also capture the same pattern on the composition of the revenue. The coefficient of the dummy variable of the new regencies has different sign on the own source and the transfer funds. The result shows that the new regencies have a lower share of own source which is indicated by the negative sign. While the positive sign in the regression of transfer funds indicates that the new regencies have a higher amount of transfer fund portion in their revenue compared to the non-split regencies. Both differences are highly significant.

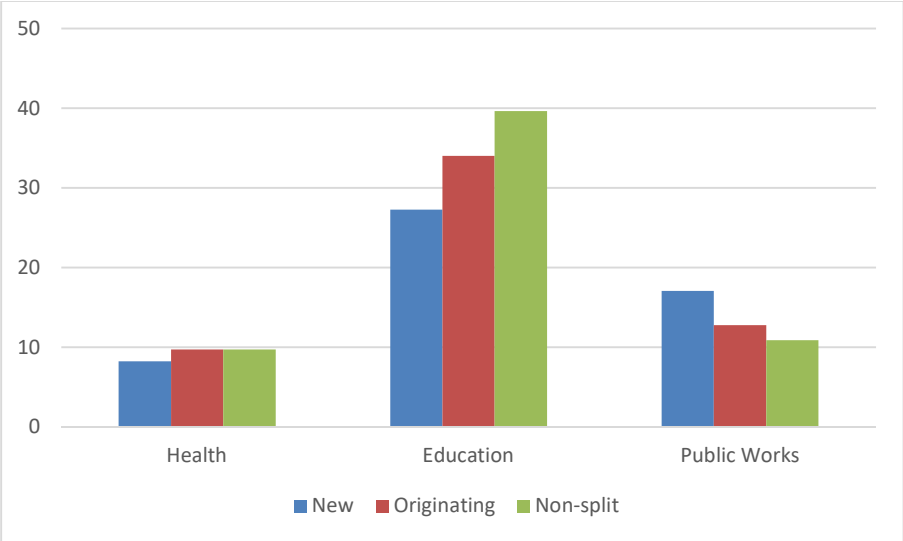
5.3. Share of Expenditure

Based on chart 5.6, education expenditure is the largest share on the regencies' budget. On average, the non-split regencies spend almost 40 percent of their budget in this sector. The new and originating regencies also allocate a high portion of the budget for education sector. However, there is a big gap between the non-split and the new regencies on this allocation. The new regencies spend 12 percent less on education sector compared to the non-split regencies. In the originating regencies' budget, the share of education expenditure is also lower compared to its allocation of the non-split regencies, even though this share is 7 percent higher than the new regencies.

This pattern on education sector can also be seen in the share of health spending. The non-split regencies are still the regencies that spend the highest share on this sector compared to the other type of regencies. However, the gap between the new regencies and the non-split regencies on health expenditure is much smaller than the gap on education sector. This difference is no more than 2 percent. In addition, the originating and the non-split regencies spend almost the same on the health sector.

The above comparison explains that the new regencies spend the lowest share on health and education. In contrary, the new regencies allocate more budget on public works as shown on chart 5.3. In this sector, these regencies spend the highest share of their budget. In the comparison with the non-split and originating regencies, the new regencies spend 7 percent and 4 percent more on public works respectively.

Chart 5.6 Average of Regencies' Share of Expenditure (%)



Source: author's calculation based on data of local government budget compiled by Ministry of Finance

The regression result in table 5.2 also shows the same pattern as in the chart 5.6. There are statistically significant differences between the new regencies and the non-split regencies on health, education and public works sector. The coefficient of the new regency variable shows negative sign on health and education expenditure. This indicates that the new regencies have a lower share of health and education in their budget. In the health spending, the coefficient of the new regency corresponds the gap shown in the chart 5.6. However, in the regression result, the gap between the new and the non-split regencies in education sector is smaller compared to the gap shown in the chart 5.6. The regression estimates that the new regencies spend only 7 percent less on education sector. The other 5 percent difference as shown in chart 5.6 could be explained by the control variable in the regression model. In addition, the estimation also captures that the new regencies significantly spend more budget compared to the other regencies. It is shown by the positive sign of the coefficient of the new regency in column 3.

The regression results also show a different pattern for the originating regencies compared to the chart 5.6. The coefficient of the originating regency variable shows the same direction with the comparison in the chart 5.6. However, the significant difference between the originating and non-split regencies can only be seen in the education sector. There is no significant gap on public works sector, even though the chart 5.6 shows a gap between originating and non-split regencies.

Table 5.2 Regression Result on Regencies' Expenditure

	Health	Education	Public Works
New Regency	-0.018	-0.070	0.052
	(5.33)***	(4.92)***	(4.68)***
Originating	-0.001	-0.031	0.012

Regency	(0.21)	(2.20)**	(1.28)
GDP-Regional (in million rupiah)	-0.000	-0.000	0.000
	(0.99)	(3.39)***	(2.03)**
Population (in 10,000 people)	-0.000	0.003	-0.001
	(1.59)	(8.06)***	(2.42)**
Area (in km²)	-0.000	-0.000	0.000
	(3.46)***	(6.84)***	(3.94)***
Constant	0.105	0.324	0.107
	(29.91)***	(18.85)***	(9.95)***
R-squared	0.17	0.50	0.20
Number of Regencies	314	314	314

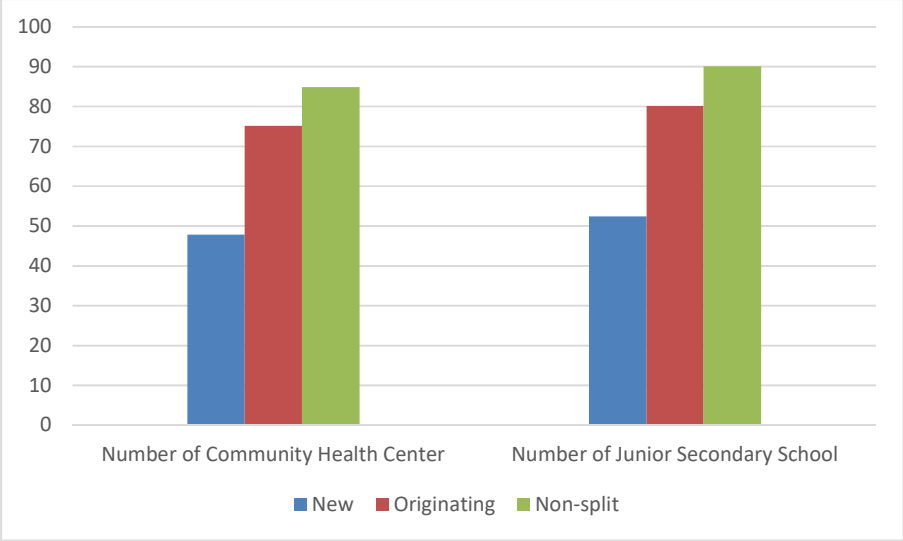
robust standard errors in parentheses * $p<0.1$; ** $p<0.05$; *** $p<0.01$

5.4. Provision of Health and Education Facilities

The examination on the revenue and expenditure of the regencies explain that on average the new regencies have the lowest total revenue and the minimum share of health and education spending compared to the other regencies. In the other hand, on average the originating regencies have no significant differences with the non-split regencies on the total revenue and expenditure, except on the education spending. From this result, we then investigate how the regencies' fragmentation affect the provision of health and education facilities.

Based on chart 5.7, on average the new and originating regencies are left behind the non-split regencies on the provision of health and education facilities. It is shown that the number of community health center and junior secondary school in the non-split regencies are almost doubled compared to the new regenceies. This condition also occurs in the originating regencies, even though these facilities in the originating only differ 10 units less from the non-split regencies.

Chart 5.7 Average of Regencies' Health and Education Facilities



Source: author's calculation based on data from INDO-DAPOER World Bank

These differences might be caused by the characteristics of the regencies such as the large area. Therefore, the investigation is continued by running the estimation that control this characteristic. The result of the estimation is presented in the table 5.3. There is a different condition compared to the chart 5.7 specifically on the provision of junior secondary school. The result shows that there is no significant difference on the number of this facility between the three type of regencies. The gap shown in the chart 5.7 is not associated with the regencies' splitting. In contrast, there is still a large gap between the new regencies and the non-split regencies in the provision of community health center. This high difference as shown previously in the chart 5.7 only decrease around 10 units when we run the regression. This gap also remains in the originating regencies, even though its significance is lower than the significance on the new regencies.

The result also captures that the regencies' spending has no significant effect on the provision of the health and education facilities. The only significance of the regencies' expenditure is shown in the column 3, when the education expenditure variable is not differentiated into each type of regencies. However, this significance disappear after the expenditure is split into each categories of the fragmented regencies.

Table 5.3 Regression Result on Regencies' Health and Education Facilities

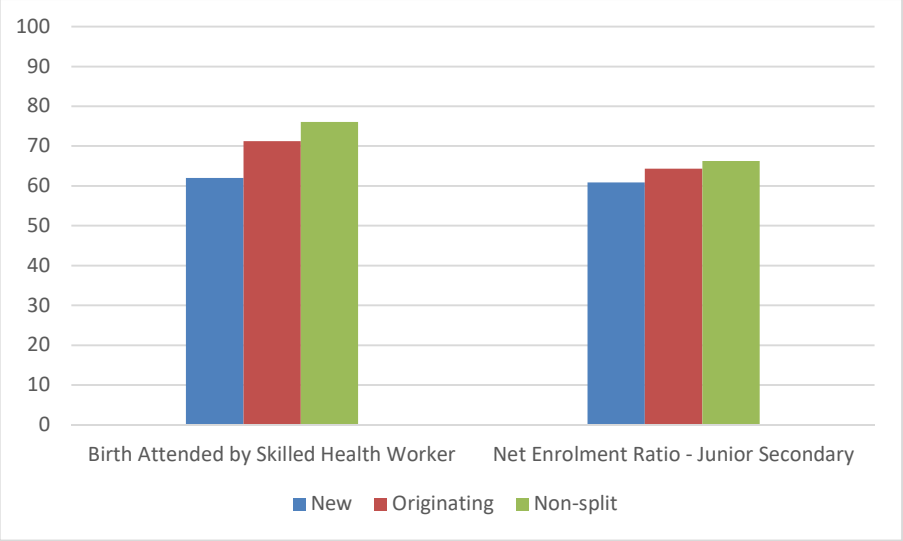
Explanatory Variables	Number of Community Health Center	Number of Community Health Center	Number of Junior Secondary School	Number of Junior Secondary School
New Regency	-23.151	-27.501	4.523	-9.230
	(4.55)***	(3.97)***	(1.07)	(1.00)
Originating Regency	-8.604	-13.022	3.564	-4.998
	(1.73)*	(1.15)	(0.77)	(0.53)
Health Expenditure	21.308	-	-	-
	(0.40)			
Health Expenditure of New Regency	-	49.119	-	-
		(0.82)		
Health Expenditure of Originating Regency	-	45.098	-	-
		(0.42)		
Education Expenditure	-	-	35.695	-
			(1.67)*	
Education Expenditure of New Regency	-	-	-	35.885
				(1.47)
Education Expenditure of New Regency	-	-	-	19.216
				(0.74)
GDP-Regional	0.000	0.000	-0.000	-0.000
(in million rupiah)	(0.29)	(0.31)	(0.87)	(1.04)
Population	0.000	0.000	0.000	0.000
(in 10,000 people)	(6.66)***	(6.62)***	(10.05)***	(10.30)***
Area (in km^2)	0.001	0.001	0.000	0.000
	(4.81)***	(4.79)***	(1.99)**	(1.94)*
Constant	42.571	44.617	-1.651	11.724
	(4.81)***	(7.15)***	(0.25)	(1.93)*
R-squared	0.58	0.58	0.82	0.82
Number of Regencies	314	314	314	314

robust standard errors in parentheses * $p<0.1$; ** $p<0.05$; *** $p<0.01$

5.5. Health and Education Service Delivery

The last examination is conducted to assess the effect of regencies' fragmentation on the health and education service delivery. From the chart 5.8, it can be seen that on average the new and the originating regencies are also lagging behind in the health and education service delivery. There is a larger gap in the health sector rather than in the education sector. In the percentage of birth attended by skilled health worker, the new and the originating regencies differ 14 percent and 5 percent less from the non-split regencies respectively. In other hand, the gap in the net enrolment ratio of junior secondary education are 5 percent for the new regencies and 2 percent for the originating regencies.

Chart 5.8 Average of Regencies' Outcome in Health and Education Sector (%)



Source: author's calculation based on data from INDO-DAPOER World Bank

The regression result in table 5.4 also confirms the lower level of the fragmented regencies' achievement on the health and education service delivery. However, this gap is only significant for the new regencies and not significant for the originating regencies. In addition, the result shows a larger gap between the new and the non-split regencies compared to the gap in the chart 5.8. The gap become larger after the expenditure and the facilities variable are split into the new and the originating regencies. In the health sector, the achievement of the new regencies falls 22 percentage point. Moreover, the worsen condition occurs in the junior secondary education. The gap become 18 percent for the new regencies after the regression control for the other variables.

The result in table 5.8 also capture the significance of the health and education facilities provision. However, this significance only remains on the facilities variables in the new regencies. This condition also happens for the education expenditure, but not for the health expenditure. The education expenditure still significance for the new regencies as shown in the column 4 after the expenditure variable is split into the new and originating regencies.

Table 5.4 Regression Result on Regencies' Health and Education Service Delivery

Explanatory Variables	Birth attended by skilled health worker	Birth attended by skilled health worker	Net Enrollment Ratio – Junior Secondary	Net Enrollment Ratio – Junior Secondary
New Regency	-5.659	-22.369	-1.731	-18.122
	(1.80)*	(3.02)***	(1.12)	(3.70)***
Originating Regency	-1.703	-13.836	0.006	-4.846
	(0.65)	(1.55)	(0.00)	(0.87)
Health Expenditure	58.471	-	-	-
	(1.18)			
Health Expenditure of New Regency	-	15.530	-	-
		(0.20)		
Health Expenditure of Originating Regency	-	97.539	-	-
		(1.47)		
Number of Community Health Center	0.109	-	-	-
	(2.50)**			
Number of Community Health Center in New Regency	-	0.226	-	-
		(3.11)***		
Number of Community Health Center in Originating Regency	-	0.019	-	-
		(0.29)		
Education Expenditure	-	-	21.025	-
			(2.51)**	
Education Expenditure of New Regency	-	-	-	21.962
				(1.86)*
Education Expenditure of New Regency	-	-	-	5.014
				(0.40)
Number of Junior Secondary School	-	-	0.125	-
			(3.61)***	
Number of Junior Secondary School in New Regency	-	-	-	0.126
				(3.14)***
Number of Junior Secondary School in Originating Regency	-	-	-	0.020
				(0.58)
GDP-Regional	0.000	0.000	0.000	0.000
(in million rupiah)	(4.08)***	(4.46)***	(5.02)***	(4.77)***
Population	0.000	0.000	-0.000	-0.000
(in 10,000 people)	(0.09)	(0.77)	(3.70)***	(1.52)
Area (in km^2)	-0.001	-0.001	-0.000	-0.000
	(3.28)***	(3.24)***	(2.93)***	(2.84)***
Constant	58.264	72.247	56.738	69.148
	(9.57)***	(22.72)***	(16.09)***	(29.85)***
R-squared	0.24	0.26	0.20	0.21
Number of Regencies	314	314	314	314

robust standard errors in parentheses * $p<0.1$; ** $p<0.05$; *** $p<0.01$

5.6. Discussion

Based on the above result, the new regencies are found as the regions with the poorest condition relative to originating and non-split regencies. The new regencies do not only have the lowest resources to finance public services, but these regions are also lack in the provision of health and education services. In the fiscal resources, these regencies have a higher dependency on the transfer from the central government. It shown by the highest share of intergovernmental transfer in their total revenue among the other type of regencies. This result is in line with the finding of Falleti (2005) which find that giving authority to region with the low capacity to collect revenue causes budget constraint and make the region highly dependent on central government assistance. This low capacity is explained by Grossman and Lewis (2014) as a result of the lack of personnel and infrastructure.

The gap in the access to revenue shown in the result could be explained by the characteristic of the regencies. It could be seen that the new regencies have the lowest population and economic level but larger in area. While, the non-split and originating regencies have relatively the same characteristic. As a result, the local revenue expected from economic activity in the new regencies is low. In contrast, the non-split and originating regencies could expect taxes and charges from economic activity in their region. Besides that, the amount of general-puspose grant in which area and population is calculated is supposed to increase the total revenue of non-split and originating regencies. This condition leads to increase inequality of access to resources across the regencies.

The result of comparison among spending priority of regencies also suggest that the new regencies are the underserved regions. This situation makes the new regencies set higher priority on public works and less on health and education sector. This result support the finding of Kis-Kastos and Sjahrir (2014) who find that districts with lower level of infrastructure condition allocate more budget on this sector after central government decentralized the spending authority.

On the facilities provision, the different result between the gap in the health and education facilities could be explain by the regulation that stated about mandatory spending on health and education sector. The Indonesian constitution stipulated different amount of mandatory spending in health and education sector, which are 10 percent for health and 20 percent for education. From the analysis, it could be seen that all regencies manage to fulfil this regulation. This different allocation could affect the different provision of facilities on health and education.

The result also suggests that spending and provision of health and education are highly correlated with the improvement of outcome in health and education in the new regencies. This finding supports the argument of Grossman et. al. (2017) which find that redistribution of public resources gives a higher effect on public service provision in the new regions which are previously neglected.

Chapter 6
Conclusion

The present study aims to examine the effect of regency fragmentation on health and education service delivery at regency level in Indonesia. In the budget of regencies, it tried to examine the different fiscal capacity and the priority of regencies in the allocation of their fiscal resources. In the output and outcome aspect, this study chose to see the different in the provision of community health care and birth attended by skilled health worker in health sector. In the education sector, it used the provision of junior secondary school and net enrolment ratio on junior secondary education as the proxy.

The findings on budget analysis are consistent with the hypothesis 1 and 2 that the new regencies have less fiscal capacity and different priority in the budget allocation relative to the other type of regencies. The different composition of the revenue shown by the descriptive and regression result also support the hypothesis 1. The new regencies that allocates more budget on public works and not on health and education sector support the hypothesis 2. The analysis on the regency's characteristic show the different condition among the type of regencies. These characteristics could partially explain the findings.

Furthermore, the findings on output and outcome of health and education services also consistent with the hypothesis 3 and 4. The new regencies suffers both in the provision of facilities and the outcome of health and education. However, there are relatively much different on the provision of facilities between health and education sector. While this considerable gap is not found on analysis of the health and education outcomes. The analysis on the outcome also reveals that increase in health and education spending are more effective on the new regencies.

There are also some limitations on this study. First, the estimation results do not indicate causal relationship, but show differences among the regencies. Second, due to data limitation, this study does not include the effect of time on the provision of health and education services. Third, this study only analyses the aggregate spending in each sector without classifying into specific allocation in each sector. Therefore, it emphasizes that for future study, it needs more information on specific budget allocation in each sector. It also requires panel data analysis to examine the effect of government fragmentation.

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Appendices

Regression result on Regencies' Total Revenue (in million rupiah)

```
. reg t_rev new ori grdp pop_1e4 area, robust

Linear regression                               Number of obs     =        314
                                                F(5, 308)         =      54.38
                                                Prob > F          =     0.0000
                                                R-squared         =     0.7269
                                                Root MSE          =    1.7e+05
------------------------------------------------------------------------------
             |               Robust
       t_rev |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         new |  -53354.96   29836.15    -1.79   0.075    -112063.4    5353.511
         ori |   221.4515   33330.26     0.01   0.995    -65362.37    65805.27
        grdp |   .0296733   .0094464     3.14   0.002     .0110858    .0482609
     pop_1e4 |   2631.216   1599.699     1.64   0.101    -516.5059    5778.937
        area |   15.43485   1.544305     9.99   0.000     12.39613    18.47357
       _cons |   357312.4   38693.95     9.23   0.000     281174.4    433450.3
------------------------------------------------------------------------------

. reg logrev new ori grdp pop_1e4 area, robust

Linear regression                               Number of obs     =        314
                                                F(5, 308)         =      79.29
                                                Prob > F          =     0.0000
                                                R-squared         =     0.7363
                                                Root MSE          =      .1953
------------------------------------------------------------------------------
             |               Robust
      logrev |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         new |    -.14248   .0341758    -4.17   0.000    -.2097275   -.0752324
         ori |  -.0514455   .0312408    -1.65   0.101    -.1129179    .0100269
        grdp |   2.00e-08   3.61e-09     5.53   0.000     1.29e-08    2.71e-08
     pop_1e4 |   .0065469   .0010604     6.17   0.000     .0044603    .0086335
        area |   .0000237   1.94e-06    12.25   0.000     .0000199    .0000276
       _cons |   12.94794   .0437619   295.87   0.000     12.86183    13.03405
------------------------------------------------------------------------------
```

Regression result on Regencies' Own Source Revenue (%)

```
. reg own new ori grdp pop_1e4 area, robust

Linear regression                               Number of obs     =        314
                                                F(5, 308)         =       3.48
                                                Prob > F          =     0.0045
                                                R-squared         =     0.1079
                                                Root MSE          =     .05187
------------------------------------------------------------------------------
             |               Robust
         own |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         new |  -.0277386   .0102872    -2.70   0.007    -.0479807   -.0074965
         ori |  -.0173092   .0110888    -1.56   0.120    -.0391285    .0045101
        grdp |   1.74e-09   9.46e-10     1.84   0.066    -1.16e-10    3.61e-09
     pop_1e4 |   .0000538    .000149     0.36   0.718    -.0002394    .0003471
        area |  -8.31e-07   5.17e-07    -1.61   0.109    -1.85e-06    1.85e-07
       _cons |   .0618174   .0106889     5.78   0.000     .0407849    .0828499
------------------------------------------------------------------------------
```

Regression result on Regencies' Intergovernmental Transfer (%)

```
. reg transfer new ori grdp pop_1e4 area, robust

Linear regression                               Number of obs     =        314
                                                F(5, 308)         =       6.30
                                                Prob > F          =     0.0000
                                                R-squared         =     0.1464
                                                Root MSE          =     .07226
------------------------------------------------------------------------------
             |               Robust
    transfer |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         new |   .0348109   .0128444     2.71   0.007      .009537    .0600848
         ori |   .0307961   .0131132     2.35   0.019     .0049934    .0565988
        grdp |  -1.92e-09   9.91e-10    -1.94   0.054    -3.87e-09    3.23e-11
     pop_1e4 |  -.0005164   .0002299    -2.25   0.025    -.0009687   -.0000641
        area |   1.81e-06   6.53e-07     2.78   0.006     5.28e-07    3.10e-06
       _cons |   .8272377   .0132157    62.59   0.000     .8012331    .8532422
------------------------------------------------------------------------------
```

Regression result on Regencies' Share of Education Expenditure (%)

```
. reg edu new ori grdp pop_1e4 area, robust

Linear regression                               Number of obs     =        314
                                                F(5, 308)         =      45.18
                                                Prob > F          =     0.0000
                                                R-squared         =     0.4990
                                                Root MSE          =     .08228
------------------------------------------------------------------------------
             |               Robust
         edu |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         new |  -.0699193   .0141985    -4.92   0.000    -.0978577    -.041981
         ori |  -.0313233    .014243    -2.20   0.029    -.0593492   -.0032973
        grdp |  -3.23e-09   9.53e-10    -3.39   0.001    -5.11e-09   -1.35e-09
     pop_1e4 |   .0031031   .0003851     8.06   0.000     .0023453    .0038608
        area |  -4.70e-06   6.87e-07    -6.84   0.000    -6.05e-06   -3.35e-06
       _cons |   .3240243   .0171897    18.85   0.000     .2902002    .3578485
------------------------------------------------------------------------------
```

Regression result on Regencies' Share of Health Expenditure (%)

```
. reg health new ori grdp pop_1e4 area, robust

Linear regression                               Number of obs     =        314
                                                F(4, 308)         =          .
                                                Prob > F          =          .
                                                R-squared         =     0.1707
                                                Root MSE          =     .02046
------------------------------------------------------------------------------
             |               Robust
      health |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         new |  -.0180328   .0033818    -5.33   0.000    -.0246872   -.0113785
         ori |  -.0007072   .0033304    -0.21   0.832    -.0072605     .005846
        grdp |  -1.98e-10   2.00e-10    -0.99   0.323    -5.91e-10    1.96e-10
     pop_1e4 |  -.0001064   .0000671    -1.59   0.114    -.0002385    .0000257
        area |  -5.00e-07   1.45e-07    -3.46   0.001    -7.85e-07   -2.16e-07
       _cons |   .1053988   .0035236    29.91   0.000     .0984655    .1123322
------------------------------------------------------------------------------
```

Regression result on Regencies' Share of Public Works Expenditure (%)

```
. reg public_fac new ori grdp pop_1e4 area, robust

Linear regression                               Number of obs     =        314
                                                F(5, 308)         =      17.18
                                                Prob > F          =     0.0000
                                                R-squared         =     0.2021
                                                Root MSE          =     .07422
------------------------------------------------------------------------------
             |               Robust
  public_fac |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         new |   .0523899   .0111991     4.68   0.000     .0303534    .0744263
         ori |   .0119495   .0092995     1.28   0.200    -.0063491    .0302481
        grdp |   2.17e-09   1.07e-09     2.03   0.043     7.05e-11    4.26e-09
     pop_1e4 |  -.0006699   .0002773    -2.42   0.016    -.0012155   -.0001242
        area |   2.79e-06   7.09e-07     3.94   0.000     1.40e-06    4.19e-06
       _cons |   .1072108   .0107792     9.95   0.000     .0860005    .1284211
------------------------------------------------------------------------------
```

Regression result on Regencies' Health Facilities

```
. reg h_care new ori p_health grdp pop area, robust

Linear regression                               Number of obs     =        314
                                                F(6, 307)         =      40.07
                                                Prob > F          =     0.0000
                                                R-squared         =     0.5777
                                                Root MSE          =     23.703
------------------------------------------------------------------------------
             |               Robust
      h_care |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         new |  -23.15118   5.092377    -4.55   0.000    -33.17155    -13.1308
         ori |  -8.603558   4.982504    -1.73   0.085    -18.40774    1.200622
    p_health |   21.30794   53.40502     0.40   0.690    -83.77825    126.3941
        grdp |   1.35e-07   4.65e-07     0.29   0.772    -7.80e-07    1.05e-06
         pop |   .0000978   .0000147     6.66   0.000     .0000689    .0001267
        area |   .0013221    .000275     4.81   0.000      .000781    .0018632
       _cons |   42.57066   8.845565     4.81   0.000     25.16505    59.97626
------------------------------------------------------------------------------

. reg h_care new ori p_healthxn p_healthxo grdp pop area, robust

Linear regression                               Number of obs     =        314
                                                F(7, 306)         =      34.39
                                                Prob > F          =     0.0000
                                                R-squared         =     0.5782
                                                Root MSE          =     23.728
------------------------------------------------------------------------------
             |               Robust
      h_care |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         new |  -27.50099    6.93408    -3.97   0.000     -41.1455   -13.85648
         ori |  -13.02213   11.33494    -1.15   0.252    -35.32641    9.282154
  p_healthxn |   49.11933   60.25063     0.82   0.416    -69.43865    167.6773
  p_healthxo |   45.09787   106.1825     0.42   0.671    -163.8424    254.0381
        grdp |   1.44e-07   4.67e-07     0.31   0.759    -7.75e-07    1.06e-06
         pop |   .0000978   .0000148     6.62   0.000     .0000687    .0001269
        area |   .0013278   .0002773     4.79   0.000     .0007821    .0018735
       _cons |   44.61679    6.24326     7.15   0.000     32.33164    56.90195
------------------------------------------------------------------------------
```

Regression result on Regencies' Education Facilities

```
. reg school new ori p_edu grdp pop area, robust

Linear regression                               Number of obs     =        314
                                                F(6, 307)         =      79.78
                                                Prob > F          =     0.0000
                                                R-squared         =     0.8181
                                                Root MSE          =     21.734
------------------------------------------------------------------------------
             |               Robust
      school |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         new |    4.52293   4.230238     1.07   0.286    -3.800999    12.84686
         ori |   3.563598   4.628189     0.77   0.442    -5.543388    12.67058
       p_edu |   35.69503   21.32437     1.67   0.095    -6.265377    77.65545
        grdp |  -3.76e-07   4.35e-07    -0.87   0.388    -1.23e-06    4.80e-07
         pop |   .0002137   .0000213    10.05   0.000     .0001719    .0002556
        area |   .0004227    .000212     1.99   0.047     5.57e-06    .0008398
       _cons |  -1.650938   6.515486    -0.25   0.800     -14.4716    11.16972
------------------------------------------------------------------------------

. reg school new ori p_eduxo p_eduxn grdp pop area, robust

Linear regression                               Number of obs     =        314
                                                F(7, 306)         =      95.04
                                                Prob > F          =     0.0000
                                                R-squared         =     0.8172
                                                Root MSE          =     21.827
------------------------------------------------------------------------------
             |               Robust
      school |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         new |  -9.229626   9.243495    -1.00   0.319    -27.41848    8.959231
         ori |  -4.998059   9.345002    -0.53   0.593    -23.38666    13.39054
     p_eduxo |   19.21633   25.81238     0.74   0.457     -31.5759    70.00856
     p_eduxn |   35.88526   24.49067     1.47   0.144    -12.30618    84.07671
        grdp |  -4.65e-07   4.49e-07    -1.04   0.300    -1.35e-06    4.17e-07
         pop |   .0002184   .0000212    10.30   0.000     .0001767    .0002602
        area |   .0003861   .0001994     1.94   0.054    -6.32e-06    .0007786
       _cons |   11.72419   6.084305     1.93   0.055    -.2481843    23.69656
------------------------------------------------------------------------------
```

Regression result on Regencies' Outcome in Health Sector (%)

```
. reg basw new ori p_health h_care grdp pop area, robust

Linear regression                               Number of obs     =        314
                                                F(7, 306)         =      11.89
                                                Prob > F          =     0.0000
                                                R-squared         =     0.2428
                                                Root MSE          =      18.18
------------------------------------------------------------------------------
             |               Robust
        basw |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         new |  -5.659183   3.142651    -1.80   0.073    -11.84313     .524759
         ori |  -1.702752    2.62187    -0.65   0.517    -6.861929    3.456424
    p_health |   58.47124   49.50551     1.18   0.238    -38.94306    155.8855
     h_care |   .1094518   .0437871     2.50   0.013     .0232899    .1956137
        grdp |   9.24e-07   2.26e-07     4.08   0.000     4.79e-07    1.37e-06
         pop |   6.43e-07   6.99e-06     0.09   0.927    -.0000131    .0000144
        area |  -.0006679   .0002038    -3.28   0.001     -.001069   -.0002669
       _cons |   58.26369   6.090356     9.57   0.000     46.27941    70.24797
------------------------------------------------------------------------------
```

```
. reg basw new ori p_healthxn p_healthxo h_carexn h_carexo grdp pop area, robust

Linear regression                               Number of obs     =        314
                                                F(9, 304)         =      10.19
                                                Prob > F          =     0.0000
                                                R-squared         =     0.2562
                                                Root MSE          =     18.078
------------------------------------------------------------------------------
             |               Robust
        basw |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         new |  -22.36931   7.417487    -3.02   0.003    -36.96542   -7.773189
         ori |   -13.8356   8.899548    -1.55   0.121    -31.34812    3.676914
  p_healthxn |   15.53028   78.06004     0.20   0.842    -138.0761    169.1367
  p_healthxo |   97.53901   66.50973     1.47   0.144    -33.33871    228.4167
    h_carexn |   .2262519   .0728412     3.11   0.002     .0829151    .3695888
    h_carexo |    .019115   .0652693     0.29   0.770    -.1093218    .1475519
        grdp |   9.06e-07   2.03e-07     4.46   0.000     5.06e-07    1.31e-06
         pop |   4.46e-06   5.80e-06     0.77   0.442    -6.95e-06    .0000159
        area |  -.0006512   .0002012    -3.24   0.001    -.0010472   -.0002553
       _cons |     72.247   3.179725    22.72   0.000     65.98994    78.50405
------------------------------------------------------------------------------
```

Regression result on Regencies' Outcome in Education Sector (%)

```
. reg nerj new ori p_edu school grdp pop area, robust

Linear regression                               Number of obs     =        314
                                                F(7, 306)         =       5.40
                                                Prob > F          =     0.0000
                                                R-squared         =     0.2000
                                                Root MSE          =     11.139
------------------------------------------------------------------------------
             |               Robust
        nerj |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         new |  -1.730754   1.541299    -1.12   0.262     -4.76364    1.302132
         ori |   .0060443   1.453245     0.00   0.997    -2.853573    2.865662
       p_edu |   21.02539   8.388395     2.51   0.013     4.519151    37.53162
      school |   .1248804   .0345519     3.61   0.000      .056891    .1928699
        grdp |   5.56e-07   1.11e-07     5.02   0.000     3.38e-07    7.74e-07
         pop |  -.0000324   8.76e-06    -3.70   0.000    -.0000497   -.0000152
        area |  -.0003935   .0001341    -2.93   0.004    -.0006575   -.0001296
       _cons |   56.73844   3.527126    16.09   0.000     49.79795    63.67893
------------------------------------------------------------------------------
```

```
. reg nerj new ori p_eduxn p_eduxo schoolxn schoolxo grdp pop area, robust

Linear regression                               Number of obs     =        314
                                                F(9, 304)         =       5.55
                                                Prob > F          =     0.0000
                                                R-squared         =     0.2103
                                                Root MSE          =     11.104

------------------------------------------------------------------------------
             |               Robust
        nerj |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         new |  -18.12158   4.896585    -3.70   0.000    -27.75707   -8.486084
         ori |  -4.845861   5.547961    -0.87   0.383    -15.76313    6.071407
     p_eduxn |   21.96161   11.81641     1.86   0.064     -1.29069    45.21391
     p_eduxo |   5.013894   12.57444     0.40   0.690    -19.73006    29.75785
    schoolxn |   .1262036    .040205     3.14   0.002     .0470883     .205319
    schoolxo |   .0196653   .0339967     0.58   0.563    -.0472334     .086564
        grdp |   4.12e-07   8.63e-08     4.77   0.000     2.42e-07    5.81e-07
         pop |    -.00001   6.58e-06    -1.52   0.129     -.000023    2.92e-06
        area |  -.0003671   .0001292    -2.84   0.005    -.0006214   -.0001128
       _cons |   69.14836    2.31687    29.85   0.000     64.58923    73.70749
------------------------------------------------------------------------------
```